

AUG 13, 2021 01:48 PM


Clay Pate, Clerk
Tift County, Georgia

**In the Superior Court of Tift County
State of Georgia**

JASON ROBERT DOGGETT,
individually and as representative of the
estate of LILLIE CHARLENE
DOGGETT,

Plaintiff,

— versus —

PAUL M. MURRAY, MD

SOUTHWELL INC.

TIFT REGIONAL MEDICAL CENTER,
INC.

TIFT REGIONAL HEALTH SYSTEM,
INC.

TIFT REGIONAL MEDICAL CENTER
FOUNDATION, INC.

JONATHAN W. TRONOLONE, MD

TRONOLONE CARDIOLOGY LLC

TRONOLONE MEDICAL, LLC

CYNTHIA L. PHILLIPS, MD

JOHN/JANE DOE 1-10,

Defendants.

CIVIL ACTION

FILE _____

JURY TRIAL DEMANDED

PLAINTIFF'S COMPLAINT FOR DAMAGES

Nature of This Action

1. This medical-malpractice action arises out of medical services negligently provided to 63-year-old Lillie Charlene Doggett ("Charlene Doggett" or "Charlene") at Tift Regional Medical Center, in Tifton, Georgia ("Tift"), on February 20-24, 2020, resulting in her wrongful death.
2. This action is brought by Charlene's son, Jason Doggett ("Plaintiff" or "Jason"), individually and on behalf of her estate.

3. As representative of Charlene's estate, Plaintiff asserts a claim for harm Charlene suffered as a result of the alleged negligence.
4. Plaintiff also asserts a wrongful-death claim pursuant to OCGA Title 51, Chapter 4, on behalf of all wrongful-death beneficiaries.



5. Pursuant to OCGA § 9-11-9.1, the affidavits of Cardiologist Meldon C. Levy, MD; Cardiothoracic Surgeon Sotiris C. Stamou, MD, PhD; and Internist Jonathan M. Schwartz, MD, MBA, are attached as Exhibit 1-3, respectively. This Complaint incorporates the opinions and allegations in those affidavits.
6. As used here, the phrase “standard of care” means the degree of care and skill ordinarily employed by the medical profession generally under similar conditions and like circumstances as pertained to Defendants’ conduct here.
7. This Complaint relies largely on uncontroversial medical principles and facts.
8. This is a straightforward case:
 - a. Charlene Doggett, an otherwise healthy 63-year-old mother and grandmother, came to the Tift emergency room (“ER” or “ED”) with severe chest pain, and had a heart attack at the hospital.
 - b. Even though he found that Charlene’s right coronary artery (“RCA”) was completely blocked, Cardiologist Paul Murray failed to refer her to a hospital, unlike Tift, with the capability to clear or bypass the blockage.

- c. After being prematurely cleared by Cardiologist Jonathan Tronolone without treatment or further investigation, Charlene went home, only to return to the ER the next morning with a second, major heart attack.
- d. Dr. Murray then again failed to refer Charlene to another hospital. Despite overwhelming evidence, he failed even to diagnose this second heart attack.
- e. Instead, even though Tift lacked both the capability and a plan to provide Charlene definitive care, Internist Cynthia Phillips admitted her to Tift, where she died gradually and painfully from an untreated heart attack.

Parties, Jurisdiction, and Venue¹

- 9. Plaintiff Jason Doggett is a citizen of Georgia.
- 10. **Defendant Paul Michael Murray, MD**, is a citizen of Georgia. He may be served with process at his residence, 312 26th Street W., Tifton, GA 31794 (Tift County). Dr. Murray has been properly served with this Complaint.
- 11. Dr. Murray is subject to the personal jurisdiction of this Court.

¹ OCGA §§ 14-2-510 and 14-3-510 provide identical venue provisions for regular business corporations and for nonprofit corporations:

“Each domestic corporation and each foreign corporation authorized to transact business in this state shall be deemed to reside and to be subject to venue as follows: (1) In civil proceedings generally, in the county of this state where the corporation maintains its registered office.... (3) In actions for damages because of torts, wrong, or injury done, in the county where the cause of action originated, if the corporation has an office and transacts business in that county; (4) In actions for damages because of torts, wrong, or injury done, in the county where the cause of action originated.”

These same venue provisions apply to Professional Corporations, because PCs are organized under the general “Business Corporation” provisions of the Georgia Code. *See* OCGA § 14-7-3. These venue provisions also apply to Limited Liability Companies, *see* OCGA § 14-11-1108, and to foreign limited liability partnerships, *see* OCGA § 14-8-46.

OCGA § 9-10-31 provides that, “joint tort-feasors, obligors, or promisors, or joint contractors or copartners, residing in different counties, may be subject to an action as such in the same action in any county in which one or more of the defendants reside.”

12. Dr. Murray is subject to venue in this Court because he is a resident of Tift County, and because one of his co-defendants is subject to venue here.
13. At all times relevant to this Complaint, Dr. Murray acted as an employee or other agent of one or more of the following Defendants: Southwell Inc., Tift Regional Medical Center, Inc., Tift Regional Health System, Inc., and Tift Regional Medical Center Foundation, Inc. (together, "Southwell Defendants").
14. **Defendant Southwell Inc. ("Southwell")** is a Georgia nonprofit corporation. Registered Agent: Karen H. Summerlin. Physical address and principal office: 901 East 18th Street, Tifton, GA, 31794 (Tift County). Southwell has been properly served with this Complaint.
15. Southwell is subject to the personal jurisdiction of this Court.
16. Southwell is subject to venue in this Court because Southwell maintains its registered office in Tift County; because the cause of action originated in, and Southwell has an office and transacts business in, Tift County; and because one of Southwell's co-defendants is subject to venue here.
17. At all relevant times, Southwell was the employer or other principal of Defendant Paul M. Murray and/or Defendant Cynthia L. Phillips. If another entity was his or her employer or other principal during those times, that entity is hereby on notice that, but for a mistake concerning the identity of the proper party, this action would have been brought against that entity.
18. Herein, "Southwell Defendants" refers collectively to: Southwell Inc., Tift Regional Medical Center, Inc., Tift Regional Health System, Inc., and Tift Regional Medical Center Foundation, Inc.
19. **Defendant Tift Regional Medical Center, Inc. ("TRMC")** is a Georgia nonprofit corporation. Registered Agent: Karen Summerlin. Physical address and principal office: 901 East 18th Street, Tifton, GA, 31794 (Tift County). TRMC has been properly served with this Complaint.
20. TRMC is subject to the personal jurisdiction of this Court.
21. TRMC is subject to venue in this Court because TRMC maintains its registered office in Tift County; because the cause of action originated in, and

TRMC has an office and transacts business in, Tift County; and because one of TRMC's co-defendants is subject to venue here.

22. At all relevant times, TRMC was the employer or other principal of Defendant Paul M. Murray and/or Defendant Cynthia L. Phillips. If another entity was his or her employer or other principal during those times, that entity is hereby on notice that, but for a mistake concerning the identity of the proper party, this action would have been brought against that entity.
23. **Defendant Tift Regional Health System, Inc. ("TRHS")** is a Georgia nonprofit corporation. Registered Agent: Karen Summerlin. Physical address and principal office: 901 East 18th Street, Tifton, GA, 31794 (Tift County). TRHS has been properly served with this Complaint.
24. TRHS is subject to the personal jurisdiction of this Court.
25. TRHS is subject to venue in this Court because TRHS maintains its registered office in Tift County; because the cause of action originated in, and TRHS has an office and transacts business in, Tift County; and because one of TRHS's co-defendants is subject to venue here.
26. At all relevant times, TRHS was the employer or other principal of Defendant Paul M. Murray and/or Defendant Cynthia L. Phillips. If another entity was his or her employer or other principal during those times, that entity is hereby on notice that, but for a mistake concerning the identity of the proper party, this action would have been brought against that entity.
27. **Defendant Tift Regional Medical Center Foundation, Inc. ("TRMCF")** is a Georgia nonprofit corporation. Registered Agent: Tamara Branch. Physical Address: 901 East 18th Street, PO Box 2650, Tifton, GA, 31793 and/or 901 East 18th Street, Suite 203, Tifton, GA, 31794 (both Tift County). Principal office address: 2406 North Tift Avenue, Suite 203, Tifton, GA, 31794 (Tift County). TRMCF has been properly served with this Complaint.
28. TRMCF is subject to the personal jurisdiction of this Court.
29. TRMCF is subject to venue in this Court because TRMCF maintains its registered office in Tift County; because the cause of action originated in, and TRMCF has an office and transacts business in, Tift County; and because one of TRMCF's co-defendants is subject to venue here.

30. At all relevant times, TRMCF was the employer or other principal of Defendant Paul M. Murray and/or Defendant Cynthia L. Phillips. If another entity was his or her employer or other principal during those times, that entity is hereby on notice that, but for a mistake concerning the identity of the proper party, this action would have been brought against that entity.
31. **Defendant Jonathan Warren Tronolone, MD**, is a citizen of Georgia. He may be served with process at his residence, 1405 Red Fox Trail, Tifton, GA 31793 (Tift County). Dr. Tronolone has been properly served with this Complaint.
32. Dr. Tronolone is subject to the personal jurisdiction of this Court.
33. Dr. Tronolone is subject to venue in this Court because he is a resident of Tift County, and because one of his co-defendants is subject to venue here.
34. At all times relevant to this Complaint, Dr. Tronolone acted as an employee or other agent of one or both of these Defendants: Tronolone Cardiology LLC and Tronolone Medical, LLC.
35. **Defendant Tronolone Cardiology LLC (“Tronolone Cardiology”)** is a Georgia limited liability company. Registered Agent: Judy Shiflet. Physical Address and principal office: 1499 Kennedy Drive, Suite C, Tifton, GA 31794 (Tift County). Tronolone Cardiology has been properly served with this Complaint.
36. Tronolone Cardiology is subject to the personal jurisdiction of this Court.
37. Tronolone Cardiology is subject to venue in this Court because Tronolone Cardiology maintains its registered office in Tift County; because the cause of action originated in, and Tronolone Cardiology has an office and transacts business in, Tift County; and because one of Tronolone Cardiology’s co-defendants is subject to venue here.
38. At all relevant times, Tronolone Cardiology was the employer or other principal of Defendant Jonathan W. Tronolone. If another entity was his employer or other principal during those times, that entity is hereby on notice that, but for a mistake concerning the identity of the proper party, this action would have been brought against that entity.

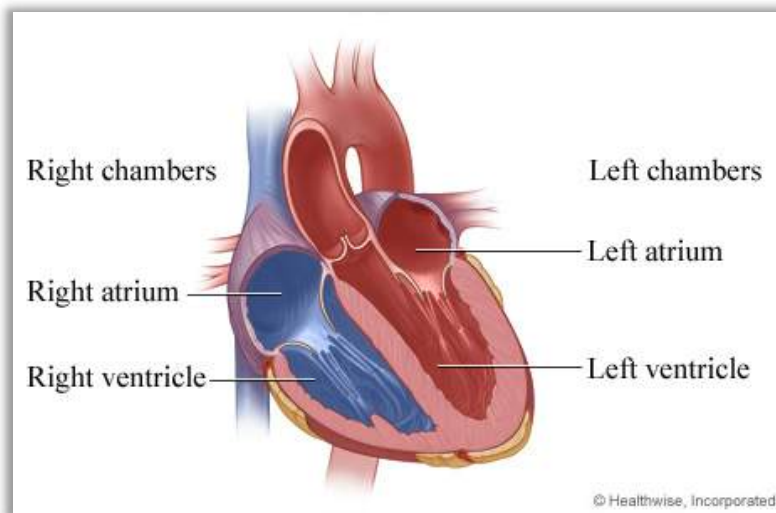
39. **Defendant Tronolone Medical, LLC (“Tronolone Medical”)** is a Georgia limited liability company. Registered Agent: Jonathan W. Tronolone, MD. Physical Address and principal office: 1499 Kennedy Drive, Suite C, Tifton, GA 31794 (Tift County). Tronolone Medical has been properly served with this Complaint.
40. Tronolone Medical is subject to the personal jurisdiction of this Court.
41. Tronolone Medical is subject to venue in this Court because Tronolone Medical maintains its registered office in Tift County; because the cause of action originated in, and Tronolone Medical has an office and transacts business in, Tift County; and because one of Tronolone Medical’s co-defendants is subject to venue here.
42. At all relevant times, Tronolone Medical was the employer or other principal of Defendant Jonathan W. Tronolone. If another entity was his employer or other principal during those times, that entity is hereby on notice that, but for a mistake concerning the identity of the proper party, this action would have been brought against that entity.
43. **Defendant Cynthia L. Phillips, DO**, is a citizen of Florida. She may be served with process at her residence, 1684 Wingspan Way, Winter Springs, FL 32708-5927. Dr. Phillips has been properly served with this Complaint.
44. Dr. Phillips is subject to the personal jurisdiction of this Court.
45. Pursuant to OCGA § 9-10-93, Dr. Phillips is subject to venue in this Court because the cause of action arose in Tift County and because of one her co-defendants is a Georgia resident subject to venue here.
46. At all times relevant to this Complaint, Dr. Phillips acted as an employee or other agent of one or more of the Southwell Defendants.
47. Here, “Southwell Defendants” refers collectively to Defendants Southwell, TRMC, TRHS, and TRMCF.
48. **Defendants John/Jane Does 1-10** are those yet-unidentified natural persons and/or entities who may be liable, in whole or in part, for the damages alleged in this Complaint. Once served with process, John/Jane Does 1-10 are subject to the jurisdiction and venue of this Court.

49. No Defendant has a defense to this action based on undue delay, whether based on the statute of limitations, the statute of repose, laches, or any other similar theory.
50. This Court has subject-matter jurisdiction over this case.

Medical Principles

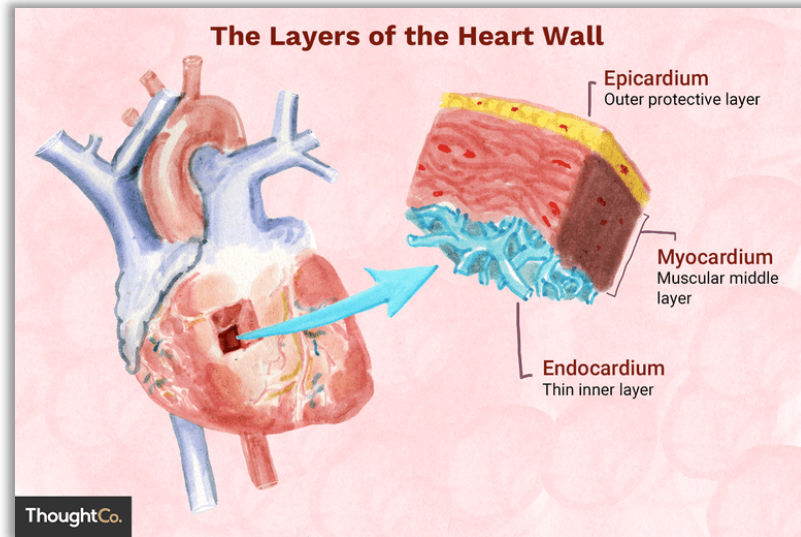
Heart Anatomy

51. The heart is a hollow muscular organ about the size of a closed fist.
52. The purpose of the heart is to pump blood to the organs and tissues.
53. Blood carries oxygen and nutrients needed to sustain health and life. For that reason, the heart must pump a continuous supply of blood.
54. The heart has four chambers: two atria on top, and two ventricles at bottom.



55. The right side of the heart thus has two chambers: the right atrium and right ventricle. The left side has two chambers: the left atrium and left ventricle.
56. The cardiac cycle is the process by which blood flows through the chambers.

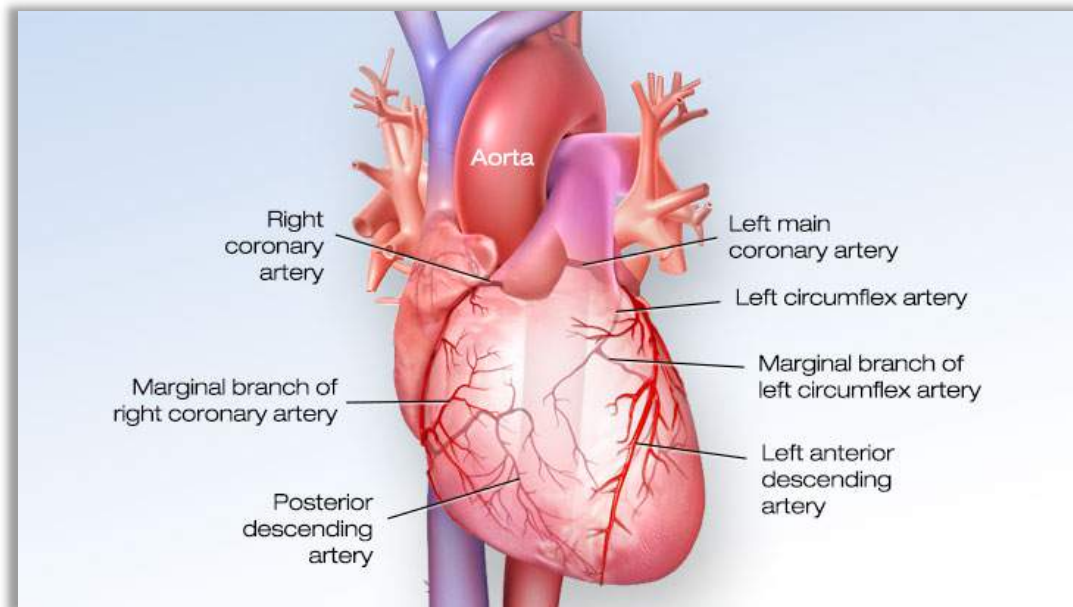
57. After receiving oxygen-depleted blood from the veins, the right side of the heart pumps this blood out to the lungs for oxygenation. After the blood returns to the heart, the left side pumps the oxygenated blood to the body.
58. The heart's wall is made up of three layers.



59. The myocardium is the muscular middle layer. It is made up of specialized cells called cardiomyocytes. Cardiomyocytes can stretch and shrink, producing the pumping action of the heart muscle.
60. Necrosis is the medical name for the death of cells in an organ or tissue. Myocardial necrosis refers to the death of myocardial (heart-muscle) cells.
61. The death of cardiomyocytes damages the myocardium. Damage to the myocardium diminishes or even stops the heart's ability to pump blood.
62. Myocardial infarction means death of the heart-muscle.
- myo = muscle
cardium = heart
infarction = death
63. "Myocardial infarction" is a medical name for a heart attack.

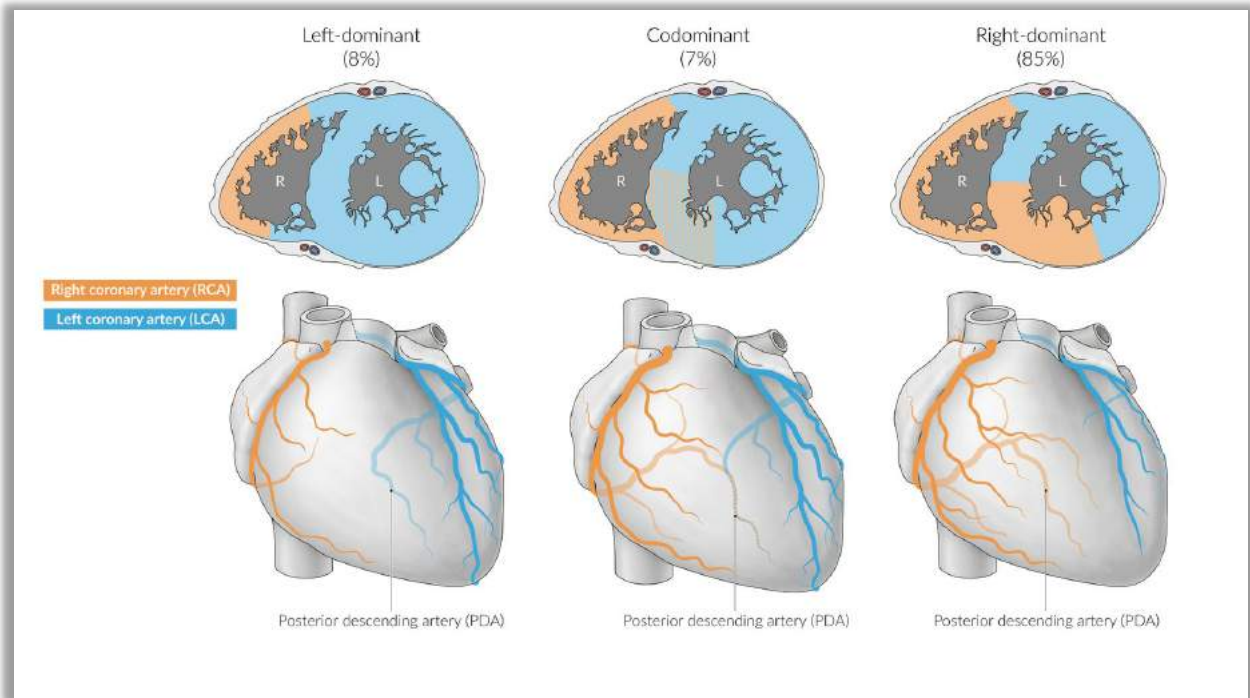
The Coronary Arteries

64. Like other organs of the body, the heart itself needs the oxygen and nutrients carried in the blood. The heart thus also needs a continuous supply of blood.
65. Arteries are the blood vessels that carry blood from the heart to the body. The coronary arteries are the arteries that carry blood to the heart itself.
66. There are two major branches of the coronary arteries: the right coronary artery (RCA) and the left coronary artery (LCA).
67. The RCA and LCA in turn branch off into smaller arteries. The LCA, for example, branches off into the left anterior descending artery (LAD).



68. Each branch in the network supplies the region of the heart where it runs.
69. The RCA supplies the right atrium, right ventricle, the bottom part of both ventricles, and the back of the interventricular septum (the interior wall separating the ventricles).
70. The posterior descending artery (PDA) runs along the back of the heart and down to its apex (the bottom cap).

71. The PDA supplies the heart muscle of the bottom 1/3 of the interventricular septum. The PDA also supplies the posterior (back) wall of the left ventricle.
72. Coronary arterial dominance is defined by the major artery that gives rise to the PDA.

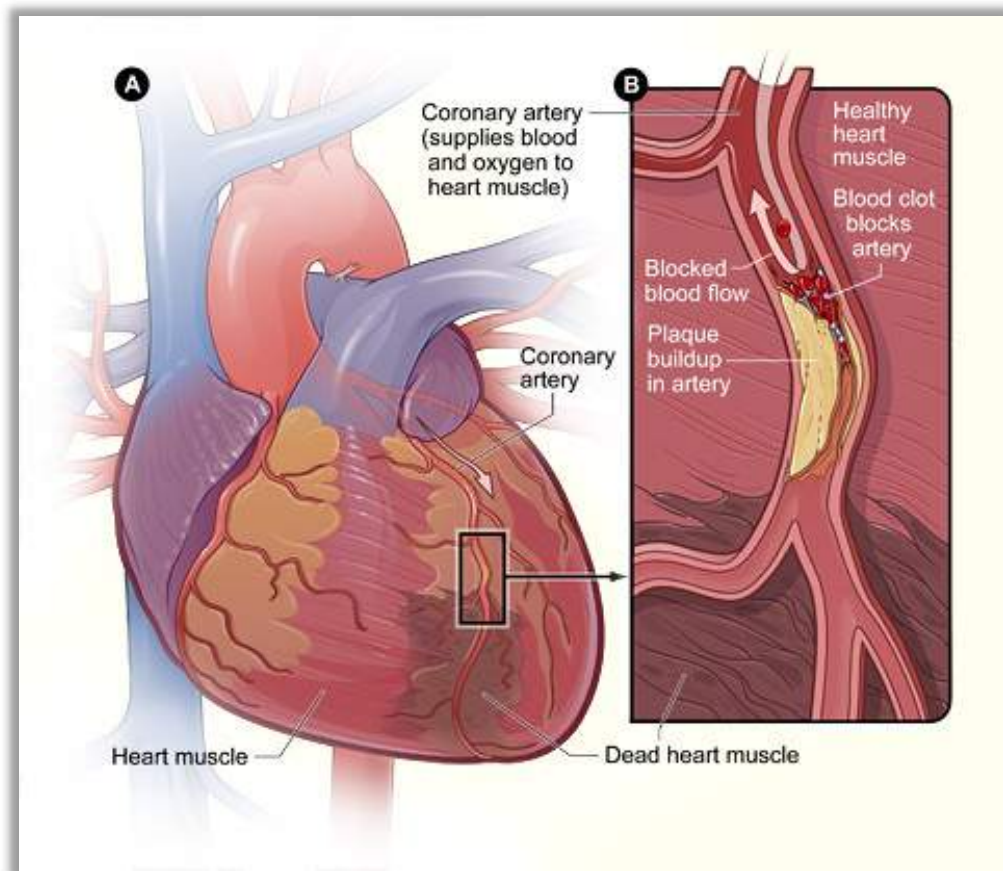


73. In a right-dominant heart, the RCA gives rise to the PDA. The RCA thus flows into the PDA.
74. In a right-dominant heart, a blockage in the RCA will cut off blood-flow not only to the regions of the heart supplied by the RCA itself, but also the region supplied further downstream by the PDA.
75. In a right-dominant heart, the RCA supplies about 40% of the myocardium. (In a codominant heart, about 35%, and in left-dominant heart, about 30%.)
76. About 85% of the population has right-dominant hearts.

Coronary Occlusions

77. A coronary occlusion is a blockage in a coronary blood vessel.

78. A coronary occlusion occurs when a blood-clot forms in a coronary artery that has been narrowed by atherosclerosis.



79. Atherosclerosis is the progressive thickening and hardening of the inner walls of the arteries, caused by fatty deposits known as plaque. As it builds, plaque gradually narrows and hardens the arteries, reducing blood-flow.
80. Ischemia occurs when reduced blood-flow limits delivery of oxygen to the heart, or another organ or tissue.
81. The most common symptom of coronary ischemia is a chest pain known as angina.

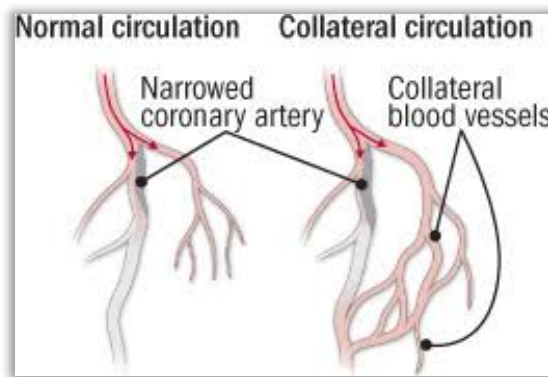
Atherosclerosis → Occlusion → Ischemia → Angina

82. Angina is a common symptom of heart attacks.
83. A 100% (complete) occlusion in the mid-RCA is a potentially life-threatening medical emergency.

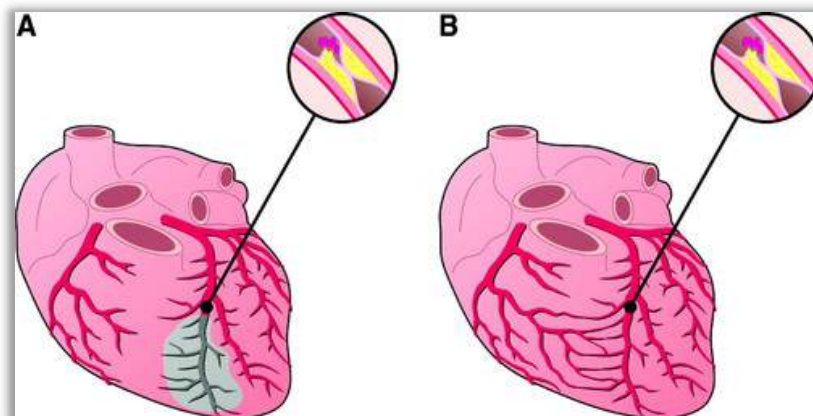
84. When a patient has a 100% occlusion in the mid-RCA without collateral circulation, a cardiologist must promptly provide for definitive treatment for the occlusion, such as angioplasty or bypass surgery. If the hospital does not have the capability to provide definitive treatment, the cardiologist must promptly refer the patient to a hospital that does.

Collateral Circulation

85. Collateral circulation refers to the circulation of blood around a blocked artery through a network of tiny blood vessels known as collaterals.



86. Collaterals are not open under normal circumstances. When a blocked artery deprives a region of the heart of oxygen, collaterals in the region may gradually become enlarged and active over time.
87. If that occurs, collaterals may then provide channels for blood to flow around the blockage. These pathways allow blood-flow around the blockage, either to the same artery beyond the blockage, or to another artery, or both.



88. Collaterals thus provide a natural bypass for blood-flow around an occlusion.

Myocardial Infarction (Heart Attack)

89. A heart attack is a medical emergency. Heart attacks are the leading cause of death worldwide. They are also the leading cause of death in the United States, affecting one in five men and one in six women.
90. Thanks to modern medical advances, the survival rate for those who suffer a heart attack is about 90%.
91. Myocardial infarction is a medical name for a heart attack. Doctors often refer to a heart attack as “myocardial infarction” or simply “an MI.”

Causes of Heart Attacks

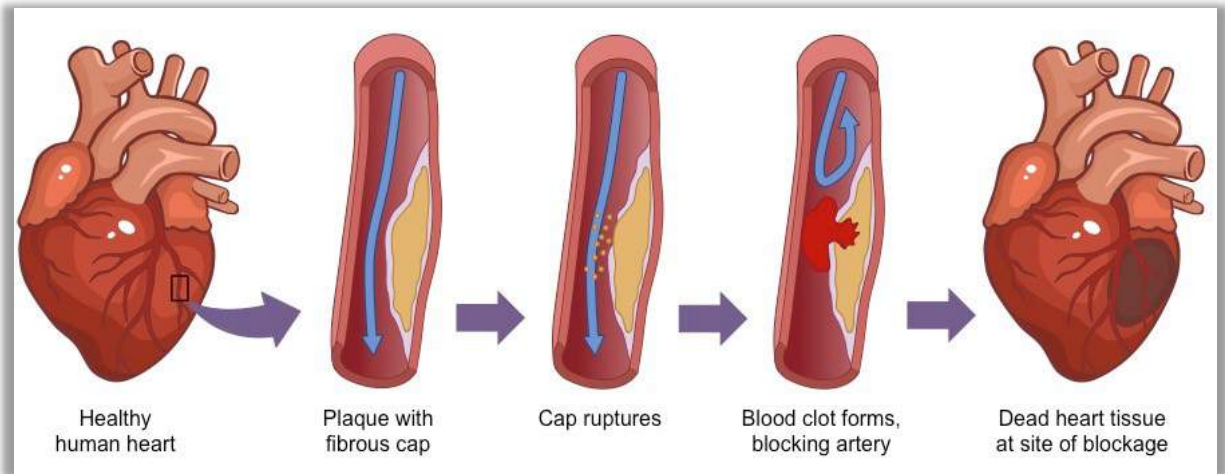
92. Myocardial infarction occurs when an occlusion (blockage) in a coronary artery reduces blood-flow to the heart, causing a shortage of oxygen (ischemia) to the myocardial muscle downstream, and in turn damage to the muscle.

Occlusion → Ischemia → Infarction (Heart Attack)

93. Atherosclerosis is usually the root cause of myocardial infarction.

Atherosclerosis → Occlusion → Ischemia → Infarction (Heart Attack)

94. A heart attack typically occurs when plaque breaks off from the inner wall of an artery and further obstructs blood-flow. A blood clot may then form around the ruptured plaque, causing or worsening an occlusion.



95. A “thrombus” is the medical name for a blood clot. Arterial thrombosis is the medical name for the formation of a blood clot inside an artery.

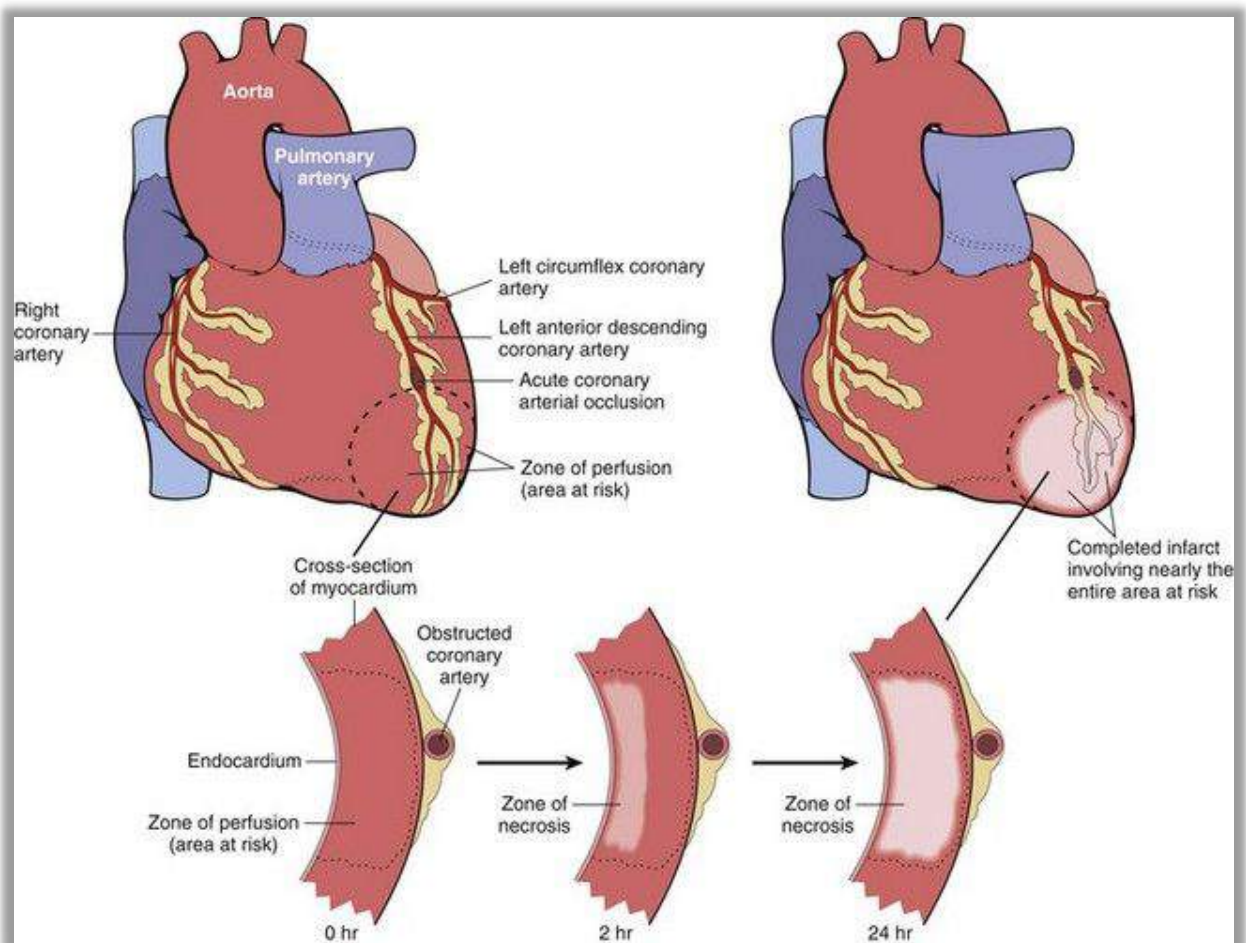
Atherosclerosis → Plaque Rupture → Thrombus → Occlusion → Ischemia → Infarction (Heart Attack)

96. Sudden stress often causes the thrombus leading to a heart attack. For example, when a person with advanced atherosclerosis sprints or lifts a heavy weight, the heart’s increased demand for oxygen may build pressure in the arteries. The pressure may then dislodge plaque and cause a blood clot.

NSTEMI and STEMI

97. There are two types of myocardial infarction (heart attacks):
- NSTEMI, which stands for Non-ST-elevation myocardial infarction.
 - STEMI, which stands for ST-elevation myocardial infarction.
98. Doctors sometimes refer to an NSTEMI as a minor heart attack, and a STEMI as a major heart attack.
99. An NSTEMI typically occurs when there is a significant but partial occlusion in a coronary artery. The occlusion significantly reduces blood-flow.
100. In an NSTEMI, the limited supply of oxygen in the blood reaches the proximal (near) regions of the myocardium, but not the distal (far) regions. As a result, necrosis is typically limited to the distal regions.

101. After having an NSTEMI, a patient is at a higher risk of a follow-up heart attack and of death.
102. A STEMI occurs when there is a total occlusion in a coronary artery. The occlusion blocks blood-flow.
103. In a STEMI, necrosis starts in the distal region of the heart muscle, and then creeps proximally towards the artery.
104. As a result, if untreated, a STEMI will bring death to the full thickness of the myocardium (heart-muscle).



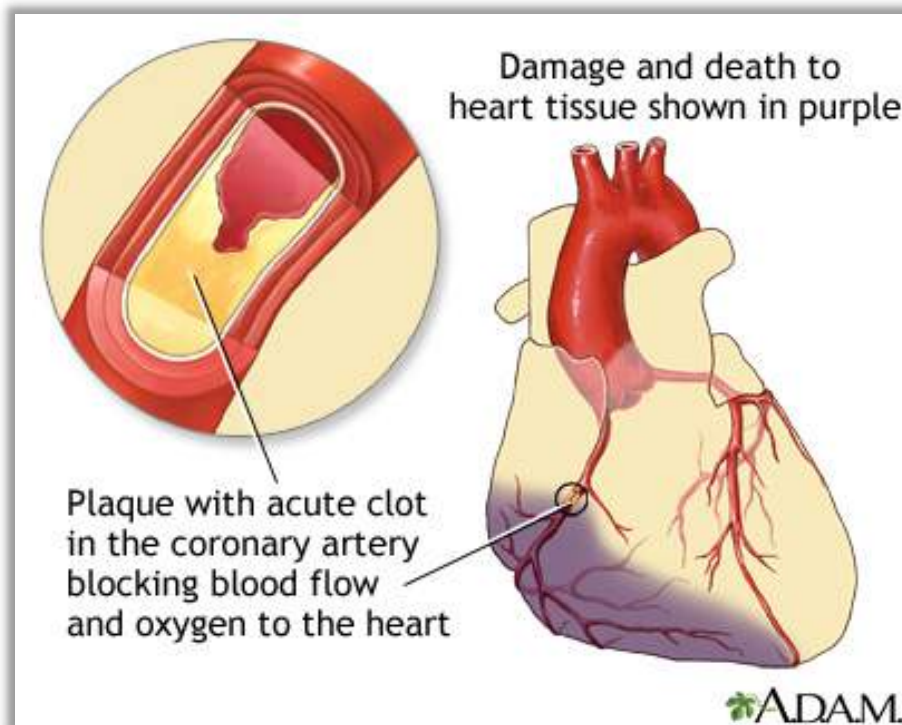
105. During a STEMI, cardiac muscle starts to die within 20 minutes of the onset of symptoms. For this reason, medical students are taught that “time is muscle.”
106. When a patient is having a STEMI, a cardiologist must diagnose STEMI.

107. When a patient presents at a hospital with a STEMI, a physician must promptly provide for definitive care for the STEMI. If the hospital does not have the capability to provide definitive care, the physician must refer and transfer the patient emergently to a hospital that does.

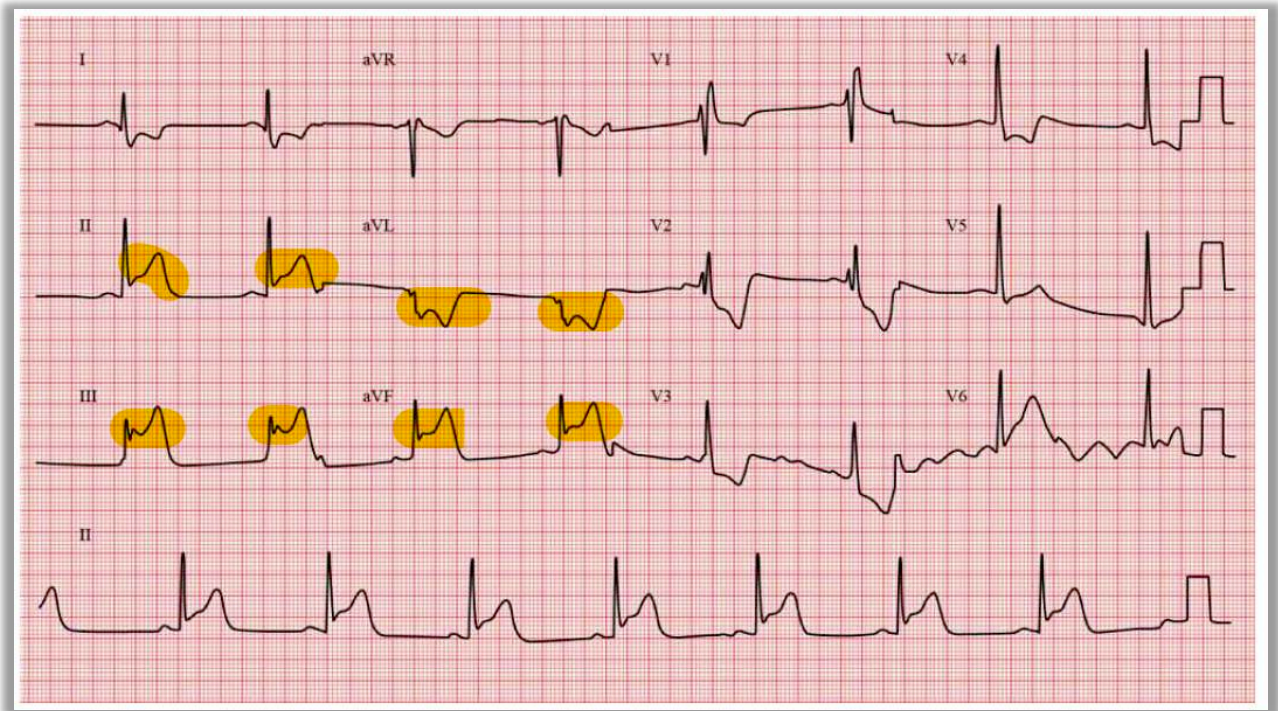
Inferior STEMI

108. An inferior STEMI is a STEMI in the bottom (inferior) wall of the heart. About half of all STEMIs are inferior STEMIs.

109. Because the RCA supplies blood to the inferior wall, an inferior STEMI often occurs when a patient's heart has an occlusion in the RCA. An inferior STEMI is consistent with an occlusion in the mid-RCA.



110. An inferior STEMI is characterized by ST-segment elevation in the inferior leads (II, III, and aVF), and a reciprocal ST-segment depression in lead aVL.



Heart-Attack Complications

111. The damage the heart suffers during a heart attack may produce serious complications, including arrhythmia, cardiac arrest, and heart failure. Each of these complications can be deadly.
112. An arrhythmia is an abnormal heartbeat, such as beating too quickly (tachycardia), beating too slowly (bradycardia), or beating irregularly. Arrhythmias can develop after a heart attack as a result of damage to the heart muscle or to the electrical system of the heart. Arrhythmias pose a risk of death during the first 24 hours after a heart attack.
113. Cardiac arrest occurs when the heart suddenly stops pumping blood because its electrical system malfunctions. Cardiac arrest can cause death quickly if proper steps such as CPR are not taken immediately.
114. Heart failure occurs when the heart cannot pump blood as well as it should. The heart cannot keep up with its workload.

TIMI Score and HEART Score

115. A TIMI Risk Score and a HEART Score each predicts the risks of heart attack and death in patients who arrive at the ER with chest pain.
116. A TIMI Risk Score predicts the chances the patient will experience one or more of these “heart events” within 14 days: (a) coronary ischemia requiring urgent revascularization, (b) a new or recurrent heart attack, (c) death.
117. Revascularization is a therapy that restores blood-flow to an ischemic part of the body. Revascularization of a coronary artery may be accomplished through (a) angioplasty, (b) bypass surgery, or (c) clot-dissolving agents.
118. To calculate the TIMI Score, doctors give one point for each of the following seven factors:
- being older than 65
 - using aspirin within the last week
 - having at least two angina episodes in the last 24 hours
 - having elevated serum cardiac biomarkers
 - having an ST-segment deviation
 - having known coronary artery disease
 - having at least three risk factors for heart disease, including:
 - high blood pressure (greater than 140/90)
 - smoking (being a current smoker)
 - low HDL cholesterol (less than 40 mg/dL)
 - diabetes
 - a family history of heart disease
119. A patient’s score predicts the patient’s risk of a “heart event.”

Score	Risk of heart event
0 to 1	4.7%
2	8.3%
3	13.2%
4	19.9%
5	26.2%
6 to 7	At least 40.9%

120. Accordingly, a patient with TIMI Risk Score of 6 has a 40.9% or greater chance of experiencing at least one “heart event” within 14 days.
121. A HEART Score predicts the chances that a patient will experience one or more of these “heart events” within six weeks: (a) an angioplasty, (b) a heart attack, (b) bypass surgery, (d) death.
122. To calculate a HEART Score, doctors give 0 to 2 points for each of five factors, according to the following table.

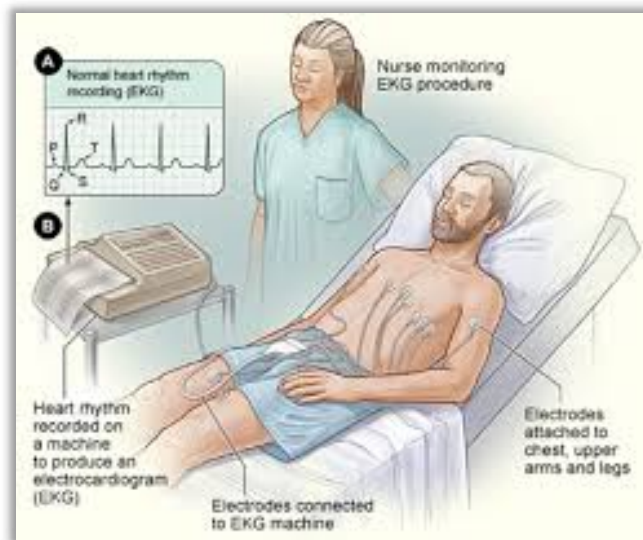
The HEART Score for Chest Pain Patients in the ED		
History	<ul style="list-style-type: none"> Highly Suspicious Moderately Suspicious Slightly or Non-Suspicious 	<ul style="list-style-type: none"> 2 points 1 point 0 points
ECG	<ul style="list-style-type: none"> Significant ST-Depression Nonspecific Repolarization Normal 	<ul style="list-style-type: none"> 2 points 1 point 0 points
Age	<ul style="list-style-type: none"> ≥ 65 years > 45 - < 65 years ≤ 45 years 	<ul style="list-style-type: none"> 2 points 1 point 0 points
Risk Factors	<ul style="list-style-type: none"> ≥ 3 Risk Factors or History of CAD 1 or 2 Risk Factors No Risk Factors 	<ul style="list-style-type: none"> 2 points 1 point 0 points
Troponin	<ul style="list-style-type: none"> ≥ 3 x Normal Limit > 1 - < 3 x Normal Limit ≤ Normal Limit 	<ul style="list-style-type: none"> 2 points 1 point 0 points
Risk Factors: DM, current or recent (<one month) smoker, HTN, HLP, family history of CAD, & obesity		
Score 0 – 3: 2.5% MACE over next 6 weeks → Discharge Home		
Score 4 – 6: 20.3% MACE over next 6 weeks → Admit for Clinical Observation		
Score 7 – 10: 72.7% MACE over next 6 weeks → Early Invasive Strategies		

123. A patient’s HEART Score predicts the patient’s risk of a “heart event.”

124. Accordingly, a patient with a score of 7-10, has a 72.7% chance of experiencing an angioplasty, a heart attack, bypass surgery, and/or death, within six weeks.
125. A physician must accurately compute a patient's TIMI Risk Score or HEART Score when the patient presents at the ED with chest pain. The physician must then provide for treatment suitable to the risks reflected in the score. If a patient has a HEART Score of 7 or more, for example, the physician must provide for an early invasive strategy, such as angioplasty or bypass surgery.

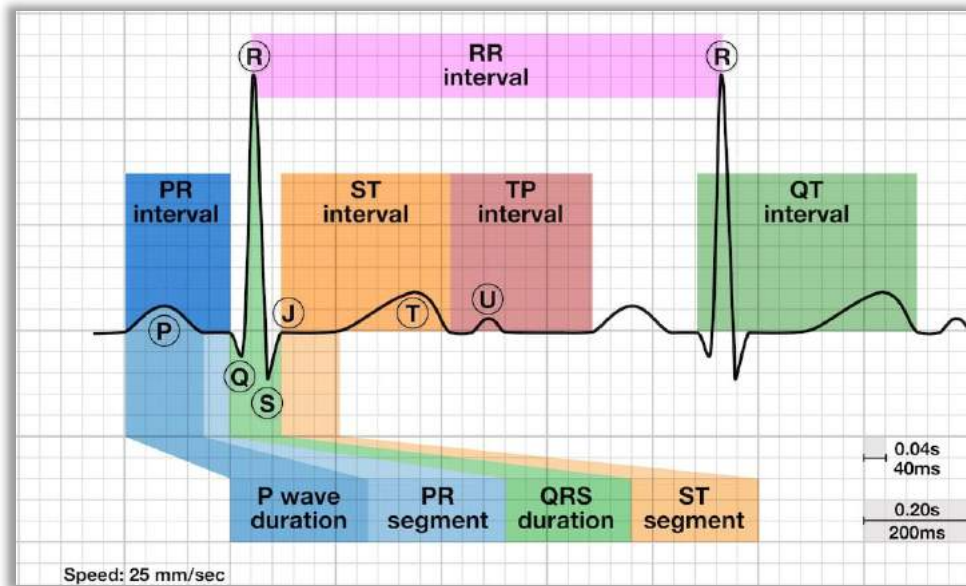
Electrocardiogram (EKG or ECG)

126. The heart's pumping action is regulated by an electrical system that coordinates the contractions of the heart's chambers.
127. An EKG is a medical test that reads and records the heart's electrical signal as it travels through the heart. The test is also referred to as an ECG.
128. During the test, an EKG machine picks up the signal through electrode patches attached to the patient's chest, arms, and legs.



129. The machine traces the signal as lines on a screen or on paper. This tracing is also called an EKG or ECG.
130. An EKG thus graphs the heart's electrical signal as it travels through the heart causing the heart's chambers to contract and pump blood.

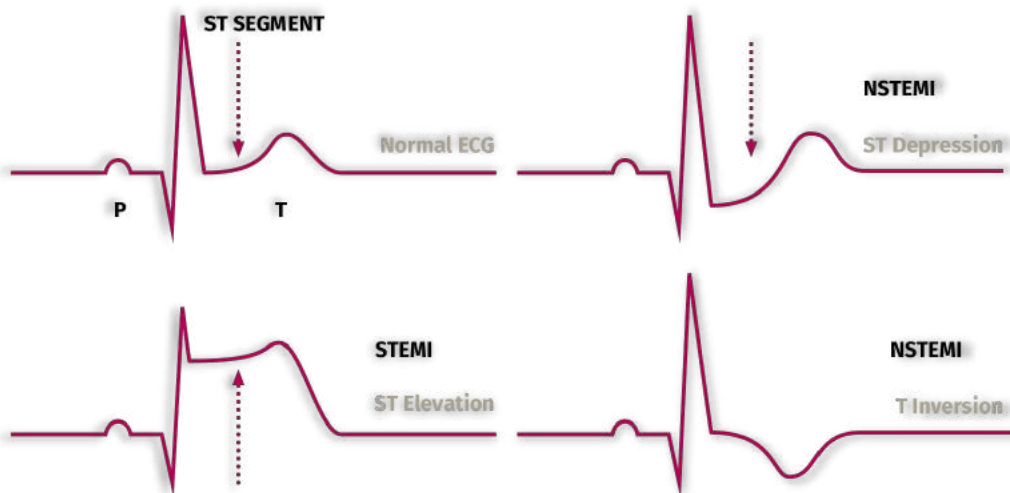
131. An EKG consists of waves, segments, and intervals.



132. These elements may be crucial in diagnosing heart problems.

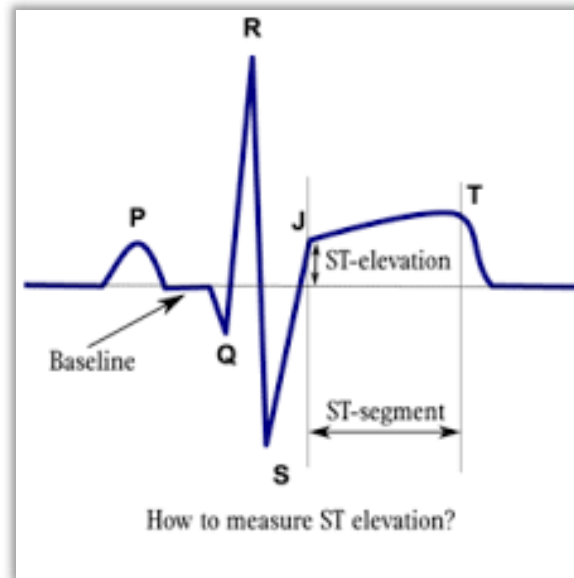
133. Certain changes (deflections) in an EKG indicate myocardial infarction.

- ST-segment depressions and T-wave inversions indicate an NSTEMI.
- ST-segment elevations indicate a STEMI.



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134. The PR-segment serves as the baseline (also called a reference line or isoelectric line) of the EKG curve. Elevations and depressions are therefore measured against the level of the PR-segment.



135. A physician must take into account the patient's EKGs in determining whether the patient is having a heart attack. When an EKG indicates a STEMI, a physician must promptly take steps to confirm or rule out MI.

Cardiac Biomarkers

136. Biomarkers are another essential tool in heart-attack diagnosis.
137. Biomarkers are proteins that the muscles release into the bloodstream when stressed, injured, or damaged.
138. The heart muscle releases cardiac biomarkers into the bloodstream during myocardial infarction.
139. The more damage the heart has suffered, the greater the concentration of cardiac biomarkers in the bloodstream.
140. Blood tests that measure cardiac biomarkers are thus important tools in identifying the occurrence and extent of a heart attack.

141. Today, Troponin-I and Troponin-T are the preferred biomarkers for evaluating a patient with suspected acute myocardial infarction.

142. This table identifies the normal range for three biomarkers relevant here.

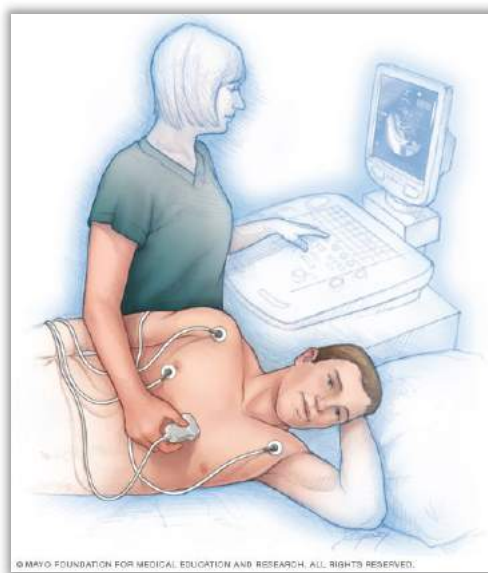
Cardiac Biomarker	Normal Range
Troponin-I	0.0 to 0.03
CK-MB	0.5 to 5.0
BNP	0 to 100

143. Levels above the normal range suggest recent or ongoing damage to the heart, including possible myocardial infarction.

144. A physician must take into account a patient's cardiac biomarkers in confirming or ruling out NSTEMI or STEMI.

Echocardiogram

145. An echocardiogram is an ultrasound of the heart. An echocardiogram is often called an echo for short. During an echo, a technician scans the heart with a hand-held device called a transducer.



146. The transducer sends high-frequency sound waves (ultrasound) that bounce off the heart's structures. The waves produce moving images and sounds of the beating heart that are captured on a monitor.

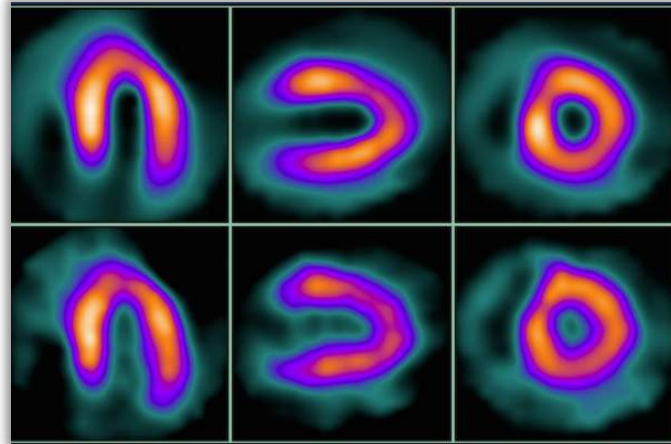


147. Doctors use the images and sounds to detect heart damage and disease, including problems with the chambers and valves of the heart.
148. An echo provides key information about the heart, including its size and shape, its ability to pump blood, and the location and extent of any tissue damage.
149. An echo is a reliable tool for detecting motion abnormalities in the walls of the heart, including their ability to contract (in order to pump blood).
150. An echo is also specifically used to estimate the amount of blood pumped out of the left ventricle with each heartbeat (the LVEF), as explained below.
151. A transthoracic echocardiogram (TTE) is the standard and most-common echo. In a TTE, the transducer is aimed at the heart through thorax (chest).

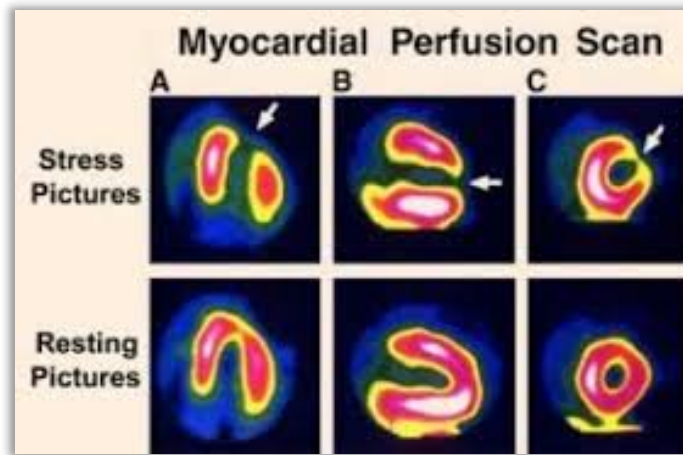
Myocardial Perfusion Test

152. A myocardial perfusion stress test is an imaging test that shows how well blood is flowing through the heart muscle during stress.

153. For the test, the patient is injected with a tiny amount of a radioactive substance called a tracer. The tracer travels through the bloodstream to the heart muscle. A special camera that picks up radioactivity is then used to scan the heart and take images.
154. These images range from red (hot) for the portions of the heart that best absorb the tracer, to blue (cold) for the portions that absorb little or no tracer.



155. Because it has good blood-flow, healthy heart muscle absorbs the tracer. In contrast, because it has poor blood-flow, heart muscle that is damaged, or that is in danger of being damaged, absorbs little to no tracer.
156. The better the blood-flow, the closer the color will be to red. The poorer the blood-flow, the closer the color will be to blue.
157. Images are taken when the heart is in stress and at rest. A comparison of the two sets helps doctors identify areas of damage and poor blood-flow.

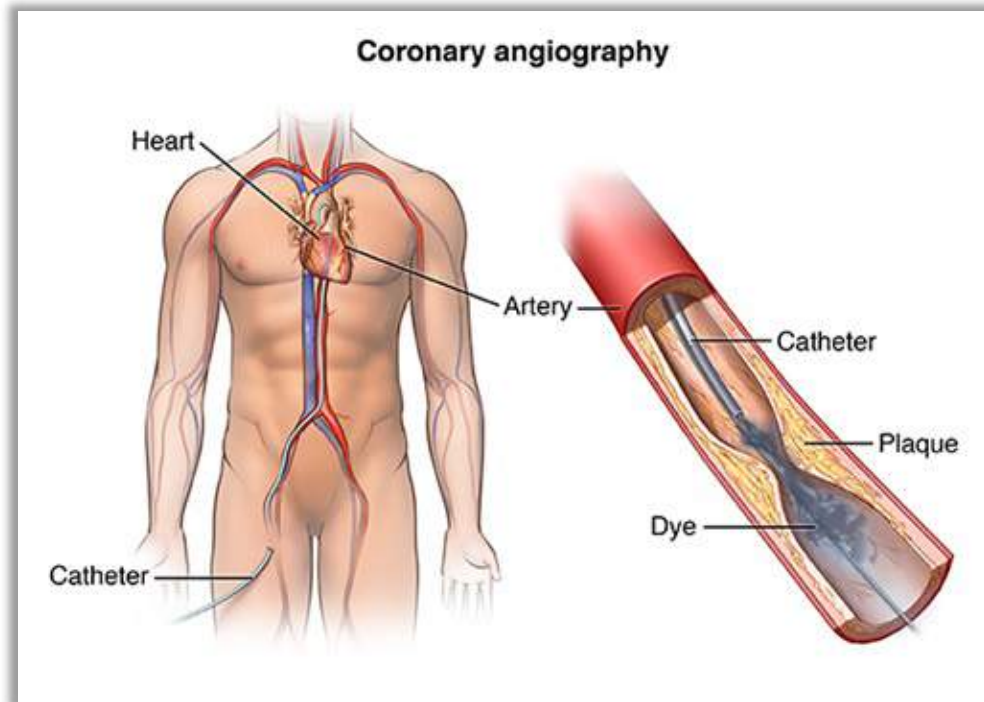


158. Myocardial perfusion imaging identifies, more precisely than cardiac catheterization, the myocardial territories with a perfusion defect.²
159. A myocardial perfusion test also assesses left-ventricular function more precisely than cardiac catheterization.
160. There are two myocardial perfusion stress tests: exercise and pharmacological. In the exercise test, the patient walks or runs on a treadmill, to put stress on the heart. In the pharmacological test, the patient takes medicine that simulates the effects of exercise by raising heartrate or widening blood vessels.

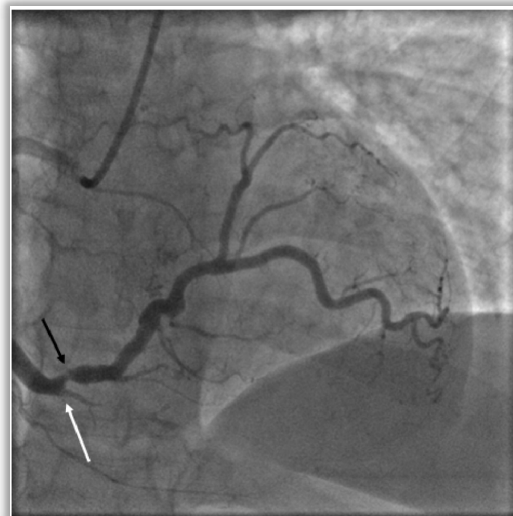
Cardiac Catheterization and Coronary Angiography

161. Cardiac catheterization is a medical procedure in which a catheter is moved through a blood vessel to the heart to better diagnose heart conditions.
162. Cardiac catheterization is also called cardiac cath, angiogram, or angio.
163. In a cardiac catheterization, a doctor inserts a small, flexible, hollow tube (a catheter) into a blood vessel in the groin, arm, or neck. Guided by x-ray, the doctor threads the catheter to the coronary arteries. There, the doctor may perform diagnostic tests, including coronary angiography.

² Myocardial perfusion imaging also helps doctors determine whether a perfusion defect is fixed or reversible. A perfusion defect is fixed if the affected myocardium is scarred and no longer viable. A perfusion defect is reversible if the affected myocardium remains viable despite the defect.



164. Coronary angiography is a test to obtain x-ray images of the coronary arteries. A doctor uses the catheter to inject a contrast dye into the coronary arteries so that they become visible and can be captured on x-ray imaging.
165. Coronary angiography shows if, where, and how much the arteries are blocked.



166. A cardiac catheterization helps doctors decide if and where a patient's heart needs treatment, such as angioplasty, stenting, or bypass surgery.

TIMI Flow Grade

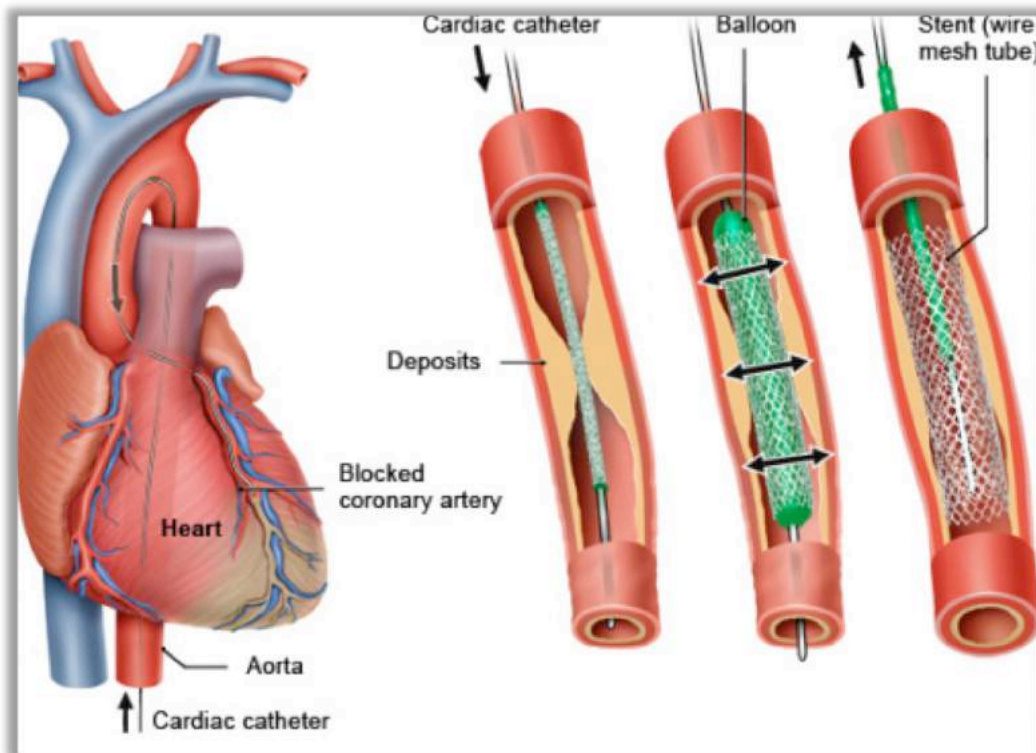
167. With angiography, doctors can grade blood-flow through a blockage using a scale known as the Thrombolysis in Myocardial Infarct (TIMI) Flow Grade.
168. The TIMI Flow Grade is a widely used method for assessing coronary artery blood-flow in acute coronary syndromes.
169. The TIMI Flow Grade ranges from 0 to 3.
170. A TIMI 3 means complete perfusion: the artery has normal blood-flow that fills even the far coronary bed supplied by the artery, without slowing down.
171. A TIMI 2 means there is partial perfusion.
172. A TIMI 1 means there is penetration without perfusion.
173. A TIMI 0 means that there is no flow—the artery is completely blocked.

ACC/AHA Occlusion Types

174. The American College of Cardiology (“ACC”) and the American Heart Association (“AHA”) have a classification system that estimates the likelihood that an occlusion will be treated successfully with angioplasty.
175. The ACC/AHA system also estimates the likelihood of abrupt vessel closure during a cardiac catheterization—a sudden drop in TIMI Flow Grade from 3 or 2 to 1 or 0, at 5 mm or less downstream from the blockage.
176. Type A occlusions are associated with a high angioplasty success rate (>85%) and a low risk of abrupt closure; Type B occlusions, with a moderate success rate (60-85%) and/or a moderate risk of abrupt closure; Type C occlusions, with a low success rate (<60%) and/or a high risk of abrupt closure.
177. An angioplasty is deemed successful if it (a) achieves a 20% or greater change in luminal diameter, with a final blockage diameter of less than 50%, and (b) achieves those results without the occurrence of death, acute myocardial infarction, or the need for emergency bypass surgery.

Angioplasty

178. Doctors use cardiac catheterization to both find and fix problems.
179. After doctors find and grade a blocked artery, doctors can perform treatment procedures – angioplasty and stenting – to open the blockage.
180. Angioplasty is a procedure that widens a coronary artery by inflating a tiny balloon at the site of a blockage.



181. Another name for angioplasty is percutaneous coronary intervention, or PCI.
182. Angioplasty is often used during a heart attack to quickly open a blocked artery and limit damage to the heart.
183. Angioplasty is often combined with stenting. Most people who have angioplasty also have stenting during the same catheterization.
184. A stenting is a procedure to place a stent at the site of a blockage after an angioplasty, in order to keep the artery open.

185. A stent is a wire-mesh tube that props up the artery, like scaffolding inside a tunnel, decreasing the odds that the artery will narrow again.
186. In a stenting, the stent is guided to the occluded artery wrapped around a balloon at the tip of the catheter.
187. When the balloon is inflated at the site of the blockage, the stent expands spring-like and locks into place.

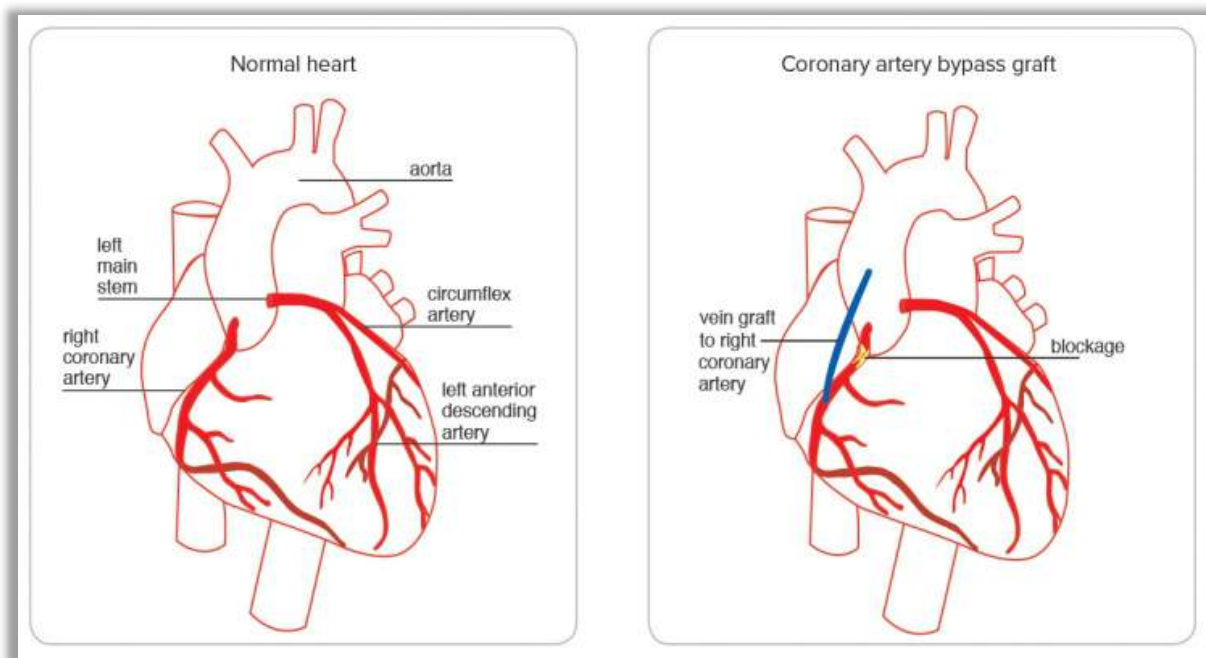
Left-Ventricular Function and LVEF

188. A prognosis predicts (a) whether signs and symptoms will improve, worsen, or remain stable; (b) expectations of quality of life, such as the ability to carry out daily activities; (c) the potential for complications and associated health issues; and (d) the likelihood of survival, including life-expectancy.
189. How well the left ventricle functions is significant in the prognosis of patients with coronary artery disease. Left-ventricular function is also a major determinant in a patient's prognosis after a heart attack.
190. The key measure of left-ventricular function is the left-ventricular ejection fraction (LVEF).
191. With each heartbeat, the left ventricle pumps out a fraction of the blood it contains. The LVEF is the percentage of blood the left ventricle pumps out to the body with each heartbeat (contraction).
192. The LVEF thus tells doctors how well a patient's heart is pumping blood out with each heartbeat.
193. An LVEF of 55-70% is normal. In other words, a patient with normal left-ventricular function pumps out 55% to 70% of the blood in the left ventricle with each heartbeat.
194. An LVEF of 40-54% is slightly below normal. An LVEF of 35-39% is moderately below normal. An LVEF below 35% is severely below normal.
195. A low LVEF represents the left-ventricle's reduced ability to pump blood. A low LVEF may be accompanied by wall-motion abnormalities, such as those

caused by active ischemia, myocardial necrosis, and/or scar-tissue formation. As the LVEF goes down, the patient's risk of death goes up.

Bypass Surgery

196. Coronary artery bypass grafting (CABG) is a surgery that uses a healthy vessel (a graft) to redirect blood around a blocked coronary artery.
197. The graft creates a new pathway for blood to flow directly to a part of the heart cut off from blood-flow by the blockage.



198. A graft may be a healthy vein or artery, or a manmade vessel.
199. Doctors often call a CABG “bypass surgery” or “bypass” for short. Doctors also use the acronym CABG, pronouncing it like the vegetable “cabbage.”
200. CABG is generally recommended when a patient has a high-grade blockage in any of the major coronary arteries.
201. CABG is also generally recommended when a PCI (angioplasty) fails.³

³ See *Netter's Cardiology*, Third Edition, Elsevier, Inc., 2019, at 156.

202. After a failed PCI, an emergency CABG is recommended if the patient has either ongoing ischemia or a threatened occlusion that puts substantial myocardium at risk.

203. CABG is also recommended when the patient has post-MI angina.

Informed Consent

204. When a physician finds or diagnoses an illness, disease, or condition in a patient, the physician must (a) inform the patient of the finding or diagnosis, and (b) present available treatment options to the patient.

205. Having made these disclosures, the physician must then obtain the patient's informed consent to the proposed treatment-plan.

Hospital Admission

206. If a patient arrives at a hospital with a STEMI, a hospitalist must not admit the patient to the hospital unless it has the capability to provide definitive care for the STEMI, such as angioplasty or bypass surgery.

207. If the hospital cannot provide definitive care to the patient, the hospitalist must refer and transfer the patient emergently to a hospital that can.

208. If the hospitalist nevertheless admits the patient, the hospitalist must then refer and transfer the patient emergently to a hospital with the capability to provide definitive care. In fact, the Emergency Medical Treatment and Labor Act ("EMTALA") requires such transfer. *See* 42 U.S.C. § 1395dd(b)(1).

Record Keeping

209. A physician must promptly enter accurate medical records, so that other providers can rely on the records in providing appropriate medical care to the patient downstream. These requirements apply with special force where the records concern life-threatening conditions, such as STEMI.

Medical Chronology

210. To make it as easy as possible for Defendants to confirm and answer the numerated allegations, this section has screenshots of Charlene's medical records. Defendants need not answer the statements in the screenshots.

Prologue

211. In 2013, Charlene Doggett was hospitalized with a heart attack at Phoebe Putney Memorial Hospital, in Albany, Georgia. TRH 178, TRH 213, TRH 38.

212. At that time, she underwent an angioplasty and received two stents. TRH 178, TRH 213.

History of Present Illness

This patient is a 63-year-old female who has a known history of coronary artery disease. States that she had an MI in 2013 and subsequently had to cardiac stents. She does continue to smoke. She says she has had some left-sided dull pressure type chest pain since yesterday. Went to an urgent care and was told that she had an upper respiratory infection, but symptoms have been persistent and perhaps a bit worse. This morning seem to be even worse and so she decided to come to the emergency room for evaluation. At this time patient is resting comfortably and in no acute distress although she does complain of left-sided chest pain which she rates as 10 of 10. Stable for work-up. Patient did have 3 nitro tabs and aspirin in route. Patient presents via EMS.

TRH 178.

Patient is a 63-year-old Caucasian female who presented 2/20/2024 chest pain. Cardiology was consulted. She does have history of coronary artery disease, tobacco abuse, left heart cath in the past with stents x2 per patient at Phoebe. Patient had increasingly elevated troponins with T wave inversion. Patient agreed to left heart cath today. Cardiac catheterization was reviewed in detail to include the administration of contrast dye and taking of radiographic images to define his coronary anatomy. Risks of the procedure were reviewed, to include but not limited to; bleeding complications, loss of limb, kidney failure, heart attack, stroke, need for emergency bypass surgery, and / or sudden death. The patient understands and is willing to proceed.

TRH 213.

213. By early 2020, Charlene "had chest pain on and off." TRH 212. On or about February 12, 2020, the pain became "constant," and then "worsened" over the subsequent few days. TRH 212. On February 19, 2020, Charlene sought treatment for her chest pain at an urgent-care facility, where she was diagnosed with an upper-respiratory infection. TRH 212, TRH 176.

History of Present Illness

Patient is a 63-year-old Caucasian female not known to our service admitted for chest pain. Patient states she is had chest pain on and off over the last couple months however she had constant chest pain starting Wednesday that is worsened over the past couple days worse this morning. She did go to a quick care that diagnosed with upper respiratory infection. She does have a history of smoking and COPD. Cardiology was consulted due to chest pain and elevated troponin levels. She does have a history of coronary artery disease with stents in the past at Phoebe. Troponin levels have steadily increased from 1.30 on 2/20/2020; 5.03, 9.93, 12.76, and this a.m. 18.69. Patient was added on for a left heart cath per Dr. Murray. EKG on 2/2020 shows T wave inversion.

TRH 212.

First Tift Hospitalization – February 20-23, 2020

Charlene takes ambulance to Tift ER with severe chest pain

Thursday, February 20, 2020

214. On February 20, 2020, after she awoke “feeling worse,” Charlene took an ambulance to Tift Regional Medical Center (“Tift”), in Tifton, Georgia. TRH 176, TRH 178, TRH 193, TRH 212. On route, EMS gave her aspirin and nitroglycerin, relieving her pain. TRH 176, TRH 178, TRH 193, TRH 212.

ED Triage Part 1 - Adult

Chief Complaint : Chest pain, started last night, went to urgent care, Dx with URI. Given meds. woke up this am feeling "worse" EMS given 3 nitro and a 325 ASA

TRH 176.

215. At 07:27, Charlene arrived and checked into the ER. TRH 188, TRH 187. Charlene was registered as an uninsured, “Self Pay” patient. TRH 167.

Primary Insurance

Subscriber Name: DOGGETT, CHARLENE H
Patient's Reltn: Self
Sex: Female
DOB:
Age: 63 Years
Employer Name:
Employer Phone:
Financial Class: Self Pay
Group Name:

Insurance Name: Self Pay
Claim Address: PO BOX 807
TIFTON, GA 317930807
Insurance Phone:
Policy Number:
Group Number:
Authorization Number:
Authorization Phone:
Authorization Contact:

TRH 167.

216. Charlene's chief complaint was chest pain. TRH 176, TRH 414.

ED Triage Part 1 - Adult

Chief Complaint : Chest pain, started last night, went to urgent care, Dx with URI. Given meds. woke up this am feeling "worse" EMS given 3 nitro and a 325 ASA

Lynx Mode of Arrival : Ambulance

TRH 176.

Dr. Moorman recommends admission to investigate "high risk of cardiac etiology"

217. At 07:29, Nurse Laurajean Smith triaged Charlene. Nurse Smith assigned Charlene's condition an acuity level of "3 - Urgent." TRH 176, TRH 410.

218. Between 07:28 and 07:35, Charlene underwent a stat EKG and a stat chest x-ray, for chest pain. TRH 186.

219. The EKG was "abnormal." TRH 331. It showed "sinus bradycardia" and a "nonspecific T-wave abnormality." TRH 331.

RR Interval: 1018 ms
PP Interval: 0 ms
PR Interval: 175 ms
QRS Duration: 105 ms
QT Interval: 455 ms
QTc Interval: 453 ms
P Axis: 45 deg
QRS Axis: 47 deg
T Axis: 114 deg
QTc Bazett: 450 ms
QTc Fredericia: 452 ms
Ventricular Heart Rate: 58 BPM

Feb 20, 2020 7:30:03 AM

* Auth (Verified) *

SINUS BRADYCARDIA
NONSPECIFIC T-WAVE ABNORMALITY
ABNORMAL ECG

Confirmed By: Hancock, MD, William 2/20/2020 9:04:29 AM

TRH 331.

220. The abnormality was a "T wave inversion." TRH 207, TRH 331, TRH 212-13.

History of Present Illness

Patient is a 63 year old WF with PMH of COPD/smoker, CAD s/p stents.

Patient presented with c/o chest pain that has been off and on over the last few months, but worsened over the past couple of days. TI elevated on admission with EKG showing T wave inversion. Cardiology consulted. Scheduled for LHC/echo this am. Seen post cath. nurse reports, failed attempt to open mid RCA, plans for observation, serial TI, and medications adjusted.

TRH 207.

221. The chest x-ray revealed clear lung-fields, no evidence of pleural effusions, and “no significant abnormality.” TRH 339, TRH 180, TRH 194. The x-ray also “showed no acute cardiopulmonary abnormality,” and was “negative” for bronchitis. TRH 193, TRH 210.

222. By 07:35, Charlene had stat cardiac-biomarker tests: Troponin-I, CK, and BNP. TRH 186.

223. At 07:43, Charlene’s Troponin-I level was 0.03—the high-end of normal. TRH 336. Charlene’s BNP level was 97, near the high-end of normal. TRH 336.

Collected Date	2/20/2020	2/20/2020		
Collected Time	13:19 EST	07:43 EST		
Procedure			Units	Reference Range
Troponin-I	1.30 c ^{tr} *1	0.03*1	ng/mL	[0.01-0.03]
CK	-	50*1	IntlUnit/mL	[30-135]
B-Type Natriuretic Peptide	-	97*1	pg/mL	[0-100]

TRH 336.

224. At 07:44, Charlene rated her pain a 10 out of 10, meaning that it was the “worst possible pain.” TRH 368.

Recorded Date	2/20/2020	2/20/2020	2/20/2020
Recorded Time	09:51 EST	09:15 EST	07:44 EST
Recorded By	McBrayer,Ryan	Edenfield,RN,Whitney	Smith,RN,Laurajean
Procedure			
Preferred Pain Tool	Numeric rating scale	Numeric rating scale	-
Pain,Unable to Self Report	-	-	No
Numeric Rating Pain Scale	10 = Worst possible pain	9	-
Numeric Pain Score (0-10)	-	-	10
Numeric Pain Score with Activity	-	-	10

TRH 368.

225. At 09:16, she was “still in pain,” and medication had “not helped.” TRH 409.

2/20/2020 09:16 EST (Rounding Comments)

Pt sitting in bed with son at bedside. Pt states she is still in pain and medication has not helped. Dr. Moorman at bedside and states to wait 15-20 minutes after nitro application and give 1 mg dilaudid IV if pain persists. Pt denies needs at this time.

TRH 409.

226. At 09:54, Dr. Ross Moorman examined Charlene. TRH 178-81. Her chest pain continued to be a 10 of 10. TRH 178, TRH 368.

History of Present Illness

This patient is a 63-year-old female who has a known history of coronary artery disease. States that she had an MI in 2013 and subsequently had to cardiac stents. She does continue to smoke. She says she has had some left-sided dull pressure type chest pain since yesterday. Went to an urgent care and was told that she had an upper respiratory infection, but symptoms have been persistent and perhaps a bit worse. This morning seem to be even worse and so she decided to come to the emergency room for evaluation. At this time patient is resting comfortably and in no acute distress although she does complain of left-sided chest pain which she rates as 10 of 10. Stable for work-up. Patient did have 3 nitro tabs and aspirin in route. Patient presents via EMS.

TRH 178.

227. Because the EKG revealed “sinus bradycardia at 58 bpm with some nonspecific ST and T wave changes and mild ST depression” and the biomarkers were “relatively benign with a troponin which is at high end of normal at 0.03,” Dr. Moorman concluded there was “no evidence of acute STEMI.” TRH 179.

228. Still, Dr. Moorman diagnosed Charlene with “chest pain, with a high risk of cardiac etiology.” TRH 179.

229. Accordingly, he decided to “ask hospitalist service to evaluate for admission on basis of known coronary artery disease,” noting that Charlene would “most likely require sequential cardiac enzymes and further work-up.” TRH 179.

EKG reveals sinus bradycardia at 58 bpm with some nonspecific ST and T wave changes and mild ST depression. No evidence of acute STEMI.

Progress report at 09 53. Patient is still complaining of some pain. We placed an inch of Nitropaste but that has not made much of a difference. At this time she will be given 1 mg of Dilaudid IV. Laboratory exam is relatively benign with a troponin which is at the high end of normal at 0.03. Chest x-ray is benign. Will ask hospitalist service to evaluate for admission on the basis of known coronary artery disease. Will most likely require sequential cardiac enzymes and further work-up. Patient is agreeable.

TRH 179.

Assessment/Plan

1. Chest pain with high risk for cardiac etiology
2. Tobacco use

Orders:

Oximetry - Continuous

TRH 179.

Dr. Eric Afari diagnoses pain as “pleuritic”

230. At 10:24, Dr. Afari examined Charlene. TRH 193-97. She had a “burning pain located on upper chest” radiating “to left arm.” TRH 193. The pain was “triggered by cough” and “associated with exertion or rest.” TRH 193.

History of Present Illness

Patient is a 63-year-old female with ongoing chronic medical conditions including coronary artery disease status post stent (x2) who presented to the ED with complaint of chest pain. Patient reports about 3 days ago she developed nasal congestion and cough that has progressively worsened. A day prior to presentation she started experiencing chest pain. She describes the pain as burning pain located on upper chest and radiates to left arm. The pain is triggered by cough. The chest pain is associated with exertion or rest. Yesterday she went to urgent care center for treatment of URI and was given cough medication but did not improve. The cough is nonproductive. She also complains of chest congestion but she is unable to cough up sputum. She is a current smoker. The pain is relieved by aspirin or nitroglycerin which was given by EMS in route to the hospital. She denies shortness of breath, fever, abdominal pain, nausea or vomiting.

TRH 193.

231. Noting that Charlene’s “EKG showed nonspecific T wave abnormalities,” her initial Troponin was normal, and her HEART Score was 5, Dr. Afari concluded that the chest pain was “likely due to cough from bronchitis.” TRH 194. (In fact, Charlene’s Heart Score was at a least a 7.)

232. Dr. Afari thus diagnosed Charlene with “atypical pleuritic chest plain,” with a differential diagnosis including “MI” (myocardial infarction). TRH 194.

Assessment/Plan

1. Chest pain

–Atypical pleuritic chest pain. EKG showed nonspecific T wave abnormalities. HEART score Initial troponin normal. HEART score 5. Risk factors include history of CAD with stent and smoking. She received aspirin en route to the hospital by EMS.

–Differential diagnosis includes bronchitis, MI or costochondritis. Her chest pain is likely due to cough from bronchitis. She had tenderness on palpation of upper chest. Less likely PE.

TRH 194.

233. Dr. Afari consulted the hospitalist team “to admit patient for further management.” TRH 193. At 10:50, Dr. Afari ordered observation care for acute bronchitis and chest pain. TRH 254.

Work-up in the ED showed normal troponin. CXR showed no acute cardiopulmonary abnormality. Hospitalist team was consulted to admit patient for further management.

TRH 193.

Order: HM Initial Observation Care/Day Moderate Severity 99219		
Order Date/Time: 2/20/2020 10:50 EST		
Order Status: Completed	Department Status: Completed	Activity Type: Evaluation and Management
End-state Date/Time: 2/20/2020 10:50 EST		End-state Reason:
Ordering Physician: Afari,MD,Eric		Consulting Physician:
Entered By: Afari,MD,Eric on 2/20/2020 10:50 EST		
Order Details: 2/20/20 10:50:00 AM EST, Incident To, Coronary artery disease Tobacco use Hypertensive urgency Acute bronchitis Chest pain		

TRH 254.

After Troponin rises, Charlene is admitted with NSTEMI

234. At 13:19, Charlene’s Troponin-I level was 1.30—above the normal range. TRH 336.

Collected Date	2/20/2020	2/20/2020		
Collected Time	13:19 EST	07:43 EST		
Procedure			Units	Reference Range
Troponin-I	1.30 ^{C 19 *1}	0.03 ^{*1}	ng/mL	[0.01-0.03]

TRH 336.

235. At about 13:41, Charlene was discharged from the ED and admitted to the hospital floor.⁴ TRH 187, TRH 370, TRH 416, TRH 192.

236. Notwithstanding Dr. Afari’s diagnosis of “pleuritic chest pain,” the admitting diagnosis was now: “Chest pain and NSTEMI.” TRH 172, TRH 9, TRH 36.

⁴ Charlene was not placed in intensive care at Tift during either hospitalization.

Dates of Service

2/20/20-2/23/20

Admitting Diagnosis

Chest pain and NSTEMI

TRH 172.

History of Present Illness

PCP: Dr. Doris Wilder

Patient is a pleasant 63-year-old female who was admitted February 20 of February 23, 2020, for NSTEMI, has known CAD with previous tents and is a smoke - per the discharge

TRH 36.

237. At 14:21, LPN Tangla Reynolds reported the 1.30 Troponin-I level as a “critical value” to Dr. Afari at bedside. TRH 412-13. Dr. Afari then ordered a cardiology consult. TRH 413.

Dr. Afari consults with Dr. Murray, as Troponin climbs

238. Between 14:23 and 15:01, Dr. Afari consulted with Cardiologist Paul Murray about the increase in Charlene’s Troponin-I “from 0.03 to 1.30.” TRH 252.

Order: **Consult to Cardiology**

Order Date/Time: 2/20/2020 14:23 EST

Order Status: Discontinued

Department Status: Discontinued

Activity Type: Provider Consults

End-state Date/Time: 2/26/2020 15:01 EST

End-state Reason:

Ordering Physician: Afari,MD,Eric

Consulting Physician: Murray,MD,Paul

Entered By: Frantz,RN,Ellen on 2/20/2020 14:23 EST

Order Details: Routine, Consult Reason: troponin went from 0.03 to 1.3, Murray, MD, Paul

TRH 252.

239. At 17:27, Dr. Murray ordered a cardiovascular (“CV”) transthoracic echocardiogram (“TTE”) for “Chest Pain,” ASAP. TRH 250.

Order: CV Echo TTE Complete		
Order Date/Time: 2/20/2020 17:27 EST		
Order Status: Completed	Department Status: Signed	Activity Type: Cardiovascular
End-state Date/Time: 2/21/2020 11:44 EST	End-state Reason:	
Ordering Physician: Murray,MD,Paul	Consulting Physician:	
Entered By: REYNOLDS.LPN,TANGLA on 2/20/2020 17:27 EST		
Order Details: 2/20/20 5:27:00 PM EST, ASAP, Chest Pain, Ambulatory, 2/21/20 11:44:15 AM EST, Cardiovascular Type		

TRH 250.

240. At 17:53, Charlene’s Troponin-I climbed to 5.03. TRH 335. At 19:46, Nurse Whitney Prater reported the Troponin-I level as a “critical value” to Family Nurse Practitioner Jessica Ashley at bedside. TRH 412.

Collected Date	2/21/2020	2/21/2020	2/20/2020	2/20/2020		
Collected Time	06:48 EST	02:19 EST	21:48 EST	17:53 EST		
Procedure					Units	Reference Range
Troponin-I	18.69 ^{C f5 *1}	12.76 ^{C f6 *1}	9.93 ^{C f7 *1}	5.03 ^{C f8 *1}	ng/mL	[0.01-0.03]

TRH 335.

Recorded Date	2/20/2020	2/20/2020
Recorded Time	22:27 EST	19:46 EST
Recorded By	Prater,RN,Whitney	Prater,RN,Whitney
Procedure		
Provider Notification Reason	Critical value reporting	Critical value reporting
Provider Notification Details	Trop 9.93, previously 5.03	trop 5.03, previously 1.30
Provider Contacted	Yes	Yes
Provider at Bedside	Parrish, FNP-C, Jessica Ashley	Parrish, FNP-C, Jessica Ashley
Provider Response Time	2/20/2020 22:54 EST ^{c2}	2/20/2020 19:46 EST
Physician Requested Interventions	No orders received	Orders received

TRH 412.

241. At 18:30, Dr. James Darling performed a chest CT scan on Charlene (CT Chest Pulmonary Embolism Protocol). TRH 337-38. The CT scan found COPD, “mild coronary artery calcifications with no mediastinal mass or adenopathy,” and “no evidence of pulmonary embolus.” TRH 338.

IMPRESSION

No evidence of a pulmonary embolus.

Minimally dilated and mildly atherosclerotic thoracic aorta with no aneurysm or dissection.

COPD the left mild bibasilar atelectasis vs early infiltrates or scarring posteriorly along the lung bases, suggest follow-up with serial chest x-rays.

Mild coronary artery calcifications with no mediastinal mass or adenopathy.

Partially calcified, mild-to-moderate, thyroid goiter. Suggest ultrasound follow-up.

TRH 338.

242. At 21:48, Charlene’s Troponin-I climbed to 9.93. TRH 335. At 22:27, Nurse Whitney Prater reported this as a “critical value” to FNP-C Ashley. TRH 412.

Friday, February 21, 2020

243. At 02:19, Charlene’s Troponin-I was 12.76. TRH 335. At 03:02, Nurse Prater reported this as a “critical value” to Dr. Barbara Crawford. TRH 412.

Collected Date	2/21/2020	2/21/2020	2/20/2020	2/20/2020	Units	Reference Range
Collected Time	06:48 EST	02:19 EST	21:48 EST	17:53 EST		
Procedure						
Troponin-I	18.69 ^{C 15 *1}	12.76 ^{C 16 *1}	9.93 ^{C 17 *1}	5.03 ^{C 18 *1}	ng/mL	[0.01-0.03]

TRH 335.

Recorded Date	2/21/2020	2/21/2020
Recorded Time	07:39 EST	03:02 EST
Recorded By	Taylor,LPN,Holly	Prater,RN,Whitney
Procedure		
Provider Notification Reason	Critical value reporting	Critical value reporting
Provider Notification Details	Troponin 18.69	trop 12.76, previously 9.93
Provider Contacted	Yes	Yes
Provider at Bedside	Campbell, PA, Kristin Davis	Crawford, MD, Barbara
Provider Response Time	-	2/21/2020 03:03 EST
Physician Requested Interventions	-	No orders received

TRH 412.

Dr. Murray performs cardiac catheterization

244. At 06:43, Dr. Murray ordered a left-heart catheterization for “Chest Pain,” ASAP. TRH 249.

Order: CV CCL Left Heart Cath		
Order Date/Time: 2/21/2020 06:43 EST		
Order Status: Completed	Department Status: Signed	Activity Type: Cardiovascular
End-state Date/Time: 2/21/2020 10:03 EST		End-state Reason:
Ordering Physician: Murray,MD,Paul		Consulting Physician:
Entered By: Murray,MD,Paul on 2/21/2020 06:43 EST		
Order Details: 2/21/20 6:43:00 AM EST, ASAP, Chest Pain, Chest pain, Ambulatory, Radial, 2/21/20 10:03:57 AM EST, Cardiovascular Type		

TRH 249.

245. At 06:48, Charlene’s Troponin-I was 18.69. TRH 335. At 07:39, LPN Holly Taylor reported the Troponin-I level as a “critical value” to Physician’s Assistant Kristin Davis Campbell. TRH 412.

Collected Date	2/21/2020	2/21/2020	2/20/2020	2/20/2020		
Collected Time	06:48 EST	02:19 EST	21:48 EST	17:53 EST		
Procedure					Units	Reference Range
Troponin-I	18.69 ^{C f5 *1}	12.76 ^{C f6 *1}	9.93 ^{C f7 *1}	5.03 ^{C f8 *1}	ng/mL	[0.01-0.03]

TRH 335.

Recorded Date	2/21/2020	2/21/2020
Recorded Time	07:39 EST	03:02 EST
Recorded By	Taylor,LPN,Holly	Prater,RN,Whitney
Procedure		
Provider Notification Reason	Critical value reporting	Critical value reporting
Provider Notification Details	Troponin 18.69	trop 12.76, previously 9.93
Provider Contacted	Yes	Yes
Provider at Bedside	Campbell, PA, Kristin Davis	Crawford, MD, Barbara
Provider Response Time	-	2/21/2020 03:03 EST
Physician Requested Interventions	-	No orders received

TRH 412.

246. At about 07:40, the catheterization got underway. TRH 321.

Surgery		
Order: Procedure Only		
Order Date/Time: 2/21/2020 07:06 EST		
Order Status: Ordered	Department Status: Ordered	Activity Type: Surgery
End-state Date/Time: 2/21/2020 07:40 EST	End-state Reason:	
Ordering Physician:	Consulting Physician:	
Entered By: Stapleton, Tammie on 2/21/2020 07:06 EST		
Order Details: Murray, MD, Paul, Primary Procedure?, LHC, 0, None, 2/21/20 7:40:00 AM EST		
Action Type: Activate	Action Date/Time: 2/21/2020 07:22 EST	Electronically Signed By: Stapleton, Tammie

TRH 321.

247. By 09:08, the procedure ended, and Charlene was in the post-anesthesia care unit (PACU). At 10:01, she was discharged from the PACU. TRH 217. At 10:03, Dr. Murray completed and signed his procedure note for the catheterization. TRH 325-26.

The catheterization reveals 100% occlusion in mid-RCA

248. The catheterization revealed the following about Charlene's heart condition.

249. She had a "diffuse, (20 mm (L)) 100% occlusion in the previous stent" in her mid-RCA. TRH 326, TRH 325.

250. The occlusion was "consistent with atherosclerotic disease" and had "a filling defect consistent with thrombus." TRH 326, TRH 325.

251. The occlusion had a TIMI Flow Grade of 0, meaning that there was "no flow across the lesion." TRH 326, TRH 325.

252. The occlusion, moreover, presented "an ACC/AHA type C 'high risk' lesion for intervention." TRH 326, TRH 325.

253. The blocked portion of the RCA supplied "a moderate-sized vascular territory" in Charlene's heart. TRH 326, TRH 325.

Right coronary: Prior intervention: stent in the mid RCA. **Mid-vessel lesion:** The diagnostic study demonstrated a diffuse, 20 mm (L), 100% occlusion in the previous stent. This lesion appears consistent with atherosclerotic disease. There is a filling defect consistent with thrombus. It is not a bifurcation lesion. There is TIMI grade 0 flow (no flow) across the lesion. The distal vessel supplies a moderate-sized vascular territory. The lesion is a likely culprit for the patient's clinical presentation. The lesion presents an ACC/AHA type C "high risk" lesion for intervention. Angioplasty was performed, resulting in no improvement in angiographic appearance (see 1st lesion intervention). Following intervention, there is a residual 100% stenosis with TIMI grade 0 flow (no flow). There were no site complications.

TRH 326.

254. The lesion was “a likely culprit for the patient’s clinical presentation”—
“NSTEMI presentation with recent return of chest pain.” TRH 325.

2. **Right coronary:** **Mid-vessel lesion:** The diagnostic study demonstrated a diffuse, 20 mm (L), 100% occlusion in the previous stent. The distal vessel supplies a moderate-sized vascular territory. **The lesion is a likely culprit for the patient's clinical presentation.** The lesion presents an ACC/AHA type C "high risk" lesion for intervention. Angioplasty was performed, resulting in no improvement in angiographic appearance (see 1st lesion intervention). Following intervention, there is a residual 100% stenosis with TIMI grade 0 flow (no flow).

Recommendations: NSTEMI presentation with recent return of chest pain. Unsuccessful PCI attempt. Will be assigned medical therapy.

TRH 325.

255. Dr. Murray thus recognized that the occlusion was the cause of Charlene’s
presentation—both her “NSTEMI” and her “chest pain.” TRH 325.

*After angioplasty fails, Charlene’s RCA remains blocked—with no
collateral circulation*

256. Dr. Murray tried to open the occlusion with angioplasty, but stopped after
several inflations “to prevent coronary artery perforation.” TRH 325, TRH 326.

257. As a result, the angioplasty was an “unsuccessful attempt at opening occluded
mid RCA.” TRH 325. Thus: “Vessel remains occluded.” TRH 325.

*Unsuccessful attempt at opening occluded mid RCA. Able to get a Runthrough wire through the lesion with several balloon inflations using a 2.0 x 20 mm balloon. Vessel remains occluded. Decision made to stop to prevent coronary artery perforation.

TRH 325.

258. “Following the intervention,” there was still “a residual 100% stenosis with
TIMI grade 0 flow (no flow).” TRH 325, TRH 326.

259. The catheterization thus resulted “in no improvement in angiographic appearance[.]” TRH 325, TRH 326.

2. **Right coronary: Mid-vessel lesion:** The diagnostic study demonstrated a diffuse, 20 mm (L), 100% occlusion in the previous stent. The distal vessel supplies a moderate-sized vascular territory. The lesion is a likely culprit for the patient's clinical presentation. The lesion presents an ACC/AHA type C "high risk" lesion for intervention. Angioplasty was performed, resulting in no improvement in angiographic appearance (see 1st lesion intervention). Following intervention, there is a residual 100% stenosis with TIMI grade 0 flow (no flow).

TRH 325.

Right coronary: Prior intervention: stent in the mid RCA. **Mid-vessel lesion:** The diagnostic study demonstrated a diffuse, 20 mm (L), 100% occlusion in the previous stent. This lesion appears consistent with atherosclerotic disease. There is a filling defect consistent with thrombus. It is not a bifurcation lesion. There is TIMI grade 0 flow (no flow) across the lesion. The distal vessel supplies a moderate-sized vascular territory. The lesion is a likely culprit for the patient's clinical presentation. The lesion presents an ACC/AHA type C "high risk" lesion for intervention. Angioplasty was performed, resulting in no improvement in angiographic appearance (see 1st lesion intervention). Following intervention, there is a residual 100% stenosis with TIMI grade 0 flow (no flow). There were no site complications.

TRH 326.

260. The angioplasty was an “unsuccessful PCI attempt” and a “failed attempt to open mid RCA.” TRH 325, TRH 207.

Recommendations: NSTEMI presentation with recent return of chest pain. Unsuccessful PCI attempt. Will be assigned medical therapy.

TRH 325.

History of Present Illness

Patient is a 63 year old WF with PMH of COPD/smoker, CAD s/p stents.

Patient presented with c/o chest pain that has been off and on over the last few months, but worsened over the past couple of days. TI elevated on admission with EKG showing T wave inversion. Cardiology consulted. Scheduled for LHC/echo this am. Seen post cath. nurse reports, failed attempt to open mid RCA, plans for observation, serial TI, and medications adjusted.

TRH 207.

261. Charlene’s heart was “right dominant,” TRH 325, meaning that her RCA gave rise to her posterior descending artery (“PDA”). The occlusion thus also jeopardized the region of her heart supplied by the PDA.

262. Critically, Charlene’s heart had “no collaterals” “from the left coronary system to the right PDA.” TRH 325. Her PDA, therefore, was cut off.

Summary:

1. INDICATION: CAD with prior stents at Phoebe Putney Hospital admitted with atypical chest pain and non-STEMI.
1. CORONARY ANATOMY: Patient has mild diffuse calcium of her left coronary system. Left main is normal. The RCA has been stented from the proximal to mid RCA. There is a 99% lesion of the second RV marginal branch at its ostium. The RCA is occluded within the stent at mid vessel. Is normal. There is 90% ostial D1 disease in a very small less than 1 mm vessel. There is a 40% mid LAD lesion. Diffuse irregularities of the circumflex and OM. Dominance: Right dominant. No collaterals seen from the left coronary system to the right PDA.

TRH 325.

263. Nevertheless, Dr. Murray assigned Charlene “medical therapy.” TRH 325.

Recommendations: NSTEMI presentation with recent return of chest pain. Unsuccessful PCI attempt. Will be assigned medical therapy.

The TTE shows Charlene’s heart is otherwise healthy

264. By 11:44, Charlene had the TTE Dr. Murray had ordered the night before. TRH 328-29, TRH 250. The TTE demonstrated that, other than mild mitral-valve regurgitation, all the structures of Charlene’s heart were normal, including the four chambers and four valves. TRH 328-29, TRH 37.

History and indications: Chest Pain.

Study data: Patient unit: TCARD. Patient room number: 2160. **Study status:** Routine. **Procedure:** Transthoracic echocardiography was performed. Image quality was adequate. Scanning was performed from the parasternal, apical, and subcostal acoustic windows. **Study completion:** The patient tolerated the procedure well.

Left ventricle: The cavity size is normal. Wall thickness is moderately increased. Systolic function is normal. The estimated ejection fraction is 55-60%. Wall motion is normal; there are no regional wall motion abnormalities. Doppler parameters are consistent with abnormal left ventricular relaxation (grade 1 diastolic dysfunction).

Aortic valve: The valve is structurally normal. The valve is trileaflet. Cusp separation is normal. Transvalvular velocity is within the normal range. There is no stenosis. There is no regurgitation.

Aorta: **Aortic root:** The aortic root is not dilated.

Mitral valve: The valve is structurally normal. Leaflet separation is normal. Transvalvular velocity is within the normal range. There is no evidence for stenosis. There is mild regurgitation.

Left atrium: The atrium is normal in size.

Right ventricle: The cavity size is normal. Systolic function is normal.

Right atrium: The atrium is normal in size.

Atrial septum: The septum is normal.

Tricuspid valve: The valve is structurally normal. Leaflet separation is normal. Transvalvular velocity is within the normal range. There is no evidence for stenosis. There is trivial regurgitation.

Pulmonic valve: The valve is structurally normal. Cusp separation is normal. Transvalvular velocity is within the normal range. There is no regurgitation.

Systemic veins:

Inferior vena cava: The vessel is normal in size.

Pericardium: There is no pericardial effusion. No evidence of pleural fluid accumulation.

TRH 328.

265. Notably, the function of Charlene's left ventricle was well preserved.

266. Her left-ventricle's wall motion was "normal," with "no regional wall motion abnormalities." TRH 328.

267. Her left-ventricle's cavity was "normal," and its systolic (squeezing) function was also "normal." TRH 328.

268. Notably, her ejection fraction was also normal: "55-60%." TRH 328, TRH 37.

Reading physician: Paul Murray, MD
Sonographer: Lauren Goode
Ordering physician: Paul Murray, MD

Summary:

1. **Left ventricle:** The cavity size is normal. Wall thickness is moderately increased. Systolic function is normal. The estimated ejection fraction is 55-60%. Wall motion is normal; there are no regional wall motion abnormalities. Doppler parameters are consistent with abnormal left ventricular relaxation (grade 1 diastolic dysfunction).
2. **Mitral valve:** There is mild regurgitation.

TRH 328.

269. In sum, Charlene's heart had "an EF of 55 to 60%, no wall motion abnormality and mild mitral regurgitation." TRH 37.

She also had an echocardiogram February 20, 2020 that showed an EF of 55 to 60%, no wall motion abnormality and mild mitral regurgitation.

TRH 37.

Despite blocked RCA, Charlene is placed under observation

270. At 13:53 and 14:44, respectively, PA Campbell and Dr. Vince Faridani documented cardiology's treatment plan post-catheterization. TRH 207-11.

Plan

1. per cardiology observation overnight, serial TI, medications adjusted, am labs, echo updated
2. noted on CT chest - recommends thyroid US - Partially calcified mild to moderate thyroid goiter

Attestation Statement

I have reviewed the mid-level documentation, agree with the documentation, medical decision making and treatment plan as outlined by the mid-level provider.

By my electronic signature I authenticate all mid-level provider orders and attest that all pages have been reviewed and completed.

TRH 211.

271. Though the angioplasty “failed” to “open mid RCA,” the plan consisted of low-severity “observation care” and “serial” Troponin tests. TRH 210, TRH 207.

Assessment/Plan

1. Chest pain

- poa; NSTEMI
- elevated TI; abnormal EKG; cardiology consulted; LHC/echo this am - failed attempt to open mid RCA, plans for observation, serial TI, medications adjusted per cardiology (ASA, plavix, statin, BB)

Ordered:

HM Sbsq Observation Care/ Day Low Severity 99224

TRH 210.

6. Non-STEMI (non-ST elevated myocardial infarction)

- poa; see #1

Ordered:

HM Sbsq Observation Care/ Day Low Severity 99224

TRH 210.

272. Dr. Murray was “following and managing” this treatment plan. TRH 211.

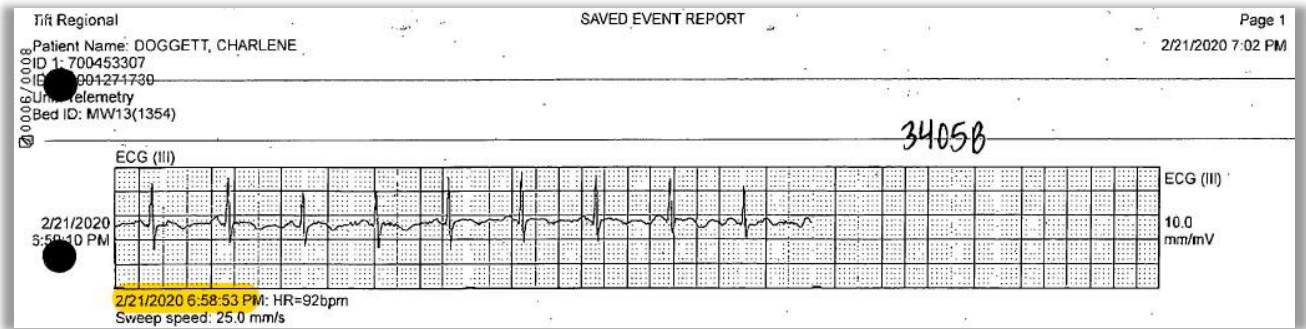
Addendum by Faridani, MD, Vince on February 21, 2020 2:42:23 PM EST

Chest Pain/NSTEMI/CAD:

- known hx of stents
- underwent LHC, stent attempted, however, unable to obtain
- cardiology following and managing; Dr. Murray
- continue plavix

TRH 211.

273. At 18:58, telemetry demonstrated sinus rhythm with an inverted T-wave. TRH 222.⁵



TRH 222.

Date: 2/21/20	Time: 19:30	Tech: W. Brown
Date: 2/21/20	Time: 1941	Interpreting Nurse: Taylor [Signature], RN
Interpretation: S.P. inverted T wave		

TRH 222.

Despite blocked RCA, Dr. Tronolone clears Charlene for discharge pending drop in Troponin

Saturday, February 22, 2020

274. At 05:47, Charlene’s Troponin-I peaked at 43.27. TRH 335. At 07:14, LPN Taylor reported this level as a “critical value” to Dr. Harris. TRH 412.

Cardiac Markers						
	Collected Date	2/23/2020	2/22/2020	2/22/2020		
	Collected Time	07:06 EST	18:34 EST	05:47 EST		
Procedure					Units	Reference Range
Troponin-I		20.90 ^{C12} ††	27.81 ^{C13} ††	43.27 ^{C14} ††	ng/mL	[0.01-0.03]

TRH 335.

⁵ Telemetry is a tool that continuously monitors a patient’s EKG, respiratory rate, and oxygen.

Provider Notification			
	Recorded Date	2/23/2020	2/22/2020
	Recorded Time	08:15 EST	07:14 EST
	Recorded By	Taylor,LPN,Holly	Taylor,LPN,Holly
	Procedure		
	Provider Notification Reason	Critical value reporting	Critical value reporting
	Provider Notification Details	Troponin 20.90	Troponin 43.27
	Provider Contacted	Yes	Yes
	Provider at Bedside	Harris, MD, Erinn	Harris, MD, Erinn

TRH 412.

275. At 11:19, Cardiologist Jonathan Tronolone saw Charlene. TRH 203-05.

276. Charlene’s present illness was “Chest pain-NSTEMI.” TRH 203.

277. Charlene’s RCA remained “occluded at the distal stent edge.” TRH 204.

278. Nevertheless, Dr. Tronolone approved Charlene’s discharge, pending a drop in her Troponin levels. TRH 204.

279. Although her Troponin had just risen to its highest level, Dr. Tronolone concluded that the “elevation” was “from washout.” TRH 203-04.

280. Charlene’s NSTEMI was “stable” and she was not having “any further” chest pain. TRH 203-204. “Given no pain,” Dr. Tronolone cleared Charlene for discharge “later today,” if her “trop is trending down.” TRH 204.

History of Present Illness

1. Chest pain- NSTEMI. Not having any further CP this AM. Significant elevation in her troponin from washout.
2. Tobacco abuse- current use.
3. COPD- stable.
4. HTN- stable.

TRH 203.

Assessment/Plan

1. NSTEMI stable and not having any further CP; RCA remains occluded at the distal stent edge. On meds.(ASA/statin/plavix/BB). Given no pain and if her trop is trending down, she can be discharged home later today.
2. Tobacco abuse- current use. Needs to quit.
3. COPD- stable.

TRH 204.

281. At 12:13, Hospitalist Erinn Harris examined Charlene. TRH 205-07. Charlene’s chest pain was “resolved” after “[left-heart catheterization] with NSTEMI.” TRH 207.
282. Although Charlene’s Troponin had not yet dropped, Dr. Harris resolved to “continue to monitor [] downtrend of troponin today,” and ordered Charlene’s discharge “today or tomorrow as troponin trend[s] down.” TRH 207.
283. Dr. Harris anticipated discharging Charlene even though her RCA “was occluded from prox[imal] to mid RCA.” TRH 207.
284. Dr. Harris planned Charlene’s discharge based on two erroneous beliefs: (a) that a “stent was placed” in an occlusion from the proximal to mid RCA, and (b) that the untreated occlusion was a “distal occlusion of RCA,” which was “most like[ly]” the “cause of elevated Tropon[in].” TRH 207.

Assessment/Plan

1. Chest pain

Resolved; s/p LHC with NSTEMI. RCA was occluded from prox to mid RCA and stent was placed. Distal occlusion of RCA not treated. Most like cause of elevated Tropon, continue plavix and metoprolol on discharge

2. Coronary artery disease

Tobacco use and hyperlipidemia; residual stenosis in Ostial D1 - 90% and mid LAD of 40%

3. Acute bronchitis

Tessalon perles prn

4. Hypertensive urgency

Stable on metoprolol

5. Tobacco use

6. Non-STEMI (non-ST elevated myocardial infarction)

s/p cath with stent. Elevated troponin this AM. Will continue to monitor of downtrend of troponin today.

Disposition: discharge today or tomorrow as troponin trend down

TRH 207.

285. By 18:34, Charlene’s Troponin-I level had dropped to 27.81—still a critical value far above the normal range. TRH 335.

Cardiac Markers

	Collected Date	2/23/2020	2/22/2020	2/22/2020		
	Collected Time	07:06 EST	18:34 EST	05:47 EST		
	Procedure				Units	Reference Range
Troponin-I		20.90 ^{C R 11}	27.81 ^{C R 11}	43.27 ^{C R 11}	ng/mL	[0.01-0.03]

TRH 335.

Despite blocked RCA, Dr. Harris discharges Charlene

Sunday, February 23, 2020

286. At 07:06, Charlene’s Troponin-I level was 20.90. TRH 335. At 08:15, LPN Taylor reported this as a “critical value” to Dr. Harris at bedside. TRH 412.

	Recorded Date	2/23/2020	2/22/2020
	Recorded Time	08:15 EST	07:14 EST
	Recorded By	Taylor,LPN,Holly	Taylor,LPN,Holly
Procedure			
Provider Notification Reason		Critical value reporting	Critical value reporting
Provider Notification Details		Troponin 20.90	Troponin 43.27
Provider Contacted		Yes	Yes
Provider at Bedside		Harris, MD, Erinn	Harris, MD, Erinn

TRH 412.

287. At 12:40, Charlene had “improved” and was “pain free,” with “troponin trending down.” TRH 172. At that time, Dr. Harris entered Charlene’s discharge summary. TRH 172.

288. Dr. Harris discharged Charlene even though her RCA remained “occluded from prox to mid RCA,” and the “distal occlusion of RCA was not treated.”

TRH 172.

289. Dr. Harris based her discharge order on the same two erroneous beliefs: (a) that a “stent was placed” in an occlusion from the proximal to mid RCA, and (b) that the untreated occlusion was a “Distal occlusion of RCA.” TRH 207.

Discharge Diagnoses

1. Chest pain

Improved. Currently chest pain free and troponin trending down. S/p LHC with NSTEMI. RCA was occluded from prox to mid RCA and stent was placed. Distal occlusion of RCA was not treated. Continue Plavix, metoprolol and ASA on discharge.

TRH 172.

6. Non-STEMI (non-ST elevated myocardial infarction)

S/p cath with stent. Bump of troponin into 40s post cath. Improved troponin to 20s on discharge. Follow up with Cardiology on discharge.

TRH 172.

290. Dr. Harris's misinterpretation and misstatement of Charlene's medical condition exemplify broader systemic failures: Tift lacked or did not effectively disseminate or enforce (a) policies requiring medical providers to read and communicate clinical information carefully, and (b) protocols for the effective hand-off of patients and of clinical information among providers.

Charlene leaves Tift unaware of her blocked RCA

291. At 14:12, Charlene was discharged from Tift. TRH 167. At that time, hospital staff informed Charlene for the first time that she had had a heart attack.

292. Neither Dr. Murray, nor Dr. Harris, nor anyone else informed Charlene or her family about the complete occlusion in her mid-RCA. Charlene thus went home unaware that a major artery in her heart was completely blocked.

293. That night, because she was "not feeling right" and was "afraid to be alone," Charlene slept at her son's house, instead of her own home.

Second Tift Hospitalization – February 24, 2020

Charlene returns to Tift ED at daybreak

Monday, February 24, 2020

294. At about 02:00, Charlene's chest pain returned. She later described that pain as a 10 and "like an elephant sitting on my chest." TRH 37.

She returns to the ER today with complains of acute onset precordial chest pain at 2:00 am - was pain free at discharge and continued to be until 2:00 am, "like an elephant sitting on my chest," 10/10, no radiation, earlier diaphoresis, none now, + dyspnea and no nausea or vomiting. Troponin is elevated at 7.40, however, the day prior was 20.90, EKG shows sinus rhythm, rate 71bpm millimeter when compared to an EKG from February 20, 2020, she has ST elevation in lead III and aVF with Q waves, ST depression in 1, aVL, V5 and V1 now has less than 1 mm of ST elevation in V1 where previously V1 had an inverted T wave. On arrival to the ER she had normal blood pressure 119/88, was treated with nitroglycerin, blood pressure dropped, she is received IV fluids and morphine and blood pressures improved to 103/70. ER has consulted Dr. Murray who recommends medical management. I've talked with him and he's coming to see the patient.

TRH 37.

Pain Assessment Adult
Pain Location : Chest
Numeric Pain Scale : 10 = Worst possible pain
Numeric Pain Score : 10

Tapp, RN, Kimberly - 2/24/2020 8:31 AM EST

TRH 15.

295. At daybreak, Charlene woke Jason (her son) and Carrie (his wife). Carrie immediately drove Charlene to the Tift ER. On the way, Charlene repeatedly gripped her chest, rocked with distress, and begged Carrie to hurry.
296. From this time forward, Charlene's chest pain was constant, relentless, and obvious. Each time a provider asked about her pain, she said that medications were "not helping."
297. At Tift, because Charlene was unable to get out of the car, Carrie ran into the ER to get help. Tift staff then transported Charlene into the hospital on a wheelchair, while Carrie went to park the car.

ED immediately recognizes STEMI, confirmed by EKG

298. When Carrie walked into the ER, a nurse immediately told her that an EKG showed that Charlene was having "an acute heart attack." The nurse praised Carrie for doing "a great job getting her here in time."
299. At 08:30, Charlene checked into the Tift ED. TRH 30.
300. Upon Charlene's arrival, the ED mobilized to diagnose and treat an acute STEMI.
301. At 08:30, Dr. Justin Harrell, a family-medicine specialist, ordered stat cardiac biomarkers. TRH 27, TRH 82-85.
302. At 08:31, Nurse Kimberly Tapp triaged Charlene. Nurse Tapp assigned Charlene's condition an acuity level of "2 - Emergent." TRH 13, TRH 161.

DCP GENERIC CODE
Tracking Acuity : 2 - Emergent
Tracking Group : Tift ED Tracking Group

Tapp, RN, Kimberly - 2/24/2020 8:31 AM EST

TRH 13.

303. At 08:31, Dr. Harrell ordered a stat EKG and a stat x-ray, for chest pain. TRH 73, TRH 108.

Order: CV Electrocardiogram 12 Lead		
Order Date/Time: 2/24/2020 08:31 EST		
Order Status: Completed	Department Status: Signed	Activity Type: Cardiovascular
End-state Date/Time: 2/25/2020 06:38 EST	End-state Reason:	
Ordering Physician: Harrell,MD,Justin	Consulting Physician:	
Entered By: Tapp,RN,Kimberly on 2/24/2020 08:31 EST		
Order Details: 2/24/20 8:30:00 AM EST, Stat, Chest Pain, Wheelchair, 2/25/20 6:38:12 AM EST, Cardiovascular Type		

TRH 73.

Order: XR CHEST PORTABLE		
Order Date/Time: 2/24/2020 08:31 EST		
Order Status: Completed	Department Status: Completed	Activity Type: Radiology
End-state Date/Time: 2/24/2020 11:15 EST	End-state Reason:	
Ordering Physician: Harrell,MD,Justin	Consulting Physician:	
Entered By: Tapp,RN,Kimberly on 2/24/2020 08:31 EST		
Order Details: 2/24/20 8:30:00 AM EST, Stat, Reason: Chest Pain, Transport Mode: Wheelchair		

TRH 108.

304. Nurse Tapp immediately notified Dr. Harrell of the EKG results. TRH 142.

305. At 8:31, an EKG showed that Charlene was having an “ACUTE MI”— acute myocardial infarction.⁶ TRH 114.

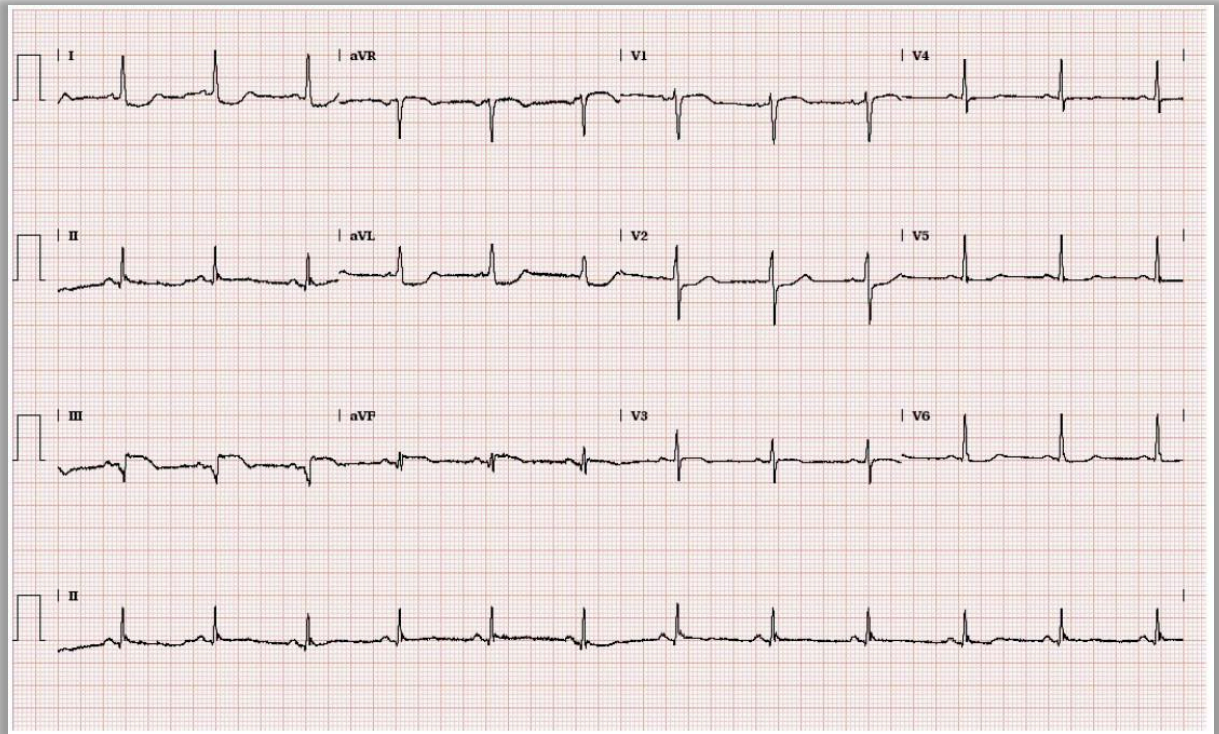
306. The EKG detected a marked ST-segment elevation without a normally inflected T-wave in leads II and aVF. TRH 114.

307. The EKG also detected a lateral wall ST-segment depression. TRH 114.

Feb 24, 2020 8:31:14 AM SINUS RHYTHM ST ELEVATION, CONSIDER INFERIOR INJURY [MARKED ST ELEVATION W/O NORMALLY INFLECTED T-WAVE IN II/aVF] LATERAL WALL ST DEPRESSION ***ACUTE MI*** Confirmed By: Murray, MD, Paul 2/25/2020 6:38:11 AM

⁶ As explained below, Dr. Murray confirmed this and two other similar EKGs the next morning, after Charlene had died. TRH 114.

TRH 114.



TRH 114.

ED activates catheterization team

308. At 08:33, EMT Samuel Haag reported to Dr. Harrell that the EKG was “critical” and indicated an “inferior STEMI.” TRH 34.

309. Dr. Harrell “confirmed stemi” and activated the catheterization team. TRH 34.

Document Type:	ED Note Nursing
Service Date/Time:	2/24/2020 08:33 EST
Result Status:	Auth (Verified)
Document Subject:	
Sign Information:	Haag, EMT, Samuel (2/24/2020 09:09 EST)
reported critical ekg, inferior stemi, to justin harrell, md. confirmed stemi, advised to activate cath team	
Electronically Signed on 02/24/20 09:09 AM	

TRH 34.

310. At 08:34, the catheterization team was “activated,” and started to prepare Charlene for the procedure. TRH 33.

Document Type:	ED Note Nursing
Service Date/Time:	2/24/2020 08:34 EST
Result Status:	Auth (Verified)
Document Subject:	cath lab
Sign Information:	Tapp,RN,Kimberly (2/24/2020 08:45 EST)
Cath team activated. patient prep with radiographic zoll pads, groin shaved.	
Electronically Signed on 02/24/20 08:45 AM	

TRH 33.

311. At 08:40, Charlene’s pain remained a 10. TRH 135.

	Recorded Date Recorded Time Recorded By	2/24/2020 15:00 EST Carver,RN,Holly	2/24/2020 08:40 EST Tapp,RN,Kimberly
Procedure			
Pain Present		No actual or suspected pain	Yes actual or suspected pain
Pain,Unable to Self Report		-	No
Numeric Pain Score (0-10)		-	10
Numeric Pain Score with Activity		-	10
Pt Under 7 or Unable to Communicate		-	No

TRH 135.

312. By 08:43, Dr. Harrell reviewed the EKG. It showed “sinus rhythm at 71 bpm with ST elevation in anterior leads,” indicating “an inferior MI.” TRH 17.

Medical Decision Making:
 8:43 AM EKG shows sinus rhythm at 71 bpm with ST elevation in anterior leads. EKG indicates an inferior MI. EKG reviewed by my attending physician, Dr. Harrell. The case was discussed with Dr. Murray who is familiar with this patient. He does not think this is a STEMI and has canceled the cath team at this time. He wants her to be worked up and then call him after her labs are back. her BP is currently 100/60 therefore NTG was not given at this time. Morphine, Zofran, O2 and aspirin ordered.

TRH 17.

Dr. Murray overrules STEMI diagnosis

313. At about 08:43, without examining Charlene, Dr. Murray disagreed with the diagnosis of a STEMI. As a result, Dr. Murray “canceled the cath team at this time,” pending the results of Charlene’s cardiac biomarkers (“labs”). TRH 17.

Medical Decision Making:

8:43 AM EKG shows sinus rhythm at 71 bpm with ST elevation in anterior leads. EKG indicates an inferior MI. EKG reviewed by my attending physician, Dr. Harrell. The case was discussed with Dr. Murray who is familiar with this patient. He does not think this is a STEMI and has canceled the cath team at this time. He wants her to be worked up and then call him after her labs are back. her BP is currently 100/60 therefore NTG was not given at this time. Morphine, Zofran, O2 and aspirin ordered.

TRH 17.

314. Shortly after that, Hospitalist Cynthia Phillips arrived and directed the team to stop preparing Charlene for the catheterization. Dr. Phillips looked puzzled and unsettled. She explained that she had just spoken to Dr. Murray by telephone and that he did not want to perform another catheterization because the last one was unsuccessful.

315. Dr. Phillips also informed Charlene and Carrie that the catheterization had revealed a complete RCA occlusion that Dr. Murray “was unable to fix.” This was the first time Charlene or her family learned of the occlusion.

Dr. Phillips orders admission to SDU

316. At 08:35, Charlene’s cardiac biomarkers all remained far above the reference range. TRH 118.

Cardiac Markers

	Collected Date Collected Time	2/24/2020 15:03 EST	2/24/2020 14:14 EST	2/24/2020 08:35 EST	Units	Reference Range
Procedure						
Troponin-I		6.06 ^{C12} *1	5.93 ^{C13} *1	7.40 ^{C14} *1	ng/mL	[0.01-0.03]
CK		-	-	193 ^H *1	IntlUnit/mL	[30-135]
CKMB		-	-	18.1 ^H *1	ng/mL	[0.5-5.0]
B-Type Natriuretic Peptide		-	-	391 ^H *1	pg/mL	[0-100]

TRH 118.

317. At 09:12, Nurse Julia Delaney Dasher reported the Troponin-I level as a “critical value” to Family Nurse Practitioner Dawn Glisson. TRH 162.

Recorded Date	2/24/2020	2/24/2020
Recorded Time	10:39 EST	09:12 EST
Recorded By	Dasher,RN,Julia Delaney	Dasher,RN,Julia Delaney
Procedure		
Provider Notification Reason	-	Critical value reporting
Provider Notification Details	-	Trop 7.09
Provider Contacted	-	Yes
Provider at Bedside	Phillips, DO, Cynthia	Glisson, FNP-C, Dawn
Provider Response Time	-	2/24/2020 09:12 EST
Physician Requested Interventions	-	Results Read Back and Verified

TRH 162.

318. Between 08:43 and 09:18, FNP-C Glisson reviewed Charlene’s chest x-ray, which revealed “no acute findings.” TRH 17. FNP-C Glisson also reviewed Charlene’s cardiac biomarkers. THR 17.

319. By 09:18, FNP-C Glisson “discussed these results with Dr. Murray.” TRH 17.

320. Although he had cancelled the catheterization pending the lab results, and although Charlene’s biomarkers remained “elevated” and were “critical values,” Dr. Murray recommended “medical management.” TRH 17.

321. In addition, although Charlene’s chest x-ray revealed “no acute chest findings,” and although the chest pain during her first hospitalization was from the NSTEMI, Dr. Murray now cited Charlene’s “pleuritic type chest pain” of “last week” as the basis for his recommendation. TRH 119, TRH 17.

322. At 09:18, while recognizing that the chest CT scan of February 20 had ruled out pulmonary embolism, FNC-C Glisson and Dr. Harrell followed Dr. Murray’s recommendation and “presented” Charlene “to hospital medicine for admission, further evaluation, and management.” TRH 17.

9:18 AM The patient's labs were reviewed and the CBC shows a leukocytosis of 14.2. Coagulation studies are normal. The CMP is benign. Cardiac enzymes are elevated with a troponin of 7.4, CK of 193, CK-MB of 18.1, as well as a BNP of 391. CXR was viewed by me with with no acute findings noted. I discussed these results with Dr. Murray who recommends medical management. He states that she had pleuritic type chest pain last week. She had a CT a of the chest to rule out pulmonary embolism on February 20 which was negative for PE. She will be presented to hospital medicine for admission, further evaluation, and management.

TRH 17.

323. By 09:21, Charlene's chest x-ray demonstrated "no interval change," "no acute chest findings," and "continued normal heart size with clear lungs and pleural spaces." TRH 119.

324. At 09:24, FNP-C Glisson entered a request to admit Charlene for medical observation. TRH 70.

Order: Request for Admit		
Order Date/Time: 2/24/2020 09:24 EST		
Order Status: Discontinued	Department Status: Discontinued	Activity Type: Admit/Transfer/Discharge
End-state Date/Time: 2/28/2020 01:01 EST	End-state Reason:	
Ordering Physician: Glisson,FNP-C,Dawn	Consulting Physician:	
Entered By: Glisson,FNP-C,Dawn on 2/24/2020 09:24 EST		
Order Details: 2/24/20 9:24:00 AM EST, Medical, Observation, Medical Unit		

TRH 70.

325. At 09:26, Dr. Phillips ordered Charlene's admission to the step-down unit (SDU). TRH 70.

Order: PSO Admit to Inpatient		
Order Date/Time: 2/24/2020 09:26 EST		
Order Status: Discontinued	Department Status: Discontinued	Activity Type: Admit/Transfer/Discharge
End-state Date/Time: 2/28/2020 01:01 EST	End-state Reason:	
Ordering Physician: Phillips,DO,Cynthia	Consulting Physician:	
Entered By: Phillips,DO,Cynthia on 2/24/2020 09:26 EST		
Order Details: Medical 02/24/20 9:26:00 EST, Private, Step-Down, Phillips, DO, Cynthia, 2/24/20 9:26:00 AM EST, CM PSO IP		

TRH 70.

ED waits for Dr. Murray to see patient; Dr. Phillips keeps catheterization order active

326. At 09:27 and 09:31, Nurse Dasher attempted unspecified telephone consults. TRH 35-36. At 09:30, Dr. Phillips requested a consult with Dr. Murray about “nSTEMI.” TRH 74.

Consults		
Order: Consult to Physician		
Order Date/Time: 2/24/2020 09:30 EST		
Order Status: Discontinued	Department Status: Discontinued	Activity Type: Provider Consults
End-state Date/Time: 2/28/2020 01:01 EST		End-state Reason:
Ordering Physician: Phillips,DO,Cynthia		Consulting Physician: Murray,MD,Paul
Entered By: Phillips,DO,Cynthia on 2/24/2020 09:30 EST		
Order Details: Routine, Consult Reason: nSTEMI, Murray, MD, Paul		

TRH 74.

327. At 09:33, FNP-C Glisson also recognized that the EKG showed “sinus rhythm at 71 bpm with ST elevation in anterior leads,” indicating “an inferior MI.” TRH 18. (At 18:39, Dr. Harrell confirmed that reading. TRH 19.)

Diagnostic Results
No qualifying data available.
EKG
EKG shows sinus rhythm at 71 bpm with ST elevation in anterior leads. EKG indicates an inferior MI. EKG reviewed by my attending physician, Dr. Harrell. Dr. Murray, cardiologist, was consulted.

TRH 18.

328. At 09:33, Charlene’s pain was “a pressure” and “constant.” TRH 16.

329. At 09:35, Dr. Phillips updated Dr. Harrell’s catheterization order, which therefore remained “active.” TRH 58.

Procedure: Cardiac catheterization		
Last Updated: 2/24/2020 09:35 EST; Phillips,DO, Cynthia	Status: Active	Procedure Date:
Code: 70051019 (SNOMED CT)	Location:	Ranking:
Provider:	Last Reviewed: 2/24/2020 11:08 EST; Phillips,DO,Cynthia	Related Diagnosis:

TRH 58.

330. At 10:23, Dr. Phillips ordered another stat EKG, expressly for “Chest Pain” and “STEMI (ST elevation myocardial infarction).” TRH 72, TRH 24-26.

Order: CV Electrocardiogram 12 Lead		
Order Date/Time: 2/24/2020 10:23 EST		
Order Status: Completed	Department Status: Signed	Activity Type: Cardiovascular
End-state Date/Time: 2/25/2020 06:38 EST	End-state Reason:	
Ordering Physician: Phillips,DO,Cynthia	Consulting Physician:	
Entered By: Phillips,DO,Cynthia on 2/24/2020 10:23 EST		
Order Details: 2/24/20 10:23:00 AM EST, Stat, Chest Pain, STEMI (ST elevation myocardial infarction), Wheelchair, 2/25/20 6:38:59 AM EST, Cardiovascular Type		

TRH 72.

331. At 11:08, Dr. Phillips again updated Dr. Harrell’s catheterization order, which therefore remained “active.” TRH 57.

Procedure: Cardiac catheterization		
Last Updated: 2/24/2020 11:08 EST; Phillips,DO,Cynthia	Status: Active	Procedure Date:
Code: 70051019 (SNOMED CT)	Location:	Ranking:
Provider:	Last Reviewed: 2/24/2020 11:08 EST; Phillips,DO,Cynthia	Related Diagnosis:

TRH 57.

Dr. Phillips diagnosis STEMI, yet orders hospital care in SDU

332. At 11:08, the latest EKG confirmed that Charlene’s heart was suffering an ongoing, evolving inferior STEMI. TRH 113.

333. The EKG revealed a “nonspecific ST & T-wave abnormality,” “evolving changes of inferior myocardial infarction,” and “lateral wall ST depression.” TRH 113.

Feb 24, 2020 11:08:37 AM SINUS RHYTHM
 NONSPECIFIC ST & T-WAVE ABNORMALITY
 EVOLVING CHANGES OF INFERIOR MYOCARDIAL INFARCTION
 LATERAL WALL ST DEPRESSION
 BORDERLINE ECG
 Confirmed By: Murray, MD, Paul 2/25/2020 6:38:59 AM

TRH 113.

334. At 11:10, Nurse Dasher notified Dr. Murray of the latest EKG. TRH 142.

Recorded Date	2/24/2020	2/24/2020
Recorded Time	11:10 EST	08:30 EST
Recorded By	Dasher,RN,Julia Delaney	Tapp,RN,Kimberly
Procedure		
EKG Notified	Murray, MD, Paul	Harrell, MD, Justin
EKG Performed By	Emergency Department/Lab staff	Emergency Department/Lab staff

TRH 142.

335. At 11:10, Dr. Phillips also diagnosed Charlene with “STEMI (ST elevation myocardial infarction) – based on EKG.” TRH 36, TRH 38.

336. Nevertheless, Dr. Phillips planned to “admit [Charlene] to SDU,” noting that Dr. Murray was “coming to see patient.” TRH 38.

Assessment/Plan

1. STEMI (ST elevation myocardial infarction)

- based on EKG - troponin already elevated from previous NSTEMI
- admit to SDU
- IVF continued
- holding BB as this is inferior
- continue ASA, Plavix, Clopidogrel
- Dr. Murray coming to see patient - no NTG as it will likely drop pressure as well

TRH 38.

337. At 11:12, Dr. Phillips ordered initial hospital care incident to “STEMI (ST elevation myocardial infarction).” TRH 75.

Order: HM Initial Hospital Care/Day 70 Minutes 99223		
Order Date/Time: 2/24/2020 11:12 EST		
Order Status: Completed	Department Status: Completed	Activity Type: Evaluation and Management
End-state Date/Time: 2/24/2020 11:12 EST	End-state Reason:	
Ordering Physician: Phillips,DO,Cynthia	Consulting Physician:	
Entered By: Phillips,DO,Cynthia on 2/24/2020 11:12 EST		
Order Details: 2/24/20 11:12:00 AM EST, Incident To, Tobacco use Coronary artery disease STEMI (ST elevation myocardial infarction)		

TRH 75.

Though EKG and biomarkers are “consistent with STEMI,” Dr. Murray insists Charlene is not having a STEMI

338. At about 12:38, Dr. Murray “reviewed the EKG” and finally “examined the patient,” in consultation with Nurse Practitioner Radha Patel. TRH 44-47.

339. Dr. Murray acknowledged that the EKG had “inferior leads ST elevation” and that the “findings on cardiac enzymes and EKG were consistent with STEMI.” TRH 45. Nevertheless, Dr. Murray insisted that the “Patient is not having acute heart attack.” TRH 45.

340. The basis for his conclusion now shifted from the “pleuritic type pain” of “last week” to “the recent cath.” TRH 45.

Assessment/Plan
1. STEMI (ST elevation myocardial infarction)
 Patient is not having acute heart attack. Findings on cardiac enzymes and EKG consistent with STEMI however, LHC was done on 02/21/2020. Patient denies any radiating pain. patient does complain of chest pain that began last night. EKG with inferior leads ST elevation. Dr. Murray has reviewed EKG he thinks that it can be due to recent heart cath. Cardiac enzymes initial troponin with 7.40. Will trend cardiac enzymes. There is no plan for repeating any ischemic evaluation at this time per Dr. Murray. We will continue to monitor patient will trend cardiac enzymes. Will repeat EKG x4 every 6 hours. Will add Ranexa 500 mg twice daily.

TRH 45.

341. Accordingly, Dr. Murray informed NPC Patel that there was “no plan for repeating any ischemic evaluation at this time.” TRH 45.

342. Accordingly, NPC Patel decided to “continue to monitor patient,” “trend cardiac enzymes,” and “repeat EKG x4 every 6 hours.” TRH 45.

3. Tobacco use

Plan: Dr. Murray has seen and examined the patient. Plan of care has been discussed with patient and family. Will update hospitalist on board as well. There is no plan for any ischemic evaluation at this time. We will add Ranexa 500 mg twice daily for microvascular changes. We will continue to monitor cardiac enzymes and EKGs. Every 6 hrs x 4 . Continue to follow. Thank you for this consultation.

TRH 45.

Dr. Murray tells family that pain is carryover, blood-flow will bypass occlusion, and Charlene just has to “push through” pain

343. At the time of his consult, Dr. Murray told Jason and Carrie that Charlene’s chest pain was a “carryover” from the recent NSTEMI.

344. When Carrie asked if the occlusion could cause further harm to Charlene, Dr. Murray said “no.”

345. Then, implying that collateral circulation could form overnight, Dr. Murray explained that blood-flow would bypass the blockage on its own.

346. Dr. Murray added that nothing else could be done for Charlene and that she was “just going to have to push through the pain.”

347. A few hours later, a nurse repeated that statement to Charlene and her family as she was writhing in pain on the brink of death.

348. When Carrie observed that the pain seemed to be from a new heart attack, Dr. Murray stared blankly at her without response.

349. Dr. Murray’s meeting with Charlene’s family lasted less than 10 minutes and was his only contact with her or her family on this, the day of her death.

*Charlene is discharged to SDU, with instructions to seek immediate medical attention for chest discomfort, because
“MINUTES DO MATTER”*

350. At 14:14, Charlene’s Troponin-I was still high, at 5.93. At 15:03, it rose to 6.06. TRH 118.

Collected Date	2/24/2020	2/24/2020	2/24/2020		
Collected Time	15:03 EST	14:14 EST	08:35 EST		
Procedure				Units	Reference Range
Troponin-I	6.06 ^{C12} **1	5.93 ^{C13} **1	7.40 ^{C14} **1	ng/mL	[0.01-0.03]
CK	-	-	193 ^H **1	IntUnit/mL	[30-135]
CKMB	-	-	18.1 ^H **1	ng/mL	[0.5-5.0]
B-Type Natriuretic Peptide	-	-	391 ^H **1	pg/mL	[0-100]

TRH 118.

351. At 15:25, Charlene was discharged from the ED and admitted to the SDU in serious condition on a stretcher. TRH 128, TRH 30.

352. At 15:25, her diagnosis continued to be “STEMI (ST elevation myocardial infarction).” TRH 26.

Diagnosis:
1:STEMI (ST elevation myocardial infarction); 2:Coronary artery disease; 3:Tobacco use

TRH 26.

353. Charlene’s ED-discharge papers instructed her to seek “immediate medical attention” if she experienced “warning signs” of a heart attack, such as chest discomfort lasting “more than a few minutes.” TRH 22. **“MINUTES DO MATTER,”** the instructions warned. TRH 22.

Heart Attack Signs

Chest discomfort: Most heart attacks involve discomfort in the center of the chest and lasts more than a few minutes, or goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.

Discomfort in upper body: Symptoms can include pain or discomfort in one or both arms, back, neck, jaw or stomach.

Shortness of breath: With or without discomfort.

Other signs: Breaking out in a cold sweat, nausea, or lightheaded.

Remember, **MINUTES DO MATTER**. If you experience any of these heart attack warning signs, call **9-1-1** to get immediate medical attention!

TRH 22.

354. At 15:37, in the SDU, Nurse Candice Smith reported the most-recent Troponin-I level as a “critical value” to Dr. Phillips at bedside. TRH 162.

355. Dr. Phillips ordered continued monitoring, not any referral, therapy, or intervention. TRH 162.

	Recorded Date	2/24/2020	2/24/2020	2/24/2020
	Recorded Time	23:33 EST	19:42 EST	15:37 EST
	Recorded By	Powell,RN,Lacey	Powell,RN,Lacey	Smith,RN,Candice
Procedure				
Provider Notification Reason	Other: patient expired	Pain (site)	Critical value reporting	
Provider Notification Details	-	chest pain	troponin 6.06	
Provider Contacted	Yes	Yes	Yes	
Provider at Bedside	Murray, MD, Paul	Pitts, NP-C, Billy Joe	Phillips, DO, Cynthia	
Provider Response Time	2/24/2020 23:34 EST	2/24/2020 19:46 EST	2/24/2020 15:37 EST	
Physician Requested Interventions	-	Orders received	See Below ^{T56}	
Textual Results				
T56:	2/24/2020 15:37 EST (Physician Requested Interventions)			
	No orders received, Continue to monitor, Results Read Back and Verified			

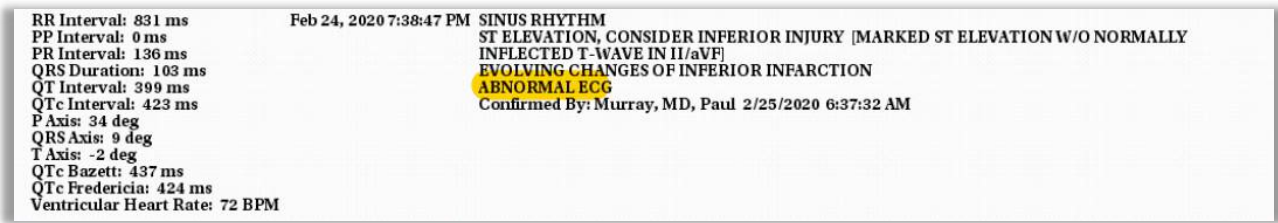
TRH 162.

EKG reconfirms STEMI in progress, telemetry shows cardiac arrest

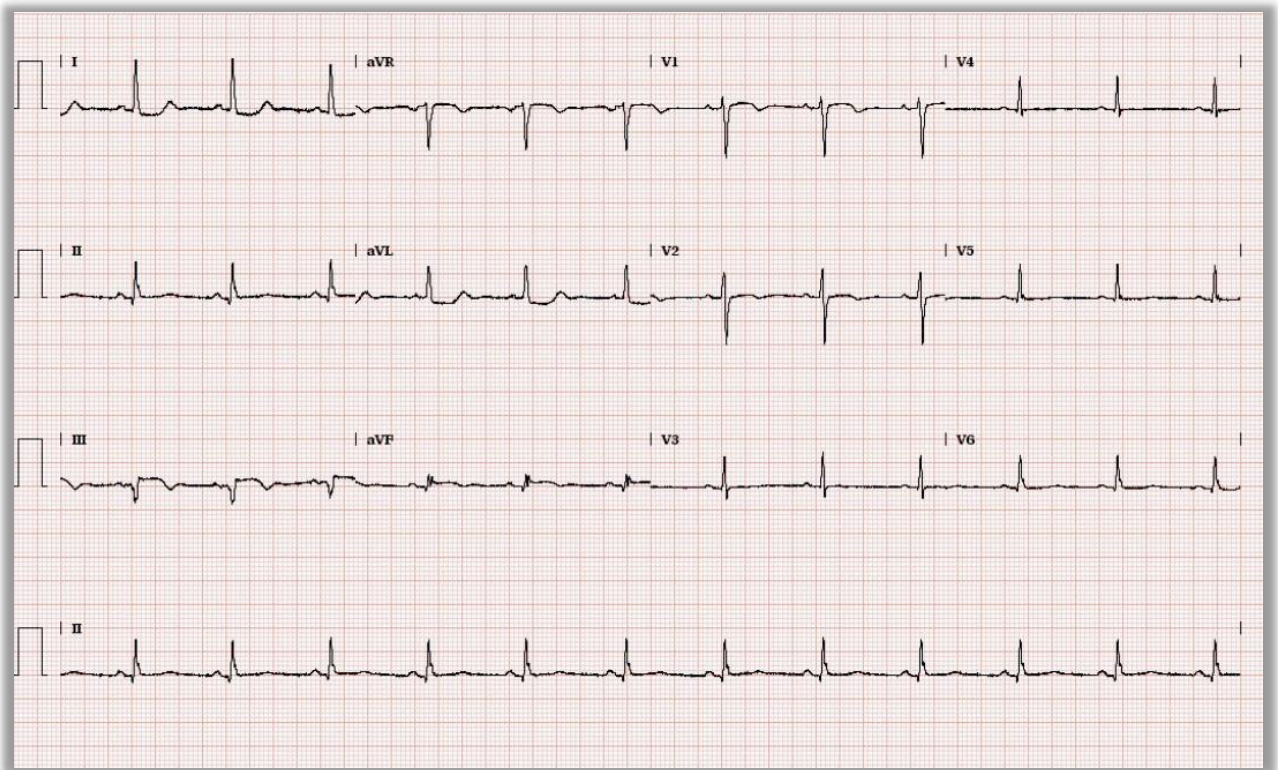
356. At 19:38, an EKG was “abnormal.” TRH 112.

357. This EKG confirmed yet again that Charlene was having an ongoing inferior STEMI. TRH 112.

358. The EKG showed “ST elevation” without a normally inflected T-wave in leads II and aVF, and “evolving changes of inferior infarction,” indicative of “inferior injury.” TRH 112.

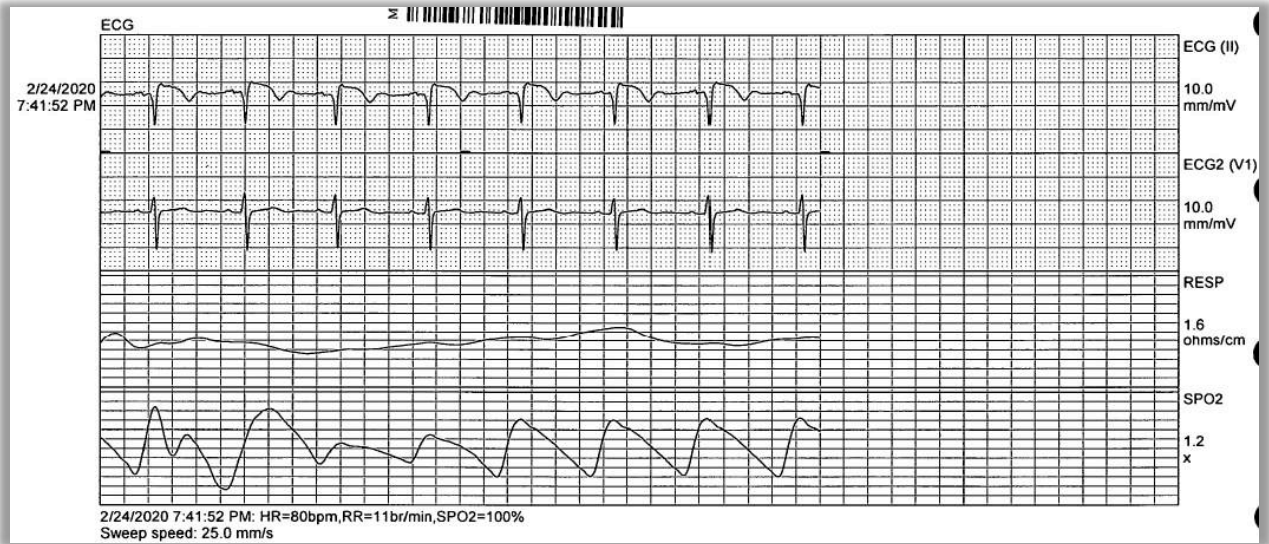


TRH 112.



TRH 112.

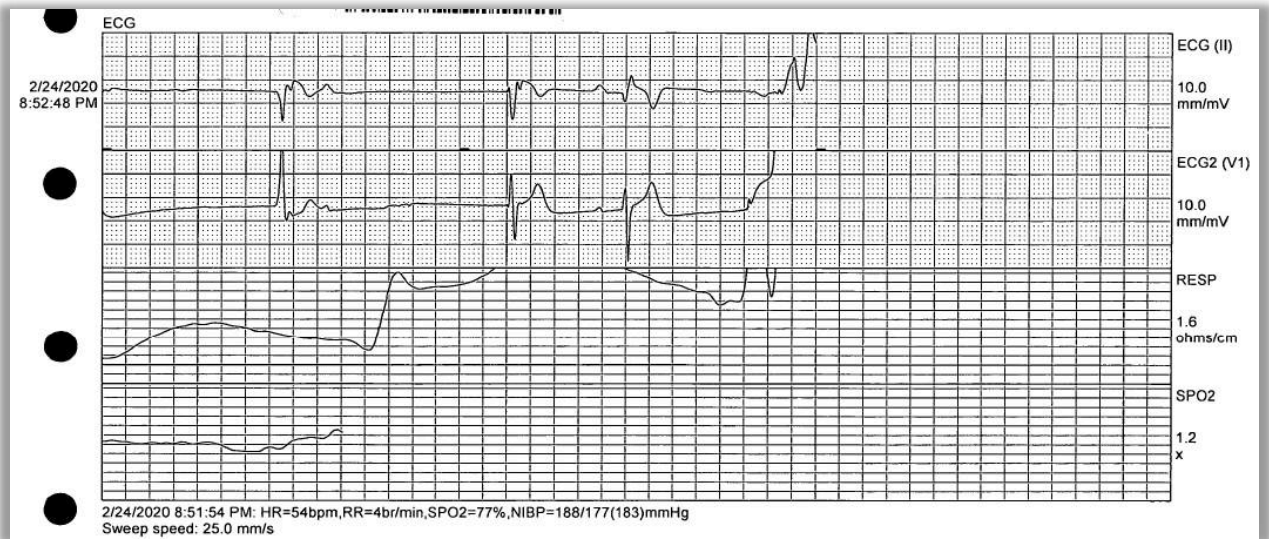
359. At 19:41, telemetry reported to Dr. Phillips continued to demonstrate a STEMI in progress. TRH 50.



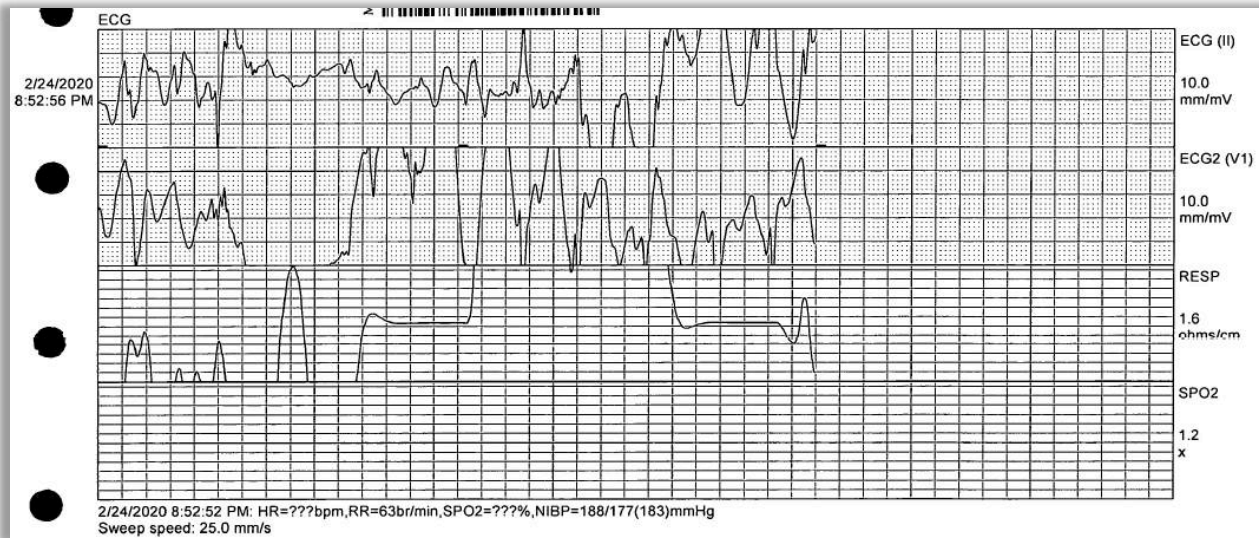
TRH 50.

360. At 19:42, Nurse Practitioner Billie Joe Pitts notified an unnamed provider of Charlene's chest pain. TRH 162. At 19:46, the provider responded with unspecified orders. TRH 162.

361. At 20:52, telemetry reported to Dr. Phillips showed cardiac arrest. TRH 51-52.



TRH 51.



TRH 52.

Charlene Doggett dies

362. At about 20:45, Jason Doggett left his mother's room for a few minutes to get a snack at a hospital vending machine. Since Carrie had gone home to clean up after a long day at Tift, Charlene was left alone in her room.
363. At about 20:53, Charlene suffered cardiopulmonary arrest, code blue was called, and the response team initiated resuscitation (ACLS) efforts. TRH 42.
364. Jason sprinted to his mother's room, to find her dead.
365. Despite "aggressive measures" to revive her, "including chest compressions," the response team was "unable to obtain a sustainable pulse." TRH 42.

She returns to the ER today with complains of acute onset precordial chest pain at 2:00 am - was pain free at discharge and continued to be until 2:00 am, "like an elephant sitting on my chest," 10/10, no radiation, earlier diaphoresis, none now, + dyspnea and no nausea or vomiting. Troponin is elevated at 7.40, however, the day prior was 20.90, EKG shows sinus rhythm, rate 71bpm millimeter when compared to an EKG from February 20, 2020, she has ST elevation in lead III and aVF with Q waves, ST depression in I, aVL, V5 and V1 now has less than 1 mm of ST elevation in V1 where previously V1 had an inverted T wave. On arrival to the ER she had normal blood pressure 119/88, was treated with nitroglycerin, blood pressure dropped, she is received IV fluids and morphine and blood pressures improved to 103/70. ER has consulted Dr. Murray who recommends medical management. I've talked with him and he's coming to see the patient. [1] Please see remainder of H&P and EMR patient's hospital course. CODE BLUE called at 2053 secondary to cardiopulmonary failure. Prior to code, patient had been having ongoing complaints of chest pain. ACLS protocols were initiated. See ACLS chart for details. Patient treated appropriately, but despite aggressive measures including chest compressions we were unable to obtain a sustainable pulse. Family notified of patient's condition. Patient has been hospitalized for less than 24 hours and is currently a coroner's case.

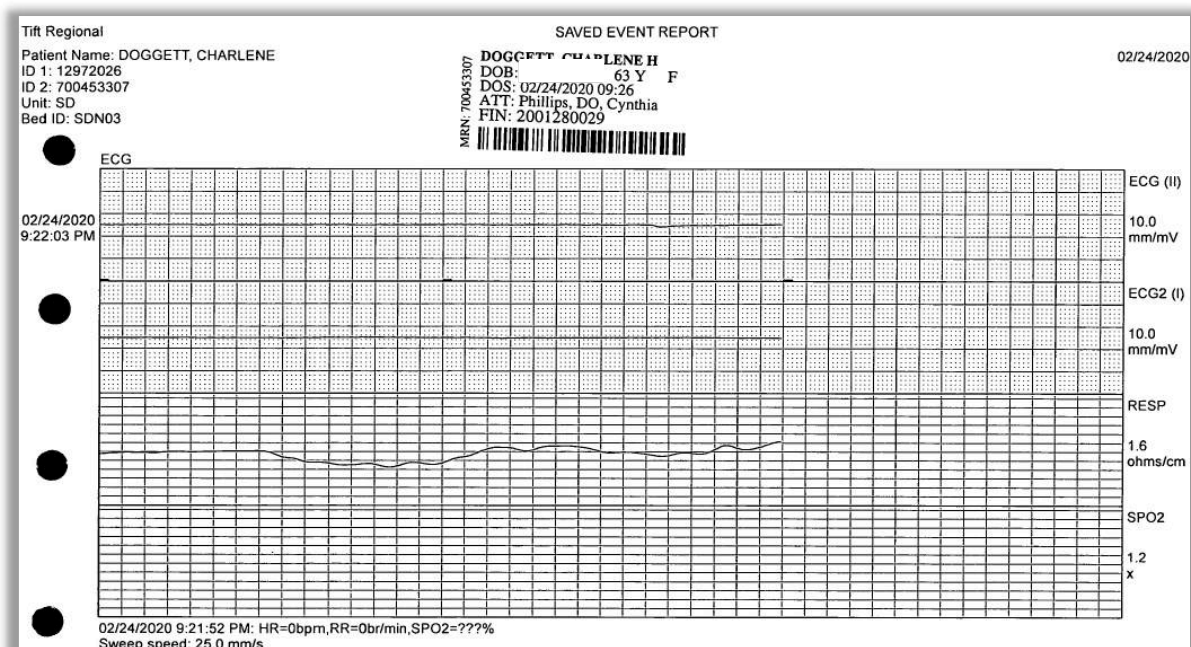
TRH 42.

366. At 21:07, Hospitalist Craig Smith pronounced Charlene Doggett officially dead, referring the case to the medical examiner. TRH 2, TRH 42.

29a. PRONOUNCER'S NAME CRAIG SMITH	29b. LICENSE NUMBER 058588	29c. DATE SIGNED 02/24/2020
30. TIME OF DEATH 21:07 MILITARY	31. WAS CASE REFERRED TO MEDICAL EXAMINER YES	

TRH 2.

367. At 21:22, telemetry confirmed asystole—flatlining. TRH 53.



368. At 21:45, Dr. Smith listed “cardiopulmonary failure” as the preliminary cause of death. TRH 42. Among other pertinent diagnoses, Dr. Smith listed “ST elevation (STEMI) myocardial infarction.” TRH 42.

Preliminary Cause of Death
Cardiopulmonary failure

Additional Pertinent Diagnoses
Atherosclerotic heart disease of native coronary artery without angina pectoris

ST elevation (STEMI) myocardial infarction of unspecified site

Tobacco use

TRH 42.

369. Charlene’s official cause of death was acute myocardial infarction and/or arrhythmia. TRH 2.

32. Part I. Enter the chain of events-diseases, injuries, or complications that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE.		Approximate interval between onset and death
IMMEDIATE CAUSE (Final disease or condition resulting in death)	A. ACUTE MI AND OR ARRHYTHMIA Due to, or as a consequence of	SUDDEN
	B. CORONARY ARTERY DISEASE Due to, or as a consequence of	YEARS
	C.	

TRH 2.

370. At 23:33, Nurse Lacey Powell notified Dr. Murray that “patient expired.” TRH 162.

371. After Charlene died, Charlene’s family asked to see Dr. Murray, hoping he could explain her death, but he never came to see them.

372. Instead, Dr. Smith stopped by and told Charlene’s siblings that Tift “does not crack the chest open for just one blockage” and that “sometimes your loved ones just die.”

Dr. Murray relabels Charlene’s chest pain as “clearly pleuritic,” yet belatedly confirms EKGs showing STEMI

Tuesday, February 25, 2020

373. At 06:34, Dr. Murray accessed the Tift records system and entered an “Addendum” to his consultation note of 12:38 the previous day. TRH 47.

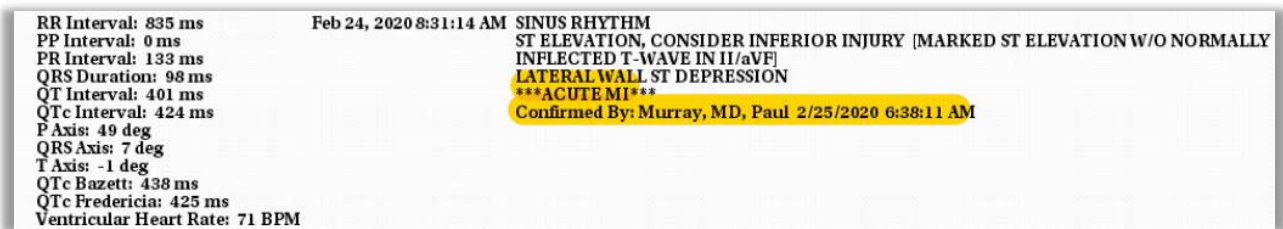
374. Dr. Murray now relabeled Charlene’s pain as “clearly pleuritic.” TRH 47.

Addendum by Murray, MD, Paul on February 25, 2020 6:34:05 AM EST
 PMM: Seen and examined. Lungs: clear, CV: RRR. Agree with above. Patient seen in the emergency room with family in the room. Patient continues to have similar pain as prior admission. Pain is clearly pleuritic with a deep breath and palpable along her left sternal chest. Previous cath reviewed. Agree with admission for observation.
 Electronically Signed on 02/25/20 06:35 AM

 Murray, MD, Paul

TRH 47.

375. Even though Charlene’s pain during her first visit to Tift four days earlier was angina from the NSTEMI, TRH 172, TRH 36, Dr. Murray now explained that this “pleuritic pain” was “similar pain as prior admission.” TRH 47.
376. Dr. Murray’s same addendum thus contradicts his after-the-fact attempt to relabel Charlene’s angina as “clearly pleuritic.”
377. At 06:37 and 06:38, Dr. Murray belatedly confirmed three of Charlene’s EKGs of the prior day. TRH 112-14. Each showed she was having a STEMI.



TRH 114.

Professional Negligence: Standard-of-Care Violations

378. This Complaint next identifies requirements of the standard of care that apply under the following circumstances present in this case:
- a. a cardiologist (here, Dr. Paul Murray) is caring for patient (here, Charlene Doggett) with an NSTEMI, at a hospital (here, Tift) without the capability to perform bypass surgery;
 - b. the cardiologist finds a 100% in-stent occlusion in the patient’s mid-RCA, through a catheterization study;
 - c. the cardiologist also finds no collateral circulation around the occlusion, during the same catheterization study;
 - d. the cardiologist is unable to clear the occlusion with angioplasty; and
 - e. the patient is discharged from the hospital two days later, with a completely occluded RCA and without further investigation of the adequacy of collateral blood-flow or myocardial perfusion.
379. This Complaint then also outlines how each requirement was violated here.

*Count 1: Failure to Refer for Angioplasty – Against Dr. Murray
and the Southwell Defendants*

380. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
381. In the circumstances summarized in Paragraph 378, the standard of care requires the cardiologist to refer the patient to a hospital capable of performing bypass surgery, where the patient can undergo another angioplasty, with bypass surgery as a backup in case of complications.
382. On February 21, 22, and 23, 2020, Dr. Paul Murray violated this requirement by failing to refer Charlene Doggett to another hospital for an angioplasty. Dr. Murray's violation was all the more egregious because Charlene was having, or had just had, an NSTEMI.
383. At a hospital capable of performing bypass surgery, an interventional cardiologist could have performed an angioplasty more aggressively, knowing that bypass surgery was available as a backup in case of complications. Also, a referral hospital would have had greater clinical capabilities than Tift.
384. On February 21, 22, and 23, 2020, Charlene was eligible for an angioplasty at a referral hospital.
385. Because Charlene's heart was otherwise fundamentally healthy, an angioplasty at a referral hospital likely would have been successful.
386. A successful angioplasty would have restored normal blood-flow to Charlene's heart, and thus would have prevented or resolved her STEMI.
387. Had Dr. Murray referred Charlene for an angioplasty at another hospital, she would have survived and resumed her life.
388. Dr. Murray's failure to refer Charlene to another hospital for an angioplasty thus caused her pain, suffering, injury, and death.
389. As alleged below, even if another angioplasty had proved unsuccessful, Charlene then would have undergone a successful bypass surgery.

390. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.

*Count 2: Failure to Refer for Bypass Surgery - Against Dr. Murray
and the Southwell Defendants*

391. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.

392. In the circumstances summarized in Paragraph 378, the standard of care requires the cardiologist to refer the patient to a heart surgeon for bypass surgery.

393. On February 21, 22, and 23, 2020, Dr. Murray violated this requirement by failing to refer Charlene Doggett to a heart surgeon for bypass surgery. In fact, Dr. Murray did not even consult a heart surgeon.

394. Dr. Murray's violation was all the more egregious because (a) Charlene was having, or had just had, an NSTEMI, and (b) she had a Type A, high-risk occlusion with a 0 TIMI Flow Grade in a major coronary artery.

395. On February 21, 22, and 23, 2020, Charlene was eligible for bypass surgery.

396. Bypass surgery would have restored normal blood-flow around the occlusion, and thus would have prevented or resolved Charlene's STEMI.

397. Had Dr. Murray referred Charlene for bypass surgery, she would have survived and resumed her life.

398. The failure to refer Charlene for bypass surgery thus caused her pain, suffering, injury, and death.

399. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.

*Count 3: Failure to Obtain Informed Consent - Against Dr.
Murray and the Southwell Defendants, and Against Dr.
Tronolone, Tronolone Cardiology, and Tronolone Medical*

400. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
401. In the circumstances summarized in Paragraph 378, the standard of care requires a cardiologist to obtain the patient's informed consent to a course of treatment that excludes bypass surgery and another angioplasty at another hospital.
402. Dr. Murray (on February 21, 22, and 23, 2020) and Dr. Tronolone (on February 23, 2020) each violated this requirement by:
- a. failing to inform Charlene of the occlusion;
 - b. failing to inform Charlene that bypass surgery and another angioplasty were definitive-care options available at other hospitals; and
 - c. failing to obtain Charlene's consent to a course of treatment that excluded bypass surgery and another angioplasty.
403. Had Dr. Murray or Dr. Tronolone sought Charlene's informed consent, Charlene would have requested and sought an angioplasty and/or bypass surgery at another hospital. As a result, her STEMI would have been prevented or resolved, and her death averted.
404. Each failure to obtain Charlene's informed consent thus caused her pain, suffering, injury, and death.
405. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.
406. As Dr. Tronolone's employer or other principal at the time of his negligence, Tronolone Cardiology and/or Tronolone Medical are/is vicariously liable for his negligence, because Dr. Tronolone was acting within the scope of his employment or agency with either or both of those entities at that time.

*Count 4: Failure to Administer Myocardial Perfusion Test -
Against Dr. Murray and the Southwell Defendants, and Against
Dr. Tronolone, Tronolone Cardiology, and Tronolone Medical*

407. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
408. In the circumstances summarized in Paragraph 378, the standard of care requires a cardiologist to give the patient a myocardial perfusion test.
409. Dr. Murray (on February 21, 22, and 23, 2020) and Dr. Tronolone (on February 23, 2020) each violated this requirement, by failing to give Charlene Doggett a myocardial perfusion test.
410. Such further investigation of the adequacy of collateral blood-flow and myocardial perfusion would have shed light on where and to what extent Charlene's heart-muscle was in jeopardy. The test thus would have confirmed the deadly threat posed by the unresolved occlusion in Charlene's RCA, highlighting the importance of providing her definitive and emergent care.
411. Each failure to give Charlene a myocardial perfusion test thus led to her pain, suffering, injury, and death.
412. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.
413. As Dr. Tronolone's employer or other principal at the time of his negligence, Tronolone Cardiology and/or Tronolone Medical are/is vicariously liable for his negligence, because Dr. Tronolone was acting within the scope of his employment or agency with either or both of those entities at that time.

*Count 5: Premature Closure and Discharge - Against Dr. Murray
and the Southwell Defendants, and Against Dr. Tronolone,
Tronolone Cardiology, and Tronolone Medical*

414. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
415. In the circumstances summarized in Paragraph 378, the standard of care requires a cardiologist to keep the patient hospitalized while the occlusion remains unresolved.
416. On February 23, 2020, Dr. Murray and Dr. Tronolone each violated this requirement by failing to order Charlene Doggett's continued hospitalization, permitting instead the premature closure of her case and her premature discharge from Tift.
417. These violations were all the more egregious because:
- a. Charlene had a 100% occlusion with a TIMI Flow Grade of 0 and no collateral circulation; and
 - b. Dr. Murray and Dr. Tronolone did not order or perform a myocardial perfusion test or any other further investigation of the adequacy of myocardial perfusion or collateral blood-flow around the occlusion.
418. Had Charlene remained hospitalized, providers at Tift would have had additional encounters with her, each an additional opportunity to recognize, diagnose, and respond properly to her myocardial infarction.
419. The premature closure and discharge thus deprived Charlene of vital opportunities to prevent or resolve her STEMI and avert her death.
420. Each failure to keep Charlene hospitalized thus led to her pain, suffering, injury, and death.
421. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.

422. As Dr. Tronolone's employer or other principal at the time of his negligence, Tronolone Cardiology and/or Tronolone Medical are/is vicariously liable for his negligence, because Dr. Tronolone was acting within the scope of his employment or agency with either or both of those entities at that time.
423. Dr. Tronolone's failure to keep Charlene hospitalized (and to order myocardial imaging) exemplifies a systemic failure: Tift was understaffed on weekends.

Count 6: Failure to Diagnose STEMI - Against Dr. Murray and the Southwell Defendants

424. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
425. When a patient develops a STEMI, the standard of care requires a cardiologist to recognize and diagnose the STEMI. These requirements apply with special force in the circumstances summarized in Paragraph 378.
426. On February 24, 2020, Dr. Murray violated these requirements by:
- a. failing to recognize and diagnose Charlene Doggett's STEMI;
 - b. ruling out STEMI as the diagnosis, overruling other providers;
 - c. making his misdiagnosis without first examining Charlene; and
 - d. failing to correct his misdiagnosis in the face of additional evidence (chest-pain, biomarkers, EKGs) confirming that Charlene was actively infarcting and gradually and painfully dying from a STEMI in progress.
427. Dr. Murray's violations were all the more egregious because:
- a. Charlene had just had an NSTEMI;
 - b. the attending physician at the ER diagnosed Charlene with a STEMI immediately upon her return to Tift that morning;
 - c. Charlene's medical history, clinical presentation, and test results made it clear that she was having an acute inferior STEMI;

- d. the inferior STEMI was consistent with the complete occlusion in the mid-RCA that Dr. Murray himself found; and
 - e. Dr. Murray himself recognized that Charlene's biomarkers and EKG indicated she was having an acute inferior STEMI.
428. Because Dr. Murray's failure to diagnose the STEMI provided a rationale for the failure to refer or transfer Charlene to another hospital for definitive care, his failure to diagnose caused her pain, suffering, injury, and death.
429. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.
430. In addition, Dr. Murray's failures exemplify broader institutional failures.
431. First, Dr. Murray's wanton delay in examining Charlene exemplifies the failure to have, or disseminate or enforce, policies and protocols for the rapid evaluation and treatment of heart-attack patients.
432. Second, his failure to diagnose an obvious STEMI exemplifies Tift's failure to hire, contract, or privilege qualified and competent medical providers.
433. Third, Dr. Murray's failure to diagnose the STEMI exemplifies Tift's failure to train, review, and evaluate medical providers for basic competence.
434. In addition, upon information and belief, Dr. Murray's failures in this case reflect a professional and/or personal history that the Southwell Defendants knew about or should have known about in hiring or credentialing him.

*Count 7: Failure to Diagnose and Treat Angina - Against Dr.
Murray and the Southwell Defendants*

435. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
436. In the circumstances summarized in Paragraph 378, when the patient has angina, the standard of care requires the cardiologist to diagnose and treat the angina.

437. On February 24, 2020, Dr. Murray violated these requirements by failing to diagnose and treat Charlene Doggett's angina.
438. Dr. Murray's violations were all the more egregious because:
- a. the attending physician in the ER diagnosed Charlene with a STEMI immediately upon her return to Tift that morning;
 - b. Charlene's medical history, clinical presentation, and test results made it clear that she was having an acute STEMI;
 - c. Dr. Murray himself recognized that Charlene's biomarkers and EKG indicated she was having a STEMI;
 - d. Charlene rated her chest pain a 10, and described it as "an elephant sitting" on her chest;
 - e. the angina was a symptom of a STEMI in progress that gradually and painfully took Charlene's life; and
 - f. Dr. Murray misinformed Charlene that her chest pain was normal and that she just had to "push through the pain."
439. Dr. Murray also violated these requirements by failing to correct his misdiagnosis even in the face of additional evidence (chest-pain, biomarkers, EKGs) confirming STEMI.
440. Because Dr. Murray's failure to diagnose the angina served as a rationale for the failure to refer or transfer Charlene to another hospital for definitive care, his failure to diagnose caused her pain, suffering, injury, and death.
441. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.

*Count 8: Second Failure to Refer for Angioplasty – Against Dr.
Murray and the Southwell Defendants*

442. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
443. In the circumstances summarized in Paragraph 378, when the patient has a STEMI within a few days after the onset of the NSTEMI, the standard of care requires the cardiologist emergently to refer the patient to a hospital capable of performing bypass surgery, where the patient can undergo another angioplasty, with bypass surgery as a backup in the event of complications.
444. On February 24, 2020, Dr. Murray violated this requirement, by failing to refer Charlene Doggett to another hospital for angioplasty.
445. On February 24, 2020, Charlene remained eligible for an angioplasty at a referral hospital.
446. At a hospital capable of performing bypass surgery, an interventional cardiologist could have performed angioplasty more aggressively, knowing that bypass surgery was available as a backup in case of complications. Also, a referral hospital would have had greater clinical capabilities than Tift.
447. Because Charlene's heart was otherwise fundamentally healthy, an angioplasty at a referral hospital likely would have been successful.
448. A successful angioplasty would have restored normal blood-flow to Charlene's heart, and thus would have resolved her STEMI.
449. Had Dr. Murray referred Charlene for an angioplasty at another hospital, she would have survived and resumed her life.
450. Dr. Murray's additional failure to refer Charlene for an angioplasty thus caused her pain, suffering, injury, and death.
451. As alleged below, even if another angioplasty had proved unsuccessful, Charlene then would have undergone a successful bypass surgery.
452. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence,

because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.

*Count 9: Second Failure to Refer for Bypass Surgery - Against Dr.
Murray and the Southwell Defendants*

453. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
454. In the circumstances summarized in Paragraph 378, when the patient has a STEMI within a few days after the onset of the NSTEMI, the standard of care requires the cardiologist to refer the patient emergently to a heart surgeon for bypass surgery.
455. On February 24, 2020, when Charlene returned to Tift with a STEMI, Dr. Murray violated this requirement, by failing to refer her to a heart surgeon for bypass surgery. Dr. Murray did not even consult a heart surgeon.
456. Dr. Murray's violation was all the more egregious because (a) Charlene was having, or had just had, an NSTEMI, and (b) she had a Type A, high-risk occlusion with a 0 TIMI Flow Grade in a major coronary artery.
457. On February 24, 2020, Charlene remained eligible for bypass surgery.
458. Bypass surgery would have restored normal blood-flow around the occlusion, and thus would have resolved Charlene's STEMI.
459. Had Dr. Murray referred Charlene for bypass surgery, she would have survived and resumed her life.
460. This additional failure to refer Charlene for bypass surgery thus caused her pain, suffering, injury, and death.
461. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.

*Count 10: Second Failure to Obtain Informed Consent - Against
Dr. Murray and the Southwell Defendants*

462. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
463. In the circumstances summarized in Paragraph 378, when the patient has a STEMI within a few days after the onset of the NSTEMI, the standard of care requires the cardiologist to obtain the patient's informed consent to a course of treatment that excludes bypass surgery and another angioplasty.
464. On February 24, 2020, Dr. Murray violated this requirement by:
- a. failing to inform Charlene Doggett that she was having a STEMI;
 - b. failing to inform Charlene that bypass surgery and another angioplasty were definitive-care options available at other hospitals;
 - c. failing to obtain Charlene's consent to a course of treatment that excluded bypass surgery and another angioplasty;
 - d. misinforming Charlene that her angina was "carryover" from the NSTEMI; and
 - e. misinforming Charlene that her heart would self-correct—that is, bypass the occlusion on its own.
465. Had Dr. Murray sought Charlene's informed consent on this date, Charlene would have requested and sought an angioplasty and/or bypass surgery at another hospital.
466. As a result, her heart would have been revascularized, her STEMI resolved, and her death averted.
467. This additional failure to obtain Charlene's informed consent thus caused her pain, suffering, injury, and death.
468. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence,

because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.

Count 11: Failure to Maintain Records - Against Dr. Murray and the Southwell Defendants

469. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
470. In the circumstances summarized in Paragraph 378, the standard of care requires the cardiologist to maintain accurate and timely medical records concerning the patient.
471. On February 25, 2020, the morning after Charlene died from an untreated STEMI, Dr. Murray violated this requirement, by amending his diagnosis of February 24, 2020, to relabel Charlene's chest pain as "clearly pleuritic."
472. In the same amendment, Dr. Murray himself contradicted that label, by acknowledging that Charlene's chest pain was in fact "similar pain as prior admission," when she had *angina* from the NSTEMI.
473. That same morning, Dr. Murray also belatedly confirmed that the EKGs of the prior day showed that Charlene was having an acute STEMI.
474. These failures painted an incomplete, inaccurate, and misleading picture of Charlene's medical condition, further contributing to the repeated failures to recognize, diagnose, and treat her STEMI and angina.
475. Dr. Murray's failures to maintain accurate and timely records thus contributed to Charlene's pain, suffering, injury, and death.
476. As Dr. Murray's employer or other principal at the time of his negligence, one or more of the Southwell Defendants are vicariously liable for his negligence, because Dr. Murray was acting within the scope of his employment or agency with one or more of the Southwell Defendants at that time.

*Count 12: Improper Admission to Tift - Against Dr. Phillips and
the Southwell Defendants*

477. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
478. In the circumstances summarized in Paragraph 378, when the patient returns the next day with a STEMI and the cardiologist refuses to perform another catheterization, the standard of care requires a hospitalist to deny the patient's admission, so that the patient may be transferred to a hospital capable of providing her definitive care—angioplasty and bypass surgery.
479. On February 24, 2020, Hospitalist Cynthia Phillips violated this requirement by admitting Charlene Doggett to Tift, even though Tift lacked both the capability and a plan to provide definitive care for her STEMI.
480. This violation was all the more egregious because:
- a. Charlene had just had an NSTEMI;
 - b. the attending physician in the ER diagnosed Charlene with a STEMI immediately upon her return that morning;
 - c. Charlene's medical history, clinical presentation, and EKGs made it clear that she was having an acute inferior STEMI;
 - d. the inferior STEMI was consistent with an occlusion in the mid-RCA; and
 - e. Dr. Phillips admitted Charlene to the step-down unit (SDU) for medical management and hospital care.
481. Had Dr. Phillips denied Charlene's admission to Tift, Charlene would have been transferred to a hospital capable of providing her definitive care. There, an angioplasty or bypass surgery would have restored normal blood-flow to Charlene's heart, resolving her STEMI and averting her death.
482. Dr. Phillips's admission thus caused Charlene pain, suffering, injury, and death.

483. As Dr. Phillips's employer or other principal at the time of her negligence, one or more of the Southwell Defendants are vicariously liable for her negligence, because Dr. Phillips was acting within the scope of her employment or agency with one or more of those entities at that time.

*Count 13: Failure to Transfer to Another Hospital - Against Dr.
Phillips and the Southwell Defendants*

484. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.

485. If the hospitalist nevertheless admits the patient, the standard of care then requires the hospitalist to transfer the patient emergently to a hospital capable of providing definitive care for the STEMI. In fact, the Emergency Medical Treatment and Labor Act ("EMTALA") requires such transfer. *See* 42 U.S.C. § 1395dd(b)(1).

486. This requirement applies with even greater force where the hospitalist herself has confirmed and documented the STEMI.

487. On February 24, 2020, Dr. Phillips violated this requirement by failing to transfer Charlene to a hospital capable of performing bypass surgery, so that Charlene could there undergo either bypass surgery, or another angioplasty with bypass as a backup, or both.

488. Because it violated EMTALA, Dr. Phillips's failure to transfer Charlene was negligence per se.

489. This violation is all the more egregious because:

- a. Charlene's medical history, clinical presentation, and EKGs confirmed an acute inferior STEMI in progress;
- b. the inferior STEMI was consistent with an occlusion in the mid-RCA;
- c. the attending physician in the ER confirmed his initial diagnosis;
- d. Dr. Phillips herself ordered a second EKG, which confirmed the STEMI;
- e. Dr. Phillips herself noted that Charlene was having a STEMI;

- f. Troponin levels, telemetry, and a third EKG repeatedly reconfirmed a STEMI in progress while Charlene was in the SDU; and
 - g. Charlene spent the last hours of her life dying painfully of an untreated STEMI as an admitted patient in the SDU.
490. At a referral hospital, an angioplasty or bypass surgery would have restored normal blood-flow to Charlene's heart, resolving her STEMI and averting her death.
491. Dr. Phillips's failure to transfer Charlene to another hospital thus caused her pain, suffering, injury, and death.
492. As Dr. Phillips's employer or other principal at the time of her negligence, one or more of the Southwell Defendants are vicariously liable for her negligence, because Dr. Phillips was acting within the scope of her employment or agency with one or more of those entities at that time.

*Count 14: Third Failure to Obtain Informed Consent – Against Dr.
Phillips and the Southwell Defendants*

493. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
494. The standard of care requires the hospitalist to obtain the patient's informed consent to the patient's admission to a hospital that cannot provide definitive care for the STEMI, in lieu of transfer to a hospital that can.
495. On February 24, 2020, Dr. Phillips violated this requirement by:
- a. failing to inform Charlene Doggett that she was having a STEMI;
 - b. failing to inform Charlene that Tift lacked the capability to provide definitive care for her STEMI;
 - c. failing to inform Charlene that bypass surgery and another angioplasty were definitive-care options available at other hospitals;
 - d. failing to obtain Charlene's informed consent to remaining at a hospital that lacked the capability to provide definitive care for her STEMI; and

- e. failing to obtain Charlene’s informed consent to a course of treatment that excluded the definitive care available at other hospitals.
496. Had Dr. Phillips sought Charlene’s informed consent, Charlene would have requested and sought a transfer to a hospital capable of providing her definitive care—another angioplasty and bypass surgery.
497. There, an angioplasty or bypass surgery would have restored normal blood-flow to Charlene’s heart, resolving her STEMI and averting her death.
498. Dr. Phillips’s failure to obtain Charlene’s informed consent thus caused her pain, suffering, injury, and death.
499. As Dr. Phillips’s employer or other principal at the time of her negligence, one or more of the Southwell Defendants are vicariously liable for her negligence, because Dr. Phillips was acting within the scope of her employment or agency with one or more of those entities at that time.
500. The failures by Dr. Murray, Dr. Tronolone, and Dr. Phillips to obtain Charlene’s informed consent exemplify a systemic failure: Tift lacked or did not sufficiently disseminate or enforce policies for obtaining such consent.

Count 15: Ordinary Negligence – Against the Southwell Defendants⁷

501. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
502. Each of the Southwell Defendants owed patients an ordinary duty to safeguard their safety when hospitalized at Tift.
503. Upon information and belief, the Southwell Defendants, through their management and administrators, breached that duty by failing to implement policies, procedures, and practices sufficient to safeguard patient safety.

⁷ Because this Count is for ordinary negligence by the Southwell Defendants through their managers and administrators (as opposed to a claim for professional negligence, based on the conduct of licensed healthcare professionals), it is not subject to O.C.G.A. § 9-11-9.1.

504. The repeated confounding failures by the individual Defendants reveal and exemplify those systemic failures.
505. Dr. Harris's obvious misinterpretation and misstatement of Charlene's medical condition, for example, suggests that Tift lacked or did not sufficiently disseminate or enforce (a) policies requiring medical providers to read and communicate clinical information carefully, and (b) protocols for the effective hand-off of patients and of clinical information among providers.
506. Dr. Tronolone's failures to order a myocardial-perfusion test and to keep Charlene hospitalized suggest (among other problems) that the Southwell Defendants failed to staff Tift sufficiently on weekends.
507. The failures by Dr. Murray, Dr. Tronolone, and Dr. Phillips to obtain Charlene's informed consent suggest that the Southwell Defendants lacked or did not sufficiently disseminate or enforce policies for obtaining such consent.
508. Dr. Murray's wanton delay in examining Charlene suggests that the Southwell Defendants failed to have, disseminate, and/or enforce protocols for the rapid evaluation and treatment of heart-attack patients.
509. Dr. Murray's failure to diagnose an obvious STEMI shows that the Southwell Defendants failed to hire or contract qualified and competent medical providers, even in a specialty as critical as cardiology.
510. Dr. Phillips's failure to transfer Charlene to another hospital suggests that the Southwell Defendants lacked or did not enforce a sound policy for the transfer of patients, even when required by federal law (EMTALA).
511. Dr. Smith's quips that Tift "does not crack the chest open for just one blockage" and that "sometimes your loved ones just die" reveal that Tift lacked proper training and protocols for providing definitive care to heart-attack patients.
512. Such institutional failures, moreover, are widespread among hospitals—a fact that reinforces the systemic breaches inferred from individual failures here.
513. As one article explains, for example: "Clinical Handover has been identified as one of the most high-risk processes within medicine. Inadequate handover is a significant cause of avoidable adverse events across many hospitals." *Annals of Medicine and Surgery*, Vol. 56, August 2020, at 77-81.

514. The failures by individual Defendants thus reflect and exemplify the Southwell Defendants' breaches of their duty to safeguard patient safety.
515. The Southwell Defendants' systemic breaches were thus a cause of the harm Charlene suffered at Tift, including her pain, suffering, injury, and death.

Causation: All Counts

516. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
517. During both of Charlene's hospitalizations at Tift, there were at least two definitive options for revascularizing her heart, at hospitals capable of performing bypass surgery: (a) another angioplasty with bypass surgery as backup in the event of complications, and (b) bypass surgery itself.
518. After Dr. Murray documented a 100% in-stent occlusion without collateral circulation in Charlene's mid-RCA, both procedures were indicated.
519. Charlene was eligible for both procedures during both Tift hospitalizations.
520. Charlene was eligible for angioplasty.
521. A successful angioplasty would have restored normal blood-flow and would have prevented or resolved Charlene's STEMI.
522. At a hospital capable of performing bypass surgery, an interventional cardiologist could have performed angioplasty more aggressively, knowing that bypass surgery was available as a backup in case of complications. Also, a referral hospital would have had greater clinical capabilities than Tift.
523. Thus, if the referral hospital decided to try angioplasty first, and even if angioplasty then proved unsuccessful, Charlene then would have undergone a successful bypass surgery, as explained below.
524. Charlene was also eligible for bypass surgery, for the following reasons:
- a. She had a single-vessel disease (in her RCA).
 - b. She did not have any clinically significant LAD stenosis.

- c. She had well preserved ventricular function—a major determinant of prognosis after a heart attack.
 - d. Her heart was fundamentally normal except for the occlusion itself.
 - e. She had no comorbidities that increased the risk of the surgery.
 - f. Her functional status prior to the Tift hospitalizations was normal.
525. Even when Charlene returned to Tift with a STEMI on February 24, 2020, bypass surgery would have been a brief, straightforward, and low-risk procedure, lasting approximately 30 minutes.
526. Charlene’s eligibility for bypass surgery was all the more clear during her first Tift hospitalization, before the onset of the STEMI.
527. Bypass surgery would have restored normal blood-flow around the occlusion, and thus would have prevented or resolved Charlene’s STEMI.
528. Charlene’s risk of death from bypass surgery was less than 1%. That is, her chances of survival were over 99%.
529. After bypass surgery, given her age and medical history, Charlene would have gone on to lead a long, healthy, high-quality life.
530. After bypass surgery, Charlene would have resumed all activities of daily living with substantially the same functionality as before the NSTEMI that led to her first Tift hospitalization.
531. In light of the definitive treatments available at a referral hospital during the course of her two Tift hospitalizations, Charlene’s STEMI would have been prevented or resolved, and her death averted, had a provider at Tift referred or transferred Charlene.
532. Providers at Tift thus wasted repeated opportunities to prevent or resolve Charlene’s STEMI and avert her death.
533. But-for each failure to refer or transfer Charlene, she would have survived and resumed her life.

534. Each such failure thus led directly to Charlene's coronary ischemia, myocardial infarction, malignant arrhythmias, cardiac arrest, and death.
535. Each such failure thus caused Charlene pain, suffering, injury, and death.
536. Insofar as misdiagnosis of her condition was a rationale for a failure to refer or transfer Charlene, each instance of misdiagnosis was also a cause of her pain, suffering, injury, and death.
537. Because further investigation of the adequacy of collateral blood-flow and myocardial perfusion would have shed light on where and to what extent Charlene's heart-muscle was in jeopardy, the failure to perform a myocardial perfusion test or otherwise conduct such further investigation was also a cause of Charlene's pain, suffering, injury, and death.
538. Had Charlene been informed that she needed and was eligible to undergo bypass surgery or another angioplasty at another hospital, it stands to reason that she would have pursued those options. As a result, any failure to so inform Charlene was also a cause of her pain, suffering, injury, and death.

Damages

539. Pursuant to OCGA Title 51, Chapter 4, Plaintiff is entitled to recover from all Defendants for all damages caused by their negligence.

Survival Action: Estate Claim

540. Plaintiff incorporates by reference all paragraphs of this Complaint as though fully set forth herein.
541. Plaintiff is entitled to damages for Charlene Doggett's conscious pain and suffering resulting from the untreated occlusion in her mid-RCA.
542. As early as February 20, 2020, the date of her first Tift hospitalization, Charlene rated her pain a 10 out of 10—the "worst possible pain." TRH 368.
543. Plaintiff is also entitled to damages for Charlene's conscious pain and suffering over the hours she endured an untreated STEMI.

544. After her discharge from Tift, Charlene spent the night at her son's home, in pain and fear. At the Tift ER the following morning, she described the pain as a 10 and "like an elephant sitting on my chest." TRH 37.
545. From that point until her death that night, Charlene's chest pain remained constant, relentless, and obvious. *See, e.g.*, TRH 16. She continually hunched over, gripping her chest and rocking. Each time a doctor or nurse asked about her pain, she said that medications were "not helping."
546. Plaintiff is also entitled to damages for Charlene's conscious pain and suffering when she endured coronary ischemia, myocardial infarction, malignant arrhythmias, cardiac arrest, and death.
547. Plaintiff is also entitled to damages for the existential terror Charlene faced during the hours she died gradually and painfully, unattended, because Defendants failed to provide definitive care for a fatal STEMI.
548. What's worse, providers at Tift told Charlene that her pain was just a "carryover" from the NSTEMI, that her occlusion was self-correcting, and that she just had to "push through the pain"—all medical distortions that confounded her final hours, deepening her dread and suffering.

Wrongful-Death Claim

549. Prior to her Tift hospitalizations, Charlene Doggett was independent and self-sufficient. She often proclaimed she was happy living alone in her house.
550. Charlene performed all the activities of daily living by herself. She managed and cared for her home, and did her household errands and chores. In fact, Charlene often drove her grandkids and others to run *their* errands. For example, she often took her granddaughters to do their nails.
551. Charlene cleaned houses for income. Before that, she worked as a caretaker for several families. She would declare that she was going to keep working all her life. She usually punctuated that declaration with: "and that's that."
552. Charlene was active in her church—New Bethel Freewill Baptist Church, in Sylvester, Georgia. She liked helping others and often helped them—family, friends, neighbors.

553. Charlene loved her family. She attended most family gatherings, bringing food, usually a cake or pie she made. Her last Christmas, she was thrilled to host her siblings and their families at her home.



554. Charlene was generous with her time and money.

555. Charlene sometimes joined Jason, Carrie, and their kids on vacations. She sometimes paid for the kids' "share." Sometimes she would step in and give Jason and Carrie money for no particular reason—just "to help out," she said.

556. Whenever Jason and Carrie traveled, Charlene babysat their minor kids.

557. During the school year, her grandkids would sleep over at her house at least once a month. Over the summer, they would sleep over at her house several nights at a time. Charlene said she was "all about the grandkids."



558. Charlene treasured her friendships and associations. Her friend Linda would come visit and stay for several days. After Charlene passed away, her friends posted kind comments on her Facebook profile. The funeral home had an online page, where people posted similar comments.
559. Over 100 people attended her viewing, which was held on February 28, 2020.
560. After Charlene's death, a local restaurant commemorated her birthday. This is how a local newspaper covered the event:

“Friday, August 15th was Ms. Charlene Doggett's birthday and Ed's Truckstop presented her family with a Memorial Bench to honor her passing on February 24th. The bench was also to commemorate her time spent at Ed's, where she worked for Mr. Ed as a waitress, for many years.

“She fit right in at Ed's. She loved to talk and most customers did too, between mouthfuls. New customers at Ed's would find a friend in Charlene and the old timers enjoyed the conversations about her four grandbabies and other local subjects.”

561. Charlene's photograph hangs in memoriam, inside Ed's.



-
562. As a direct and proximate result of Defendants' conduct, Plaintiff is entitled to recover from Defendants reasonable compensatory damages in an amount exceeding \$10,000.00 to be determined by a fair and impartial jury, for all damages Charlene Doggett and Plaintiff suffered.

WHEREFORE, Plaintiff demands a trial by jury, and judgment against the Defendants as follows:

- a. Compensatory damages in an amount exceeding \$10,000.00 to be determined by a fair and impartial jury;
- b. All costs of this action;
- c. Expenses of litigation pursuant to OCGA 13-6-11, including attorneys fees;
- d. Punitive damages; and
- e. Such other and further relief as the Court deems just and proper.

August 13, 2021

Respectfully submitted,

/s/ Lloyd N. Bell

Lloyd N. Bell

Georgia Bar No. 048800

Daniel E. Holloway

Georgia Bar No. 658026

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Exhibit 1

AFFIDAVIT OF MELDON LEVY, M.D., REGARDING CHARLENE DOGGETT

Personally appears before the undersigned authority, duly authorized to administer oaths, Meldon Levy, M.D., who after first being duly sworn, states as follows.

Introduction

1. This affidavit concerns medical negligence that occurred during Charlene Doggett's back-to-back hospitalizations at Tift Regional Medical Center ("Tift"), in Tifton, Georgia, in February 2020.
2. The first hospitalization took place February 20-23, 2020; the second, February 24, 2020, the date of Ms. Doggett's death.
3. I have been asked to provide this affidavit for the limited purpose of Georgia statute OCGA § 9-11-9.1.
4. The process of creating this affidavit was as follows:
 - a. Plaintiff's counsel contacted me, outlined the basic medical facts of the case, and identified the issues they wanted me to analyze. I reserved judgment until I reviewed the medical records myself.
 - b. After reviewing the medical records, I formed my own views and reached my own conclusions, and then shared them with Plaintiff's counsel.
 - c. Plaintiff's counsel then prepared a draft of this affidavit, based on my views and conclusions.
 - d. I then reviewed and edited the draft, to make sure it correctly states my views and conclusions. I did not edit the affidavit for style.
5. This affidavit addresses matters that Plaintiff's counsel have asked me to address. I have not attempted to identify all standard-of-care violations, state every causation opinion I may have, or anticipate or address issues that the Defense might raise or that might otherwise arise as the case unfolds.

6. As to the matters this affidavit addresses, I have tried to give a reasonably detailed explanation, but I have not attempted an exhaustive discussion. In deposition or trial testimony, I may elaborate with additional details.
7. I use the term “standard of care” to refer to that degree of care and skill ordinarily exercised by members of the medical profession generally under the same or similar circumstances and like surrounding conditions as pertained to the medical providers I discuss here.
8. I hold all the opinions expressed below to a reasonable degree of medical certainty—that is, more likely than not. If additional information later becomes available, my views may change.
9. The purpose of this affidavit is to let the Defendants, their lawyers, and their insurers know the conclusions I will testify to at trial—in enough detail that the Defense can evaluate them and prepare to cross-examine me.
10. I understand that Plaintiff’s counsel may have consulted with other experts, who may have drawn the same conclusions. I would expect most other experts, possibly all, to draw the same or similar conclusions.
11. I understand that Plaintiff’s counsel will provide this affidavit to the Defendants’ lawyers, and that Defendants’ insurers will hire lawyers and medical experts to review this case and this affidavit. If anyone on the Defense believes that I have not been given, or have overlooked or misconstrued, any relevant information, I invite the Defense to communicate with me by letter through Plaintiff’s counsel. The Defense need not wait to take my deposition to communicate with me. I will consider any information the Defense brings to my attention. Insofar as such information warrants reconsideration of my views, I will reconsider them and provide a supplemental affidavit.

Evidence Considered

12. I have reviewed medical records for Charlene Doggett’s back-to-back hospitalizations at Tift in February 2020.

Principal Opinions

13. My principal opinions are summarized here. In deposition or trial testimony, I may elaborate upon these principal opinions, and in doing so, I may offer related, subsidiary, or incidental opinions.

Standard-of-Care Violations

14. This affidavit first identifies requirements of the standard of care that apply under the following circumstances present in this case:
- a. a cardiologist (here, Dr. Paul Murray) is caring for patient with an NSTEMI,¹ at a hospital without the capability to perform coronary artery bypass grafting surgery (“bypass surgery”);
 - b. the cardiologist finds a 100% in-stent occlusion in the patient’s mid-RCA, through a catheterization study;
 - c. the cardiologist also finds no collateral circulation around the occlusion, during the same catheterization study; and
 - d. the cardiologist is unable to clear the occlusion with angioplasty.

This affidavit then outlines how each requirement was violated here.

15. First violation: Failure to refer patient to another hospital for angioplasty.

Requirement: The standard of care requires the cardiologist to refer the patient to a hospital capable of performing bypass surgery, where the patient can undergo another angioplasty, with bypass surgery available as a backup in case of complications.

Violation: On February 21, 22, and 23, 2020, Dr. Murray violated this requirement, by failing to refer Ms. Doggett to another hospital for an angioplasty.

¹ “NSTEMI” stands for “Non-ST-Segment Elevation Myocardial Infarction,” which is a type of heart attack. In contrast, “STEMI” stands for “ST-Segment Elevation Myocardial Infarction,” which is the most severe type of heart attack.

16. **Second violation: Failure to refer patient to heart surgeon for bypass surgery.**

Requirement: The standard of care requires the cardiologist to refer the patient to a heart surgeon for bypass surgery. This requirement applies with special force because the patient is having or has just had an NSTEMI.

Violation: On February 21, 22, and 23, 2020, Cardiologist Paul Murray violated this requirement, by failing to refer Charlene Doggett to a heart surgeon for bypass surgery. Dr. Murray's violation was all the more egregious because Ms. Doggett was having, or had just had, an NSTEMI.

17. **Third violation: Failure to obtain informed consent.**

Requirement: The standard of care requires a cardiologist to obtain the patient's informed consent to a course of treatment that excludes bypass surgery and another angioplasty at another hospital.

Violations: Dr. Murray (on February 21, 22, and 23, 2020) and Cardiologist Jonathan Tronolone (on February 23, 2020) each violated this requirement by:

- a. **evidently² failing to inform Ms. Doggett of the occlusion;**
- b. **failing to inform Ms. Doggett that bypass surgery and another angioplasty were definitive-care options available at other hospitals; and**
- c. **failing to obtain Ms. Doggett's consent to a course of treatment that excluded bypass surgery and another angioplasty.**

18. **Fourth violation: Failure to administer myocardial perfusion test.**

Requirement: The standard of care requires a cardiologist to give the patient a myocardial perfusion test to identify the extent of the heart muscle that has been damaged or is in jeopardy as a result of the occlusion.

² I understand that fact-witnesses will testify to the facts set forth in paragraphs 17(a), 21(f), 24(d), and 24(e) of this Affidavit. The opinions I express in this Affidavit would remain the same, even without that testimony and those facts.

Violations: Dr. Murray (on February 21, 22, and 23, 2020) and Dr. Tronolone (on February 23, 2020) each violated this requirement, by failing to give Ms. Doggett a myocardial perfusion test.

19. **Fifth violation: Failure to keep patient hospitalized (premature discharge).**

Requirement: The standard of care requires a cardiologist to keep the patient hospitalized while the occlusion remains unresolved.

Violations: On February 23, 2020, Dr. Murray and Dr. Tronolone each violated this requirement by failing to order Ms. Doggett's continued hospitalization, permitting instead the premature closure of her case and her premature discharge.

These violations were all the more egregious because:

- a. Ms. Doggett had a 100% occlusion with a TIMI Grade Flow of 0; and
- b. Dr. Murray and Dr. Tronolone did not order or perform a myocardial perfusion test or any other further investigation of the adequacy of myocardial perfusion or collateral blood-flow around the occlusion.

20. **Sixth violation: Failure to diagnose fatal STEMI.**

Requirements: When the patient develops a STEMI, the standard of care requires the cardiologist to recognize and diagnose the STEMI. These requirements apply with special force if the patient has just had an NSTEMI.

Violations: On February 24, 2020, Dr. Murray violated these requirements by:

- a. failing to recognize and diagnose Ms. Doggett's STEMI;
- b. ruling out STEMI as the diagnosis;
- c. making his misdiagnosis without first examining Ms. Doggett; and
- d. failing to correct his misdiagnosis in the face of additional evidence (chest-pain, biomarkers, EKGs) confirming that Ms. Doggett was actively infarcting and gradually and painfully dying from a STEMI in progress.

Dr. Murray's violations were all the more egregious because:

- a. Ms. Doggett had just had an NSTEMI;

- b. the attending physician at the ER diagnosed Ms. Doggett with a STEMI immediately upon her return to Tift that morning;
- c. Ms. Doggett's medical history, clinical presentation, and test results made it clear that she was having an acute inferior STEMI;
- d. the inferior STEMI was consistent with the complete occlusion in the mid-RCA that Dr. Murray himself found; and
- e. Dr. Murray himself recognized that Ms. Doggett's biomarkers and EKG indicated she was having an acute inferior STEMI.

21. **Seventh violation: Failure to diagnose and treat angina.**

Requirements: When the patient has angina, the standard of care requires the cardiologist to diagnose and treat the angina.

Violations: On February 24, 2020, Dr. Murray violated these requirements by failing to diagnose and treat Ms. Doggett's angina.

Dr. Murray's violations were all the more egregious because:

- a. the attending physician in the ER diagnosed Ms. Doggett with a STEMI immediately upon her return to Tift that morning;
- b. Ms. Doggett's medical history, clinical presentation, and test results made it clear that she was having an acute STEMI;
- c. Dr. Murray himself recognized that Ms. Doggett's biomarkers and EKG indicated she was having a STEMI;
- d. Mrs. Doggett rated her chest pain a 10, and described it as "an elephant sitting" on her chest;
- e. the angina was the symptom of a STEMI in progress that gradually and painfully took Ms. Doggett's life; and
- f. Dr. Murray evidently misinformed Ms. Doggett that her chest pain was normal and that she just needed to "push through the pain."

22. **Eighth violation: Failure to refer patient to another hospital for angioplasty.**

Requirement: When the patient has a STEMI within days after the onset of the NSTEMI, the standard of care requires the cardiologist emergently to refer the patient to a hospital capable of performing bypass surgery, where the patient can undergo another angioplasty, with bypass surgery available as a backup in the event of complications.

Violation: On February 24, 2020, Dr. Murray violated this requirement, by failing to refer Ms. Doggett to another hospital for angioplasty.

23. **Ninth violation:** Failure to refer patient to heart surgeon for bypass surgery.

Requirement: When the patient has a STEMI within days after the onset of the NSTEMI, the standard of care requires the cardiologist emergently to refer the patient to a heart surgeon for bypass surgery. This requirement applies with special force because the patient has just suffered an NSTEMI.

Violation: On February 24, 2020, after Ms. Doggett returned to Tift with a STEMI, Dr. Murray violated this requirement, by failing to refer her to a heart surgeon for bypass surgery.

24. **Tenth violation:** Failure to obtain informed consent.

Requirement: When the patient has a STEMI within days after the onset of the NSTEMI, the standard of care requires the cardiologist to obtain the patient's informed consent to a course of treatment that excludes bypass surgery and another angioplasty at another hospital.

Violations: On February 24, 2020, Dr. Murray violated this requirement by:

- a. failing to inform Ms. Doggett that she was having a STEMI;
- b. failing to inform Ms. Doggett that bypass surgery and another angioplasty were definitive-care options available at other hospitals;
- c. failing to obtain Ms. Doggett's consent to a course of treatment that excluded bypass surgery and another angioplasty;
- d. evidently misinforming Ms. Doggett that her angina was "just the carryover" of the NSTEMI; and

e. evidently misinforming Ms. Doggett that her heart would self-correct—that is, bypass the occlusion on its own.

25. Eleventh violation: Failure to enter accurate records.

Requirement: The standard of care requires the cardiologist to enter accurate and truthful medical records concerning the patient.

Violation: On February 25, 2020, the morning after Ms. Doggett died from an untreated STEMI, Dr. Murray violated this requirement, by amending his diagnosis of February 24, 2020, to relabel Ms. Doggett’s chest pain as “clearly pleuritic”—a label that the same amendment contradicts by acknowledging that her chest pain was in fact “similar pain as prior admission.”

Causation

26. This affidavit next outlines how these violations of the standard of care likely caused Ms. Doggett’s death.

27. Assuming Ms. Doggett was a candidate for bypass surgery after the occlusion was found on February 21, 2020, each of the following violations caused Ms. Doggett to have and die from a STEMI on February 24, 2020.

- a. Dr. Murray’s failure to refer Ms. Doggett to a hospital capable of performing bypass surgery, for her to have another angioplasty there.
- b. Dr. Murray’s failure to refer Ms. Doggett to a heart surgeon for bypass surgery.
- c. Dr. Murray’s and Dr. Tronolone’s failure to obtain Ms. Doggett’s informed consent to a course of treatment that excluded bypass surgery and another angioplasty.
- d. Dr. Murray’s and Dr. Tronolone’s failure to administer a myocardial perfusion test, which would have confirmed that Ms. Doggett’s heart was in imminent jeopardy.
- e. Dr. Murray’s and Dr. Tronolone’s failure to keep Ms. Doggett under hospital care on February 23, 2020, permitting instead the premature closure of her case and her premature discharge from Tift.

28. Assuming Ms. Doggett remained a candidate for bypass surgery upon her return to Tift on February 24, 2020, each of the following violations caused Ms. Doggett to die from a STEMI that day, in pain.
 - a. Dr. Murray's failure to diagnose the acute STEMI in progress.
 - b. Dr. Murray's failure to correct his misdiagnosis in the face of additional evidence (chest-pain, biomarkers, EKGs) confirming the STEMI.
 - c. Dr. Murray's failure to diagnose and treat Ms. Doggett's angina.
 - d. Dr. Murray's repeated failure to refer Ms. Doggett to a hospital capable of performing bypass surgery, for her to have another angioplasty there.
 - e. Dr. Murray's repeated failure to refer Ms. Doggett to a heart surgeon for bypass surgery.
 - f. Dr. Murray's repeated failure to obtain Ms. Doggett's informed consent to a course of treatment that excluded bypass surgery and another angioplasty.
29. On February 21, 2020, the catheterization study showed that Ms. Doggett's heart was fundamentally normal except for the mid-RCA occlusion itself. On that date, she still had well preserved ventricular function—a major determinant of prognosis after a heart attack.
30. But-for each of Dr. Murray's and Dr. Tronolone's violations, Ms. Doggett would have known about the occlusion as early as February 21, 2020, and would have been transferred to another hospital to undergo an angioplasty or bypass surgery, or both.
31. As a result, assuming Ms. Doggett was eligible for bypass surgery, each of Dr. Murray's and Dr. Tronolone's violations wasted the multiple-day window of opportunity Ms. Doggett had to receive definitive care for the occlusion and thus prevent or resolve the STEMI before it did permanent damage.
32. Dr. Murray's and Dr. Tronolone's violations thus caused Ms. Doggett to endure pain, suffering, myocardial infarction, cardiac arrest, and death.

Qualifications

33. I am over 18 years of age, lack legal disabilities, and provide this affidavit upon my own personal knowledge and belief.
34. I do not recite my full qualifications here. I recite them only to the extent necessary to establish my qualifications for purposes of expert testimony under OCGA 24-7-702.
35. My curriculum vitae, attached as Exhibit A, provides additional detail regarding my qualifications. I incorporate and rely upon it here.
36. The acts and omissions at issue here occurred in February 2020.
37. I am qualified to provide expert testimony pursuant to OCGA 24-7-702, based on the following facts.
 - a. In February 2020, I was licensed by an appropriate regulatory agency to practice my profession in the state in which I was practicing or teaching in the profession. Specifically, I was licensed by the State of California to practice medicine as a physician, and I was practicing medicine there.
 - b. In February 2020, I had actual professional knowledge and experience in the area of practice or specialty which my opinions relate to—specifically, the tasks identified above on which I offer standard-of-care opinions.

I had this knowledge and experience as the result of having been regularly engaged in the active practice of the foregoing areas of specialty of my profession for at least three of the five years prior to February 2020, with sufficient frequency to establish an appropriate level of knowledge of the matters my opinions address.

Specifically, I was at that time, and I am today, a physician specializing in cardiology, in the settings of hospitals and other long-term-care facilities, and for many years I have had great familiarity with each of the tasks on which I offer standard-of-care opinions here.

Attached Documents

38. The two documents identified below are attached to this affidavit largely for the benefit of (a) the insurance adjustors responsible for evaluating this case on behalf of the Defendants, and (b) the lawyers provided by the insurers.
39. The first attachment recites medical principles that apply here. Although the Defendants themselves will not need that recitation of basic medical information, Plaintiff's counsel created this document for the benefit of the Defense. I have reviewed this document. Generally speaking, it correctly states the cardiology principles that apply here.
40. The second attachment is a chronology of facts of this case, which may serve as a useful reference for relevant facts contained in the records in less-organized fashion. In forming my substantive view of the case, I have relied on the medical records themselves, not this chronology. Plaintiff's counsel created the chronology. I have not edited it.

Supporting Literature

41. The general points discussed above are elementary, are likely well known to the Defendants, and should not require research. Insofar as any Defendant consulted or should have consulted reliable authorities on these points in treating Charlene Doggett, the literature cited in the attached medical-principles document represents such authorities, which here may also prove helpful to adjustors and lawyers in their evaluation of this case.



Meldon Levy, M.D.

SWORN TO AND SUBSCRIBED before me

_____, 2021

See attached notary

NOTARY PUBLIC

My Commission Expires



A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Los Angeles

Subscribed and sworn to (or affirmed) before me on

this 19 day of July, 2021, by
Date Month Year

(1) Meldon Levy

(and (2) _____),
Name(s) of Signer(s)



proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Signature [Handwritten Signature]
Signature of Notary Public

Place Notary Seal and/or Stamp Above

OPTIONAL

Completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____



Attachment A

(Curriculum Vitae)

MELDON C. LEVY, M.D., F.A.C.C.

A PROFESSIONAL CORPORATION

CENTURY CITY MEDICAL PLAZA

2080 CENTURY PARK EAST • SUITE 704 • LOS ANGELES, CALIFORNIA 90067

TELEPHONE (310) 277-9126

CURRICULUM VITAE**Personal Information**

Name in full	Meldon Cary Levy, M.D.
Business Address	2080 Century Park East, Ste. 704 Los Angeles, CA 90067
Business Phone	(310) 277-9126
Home Address	10465 Eastborne Ave. Los Angeles, CA 90024
Home Phone	(310) 475-8150
Date of Birth	June 6, 1946
Place of Birth	Chicago, Illinois
Citizenship	U.S.A.

Education

High School	University High School, Los Angeles, CA, 1963
College or University	University of California at Berkeley, B.A., 1967
Medical School	University of Southern California, M.D., 1971
Internship	Cedars-Sinai Medical Center, July 1971-June 1972 Straight Medical
Residencies	Cedars-Sinai Medical Center, July 1972-June 1974 Internal Medicine
Fellowships	Cedars-Sinai Medical Center, July 1974-June 1976, Cardiovascular Disease
Licensure	California, 1972 (Certificate G22855)
Board Certification	American Board of Internal Medicine, 1974 Subspecialty Board of Cardiovascular Disease, 1977 National Board of Echocardiography Certification in Comprehensive Adult Echocardiography, 2002

Professional Background

Academic Appointments

Clinical Instructor in Medicine, University of California Los Angeles, 1977-1979
Assistant Clinical Professor in Medicine, University of California, Los Angeles, 1979-1984
Assistant Clinical Professor in Medicine, Keck School of Medicine, University of Southern California, Los Angeles, 2008 to present

Administrative Responsibilities

Director, Cardiac Noninvasive Laboratory, Century City Hospital, Los Angeles, 1978-2000
Chief of Staff, Century City Hospital, Los Angeles, 1987-1989
Chairman, Governing Board, Century City Hospital, Los Angeles, 1997-1999
Medical Director, Beverly Glen Medical Systems, Los Angeles, 2000-2002
Chief of Cardiology, Century City Doctors Hospital, Los Angeles, 2005-2007
Director, Cardiac Noninvasive Laboratory, Century City Doctors Hospital, 2005-2008
Chairman, Critical Care Committee, Century City Doctors Hospital, 2005-2008

Awards and Achievements

Testamur, ASEeXAM, August 7, 1997

Military Service

None

Other Employment or Activity

President, Housestaff Association, Cedars-Sinai Medical Center, Los Angeles, 1973-1974
Member, Medical Executive Committee, Century City Hospital, Los Angeles, 1980-1991
Member, Governing Board, Century City Hospital, Los Angeles, 1987-2000
Member, Utilization Review Committee, Cedars-Sinai Medical Center, Los Angeles, 1985-1994
Member, Medical Executive Committee, Century City Doctors Hospital, Los Angeles, 2005-2008

Society Memberships

Local

Los Angeles County Medical Association, 1979
California Medical Association, 1977
Los Angeles County Heart Association, 1977
Los Angeles Society of Echocardiography, 1982

National

American Heart Association, 1977
American College of Cardiology, 1974
American College of Physicians, 1977
American Society of Echocardiography, 1977

Research Activities

Principal Investigator

1987-1990 Lovastatin Dose-Ranging Multicenter Study in Patients with Type II Hypercholesterolemia, Total Cholesterol 240-300 mg/dl with or without Evidence of Coronary Artery Disease (CRI-Clinical Research International/Merck, Sharp and Dohme)-Protocol 022 and Extension 023

1988-1990 A Randomized Controlled Phase III Study of Milrinone, Digoxin, and Captopril in Congestive Heart Failure Patients (Sterling Drug, Inc.)-MIL-1035

1988-1990 A Prospective, Randomized, Milrinone, Survival Evaluation (Promise) (Sterling Drug, Inc.)-MIL-1064

1987-1989 A Double-Blind, Parallel Group, Dose Response Study Comparing the Efficacy and Safety of 2.5mg, 10mg and 40mg Bisoprolol to Placebo Given Once Daily (After an Atenolol Run-in-Phase) in Patients with Stable Angina Pectoris due to Coronary Artery Disease. (American Cyanamid Company)-Bisoprolol, D57P4

1989-1989 Parallel Comparison of Four Doses of Perindoprilter-Butylamine, and Placebo in Patients with Mild to Moderate Hypertension. (McNeil Pharmaceutical)-Protocol PB

Research Activities (cont'd)
Principal Investigator

1989-1991 Outpatient Evaluation of the Safety and Efficacy of Oral Rocainam Maintenance Therapy for Control of Symptomatic Paroxysmal Supraventricular Tachycardia (Wyeth-Ayerst Research)-Protocol 519B-314-US

1989-1990 Double-Blind, Parallel Group, Placebo-Controlled, Outpatient Evaluation of the Safety and Efficacy of Oral Recainam in the Prevention of Recurrence of Spontaneously Occurring Symptomatic Paroxysmal Supraventricular Tachycardia (Wyeth-Ayerst Research)-Protocol 519B-313-US

1989-1991 A Study Investigating the Dose Response and Duration Effect of Isosorbide-5-Mononitrate in Controlled Release Formulation in Patients with Stable Effort Angina Pectoris. (Schering Corporation)-Protocol S89-03

1990-1990 A Multicenter Trial to Evaluate Efficacy and Lipid Effects of Doxazosin as Initial Therapy in Mild to Moderate Essential Hypertension. (Pfizer, Inc., Roerig Division)

1993-1996 A randomized, Double-Blind Study to Compare the Efficacy and Safety of Fixed Low Doses of Coumadin Plus Aspirin to Aspirin Alone in the Prevention of Reinfarction, Cardiovascular Death, and Stroke in Post-Myocardial Infarction Patients. (DuPont Merck Research)-Protocol 647-003-311

1993-1995 A Multicenter, Double-Blind, 4-Month Placebo-Controlled, 1-Year Active-Controlled Study Comparing the Safety and Efficacy of Once Daily Atorvastatin with that of Lovastatin in Patients with Elevated LDL-Cholesterol. (Parke-Davis Research)-Protocol 981-08-10

Research Activities (cont'd)

Principal Investigator

1993-1995 A 1-Year (6 Month Double-Blind, 6-Month Open Label) Extension to Protocol 981-08 to Evaluate the Long-Term Safety and Efficacy of Atorvastatin as Compared with Lovastatin in Patients with Elevated LDL-Cholesterol (Parke-Davis Research)-Protocol 981-62-10

1997-1999 A Randomized, Multicenter, Interventional Trial in Congestive Heart Failure. A Double-Blind, Placebo-Controlled Survival Study with Metoprolol CR/XL in Patients with Decreased Ejection Fraction and Symptoms of Heart Failure. Merit-HF. Study Number SH-MET-00

Bibliography

Carmo, E., Levy, M.C., and Newmann, M., "Ebstein's Anomaly." *American Review of Diagnostic*, a:33-38, Nov.-Dec., 1982

Carmo, E., Levy, M.C., "Echocardiographic Diagnosis of Left Atrial Myxoma." *Applied Cardiology* Vol. 13 No. 4: 1985

Exhibit 2

AFFIDAVIT OF SOTIRIS STAMOU, M.D., PH.D., REGARDING CHARLENE DOGGETT

Personally appears before the undersigned authority, duly authorized to administer oaths, Dr. Sotiris Stamou, who after first being duly sworn, states as follows.

Introduction

1. This affidavit concerns medical negligence that occurred during Charlene Doggett's back-to-back hospitalizations at Tift Regional Medical Center ("Tift"), in Tifton, Georgia, in February 2020.
2. The first hospitalization took place February 20-23, 2020; the second, February 24, 2020, the date of Ms. Doggett's death.
3. I have been asked to provide this affidavit for the limited purpose of Georgia statute OCGA § 9-11-9.1.
4. The process of creating this affidavit was as follows:
 - a. Plaintiff's counsel contacted me, outlined the basic medical facts of the case, and identified the issues they wanted me to analyze. I reserved judgment until I reviewed the medical records myself.
 - b. After reviewing the medical records, I formed my own views and reached my own conclusions, and then shared them with Plaintiff's counsel.
 - c. Plaintiff's counsel then prepared a draft of this affidavit, based on my views and conclusions.
 - d. I then reviewed the draft and edited it to make sure it correctly states my views and conclusions. I did not edit the affidavit for style.
5. This affidavit addresses a specific question that Plaintiffs' counsel have asked me to address: causation. I have not attempted to state every causation opinion I have. I have not attempted to anticipate or address issues the Defense might raise or that otherwise may arise as the case unfolds.

6. As to the matters this affidavit addresses, I have tried to give a reasonably detailed explanation, but I have not attempted an exhaustive discussion. In deposition or trial testimony, I may elaborate with additional details.
7. I hold all the opinions expressed below to a reasonable degree of medical certainty—that is, more likely than not. If additional information later becomes available, my views may change.
8. The purpose of this affidavit is to let the Defendants, their lawyers, and their insurers know the conclusions I will testify to at trial—in enough detail that the Defense can evaluate them and prepare to cross-examine me.
9. I understand that Plaintiff's counsel may have consulted with other experts, who may have drawn the same conclusions. I would expect most other experts, possibly all, to draw the same or similar conclusions.
10. I understand that Plaintiff's counsel will provide this affidavit to the Defendants' lawyers, and that Defendants' insurers will hire lawyers and medical experts to review this case and this affidavit. If anyone on the Defense believes that I have not been given, or have overlooked or misconstrued, any relevant information, I invite the Defense to communicate with me by letter through Plaintiff's counsel. The Defense need not wait to take my deposition to communicate with me. I will consider any information the Defense brings to my attention. Insofar as such information warrants it, I will reconsider my conclusions and provide a supplemental affidavit.

Evidence Considered

11. I have reviewed medical records for Charlene Doggett's back-to-back hospitalizations at Tift in February 2020.

Principal Opinions

12. My principal opinions are summarized here. In deposition or trial testimony, I may elaborate upon these principal opinions, and in doing so, I may offer related, subsidiary, or incidental opinions.
13. During both of Ms. Doggett's hospitalizations at Tift, there were at least two definitive options for revascularizing her heart, at hospitals capable of

surgery: (a) bypass surgery, and (b) another angioplasty with bypass surgery as backup in the event of complications.

14. After Dr. Paul Murray noted a 100% in-stent occlusion without collateral circulation in Ms. Doggett's mid-RCA, both procedures were indicated.
15. Ms. Doggett was eligible for both procedures during both Tift hospitalizations.
16. Ms. Doggett was eligible for bypass surgery for the following reasons:
 - a. She had a single-vessel disease, in her RCA.
 - b. She did not have any LAD stenosis.
 - c. She had well preserved ventricular function—a major determinant of prognosis after a heart attack.
 - d. Her heart was fundamentally normal except for the occlusion itself.
 - e. She had no comorbidities that increased the risk of the surgery.
 - f. Her functional status prior to the Tift hospitalizations was normal.
17. Even when Ms. Doggett returned to Tift with a STEMI on February 24, 2019, bypass surgery would have been a brief, straightforward, and low-risk procedure, lasting approximately 30 minutes.
18. Ms. Doggett's eligibility for bypass surgery was all the more clear during her first Tift hospitalization, before the onset of the STEMI.
19. Bypass surgery would have restored normal blood-flow around the occlusion, and thus would have prevented or resolved Ms. Doggett's STEMI.
20. Ms. Doggett's risk of death from bypass surgery was less than 1%. That is, her chances of survival were over 99%.¹

¹ In contrast, as experience proved, a course of treatment that excluded bypass surgery and another angioplasty and that left the occlusion untreated had a high probability of injury and death.

21. After bypass surgery, given her age and medical history, Ms. Doggett would have gone on to lead a long, healthy, high-quality life.
22. After bypass surgery, Ms. Doggett would have resumed all activities of daily living with substantially the same functionality as before the NSTEMI that led to her first Tift hospitalization.
23. Ms. Doggett was also eligible for angioplasty.
24. A successful angioplasty would have restored normal blood-flow and would have prevented or resolved Ms. Doggett's STEMI.
25. At a hospital capable of performing bypass surgery, an interventional cardiologist could have performed angioplasty more aggressively, knowing that bypass surgery was available as a backup in case of complications. Also, a referral hospital would have had greater clinical capabilities than Tift.
26. Thus, even if the referral hospital decided to try angioplasty first, and even if angioplasty then proved unsuccessful, Ms. Doggett then would have undergone a successful bypass surgery, as explained above.
27. In light of the definitive treatments available at a referral hospital during the course of her two Tift hospitalizations, Ms. Doggett's STEMI would have been prevented or resolved, and her death averted, had a Tift provider referred or transferred Ms. Doggett.
28. Providers at Tift thus wasted repeated opportunities to prevent or resolve her STEMI and avert her death.
29. But-for each failure to refer or transfer Ms. Doggett, she would have survived and resumed her life.
30. Each such failure thus led directly to coronary ischemia, myocardial infarction, malignant arrhythmias, cardiac arrest, and death.
31. Each such failure thus caused Ms. Doggett pain, suffering, injury, and death.
32. Insofar as misdiagnosis of her condition was a rationale for a failure to refer or transfer Ms. Doggett, each instance of misdiagnosis was also a cause of her pain, suffering, injury, and death.

33. Because further investigation of the adequacy of collateral blood-flow and myocardial perfusion would have shed light on where and to what extent Ms. Doggett's heart-muscle was in jeopardy, the failure to perform a myocardial perfusion test or otherwise conduct such further investigation was also a cause of Ms. Doggett's pain, suffering, injury, and death.
34. Had Ms. Doggett been informed that she needed and was eligible to undergo bypass surgery or another angioplasty at another hospital, it stands to reason that she would have pursued those options. As a result, any failure to so inform Ms. Doggett was also a cause of her pain, suffering, injury, and death.

Qualifications

35. I am over 18 years of age, lack legal disabilities, and provide this affidavit based on my own personal knowledge and belief.
36. I do not recite my full qualifications here. I recite them only to the extent necessary to establish my qualifications for purposes of expert testimony under OCGA 24-7-702.
37. My curriculum vitae, attached as Exhibit A, provides additional detail regarding my qualifications. I incorporate and rely upon it here.
38. The acts and omissions at issue here occurred in February 2020.
39. I am qualified to provide expert testimony pursuant to OCGA 24-7-702, based on the following facts.
 - a. In February 2020, I was licensed by an appropriate regulatory agency to practice my profession in the state in which I was practicing or teaching in the profession. Specifically, I was licensed by the State of Florida to practice medicine as a physician, and I was practicing medicine there.
 - b. In February 2020, I had actual professional knowledge and experience in the area of practice or specialty which my opinions relate to—specifically, the tasks identified above on which I offer standard-of-care opinions.

I had this knowledge and experience as the result of having been regularly engaged in the active practice of the foregoing areas of specialty of my profession for at least

three of the five years prior to February 2020, with sufficient frequency to establish an appropriate level of knowledge of the matters my opinions address.

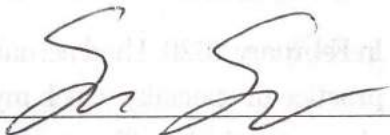
Specifically, I was at that time, and I am today, a physician specializing in cardiothoracic surgery and cardiology, in the settings of hospitals and other long-term-care facilities, and for many years I have had great familiarity with each of the tasks on which I offer standard-of-care opinions here.

Attached Documents

40. The two documents identified below are attached to this affidavit largely for the benefit of (a) the insurance adjustors responsible for evaluating this case on behalf of the Defendants, and (b) the lawyers provided by the insurers.
41. The first attachment recites medical principles that apply here. Although the Defendants themselves will not need that recitation of basic medical information, Plaintiff's counsel created this document for the benefit of the Defense. I have reviewed this document. Generally speaking, it correctly states the cardiology principles that apply here.
42. The second attachment is a chronology of facts of this case, which may serve as a useful reference for relevant facts contained in the records in less-organized fashion. In forming my substantive view of the case, I have relied on the medical records themselves, not on this chronology. Plaintiff's counsel created the chronology. I have not edited it.

Supporting Literature

43. The general points discussed above are elementary, are likely well known to the Defendants, and should not require research. Insofar as any Defendant consulted or should have consulted reliable authorities on these points in treating Charlene Doggett, the literature cited in the attached medical-principles document represents such authorities, which here may also prove helpful to adjustors and lawyers in their evaluation of this case.



Sotiris Stamou, M.D., Ph.D.

SWORN TO AND SUBSCRIBED before me

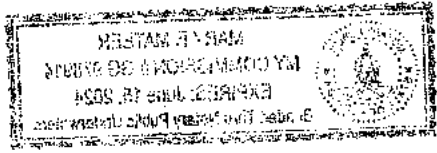
June 23, 2021

Mary F. Mateer

NOTARY PUBLIC

My Commission Expires 6-15-2024





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Attachment A

(Curriculum Vitae)

Curriculum Vitae

Sotiris C. Stamou, M.D, Ph.D.

Director of Cardiothoracic Surgery

Bayfront Medical Center

St Petersburg, FL



BIOGRAPHICAL

Date of Birth: July 14, 1968

Birth Place: Athens, Greece

Citizenship: USA

BUSINESS ADDRESS

601 6th St South,
Suite 205
St Petersburg, FL 33701
Phone: (954) 544-0606
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Email: sotiris.stamou@hotmail.com

HOME ADDRESS

17011 Dolphin Drive
N. Redington beach, FL 33708

Cell Phone: (954) 544-0606

EDUCATION

GRADUATE:

- 1987-1994 University of Athens, School of Medicine, Athens, Greece,
MD
- 1994-1999 University of Athens Medical School, Athens, Greece
Ph.D.

POST-GRADUATE:

- 1999-2000 Cardiac Surgery Research Fellowship, Washington Hospital Center,
Washington, D.C.
- 2000-2001 PGY-1 General Surgery Internship, Washington Hospital Center,
Washington, D.C.
- 2002-2005 PGY-2 to PGY-5, General Surgery Residency, Georgetown
University Hospital, Washington, D.C.
- 2005-2006 Cardiothoracic Surgery Fellowship, The Cleveland Clinic Foundation,
Cleveland, OH
- 2006-2008 Cardiothoracic Surgery Residency, Carolinas Medical Center,
Charlotte, NC
- 2008-2009 Clinical Associate, Clinical Instructor Harvard Medical School, Beth
Israel Deaconess Medical Center, Boston, MA
- 2009-2010 Aortic and Endovascular Surgery Fellowship, Missouri Baptist
Medical Center, St. Louis, MO
- 2019-2021 Graduate of Harvard Surgical Leadership Program, Boston, MA

APPOINTMENTS AND POSITIONS

PROGRAM LEADERSHIP:

- 2020- present Medical Director of Cardiothoracic Surgery Bayfront Hospital, St
Petersburg, FL

CURRICULUM VITAE

- 2015-2017 Surgical Co-director Advanced Aortic Program, Baystate Medical Center, Springfield, MA
- 2012-2014 Leader Aortic Center of Excellence, University of Iowa Hospitals and Clinics. Created first JCACHO certified aortic aneurysm center in Iowa

ACADEMIC APPOINTMENTS:

- 2018-present Affiliate Assistant Professor of Surgery, University of Miami
- 2012-2014 Assistant Professor of Cardiothoracic Surgery, University of Iowa, Iowa city, IA
- 2011-2012 Assistant Professor of Cardiothoracic Surgery, Michigan State University, Grand Rapids, MI
- 2008-2009 Instructor in Surgery, Harvard Medical School, Boston, MA

CLINICAL APPOINTMENTS:

- 2020-present Director of Cardiothoracic Surgery, Bayfront Medical Center, St. Petersburg, FL
- 2017-2019 Cardiothoracic Surgeon, JFK Medical Center, Atlantis, FL
- 2015-2017 Cardiothoracic Surgeon, Baystate Medical Center, Springfield, MA
- 2014-2015 Cardiothoracic Surgeon, Florida Heart and Vascular Care of Broward, Plantation, FL
- 2012-2014 Cardiothoracic Surgeon, University of Iowa Hospitals and Clinics, Iowa City, IA
- 2010-2012 Cardiothoracic Surgeon, Meijer Heart and Vascular Center, West Michigan Cardiothoracic Surgeons PLC, Grand Rapids, MI

CERTIFICATIONS & LICENSURE

SPECIALTY CERTIFICATION:

- American Board of Surgery (Certificate #3073128) 2006 & 2013

American Board of Thoracic Surgery (Certificate #7606) 2009 & 2019

STATE LICENSURES:

- Massachusetts Medical License #235360 (inactive)
- Connecticut Medical License #052258 (inactive)
- Florida Medical License #ME119518
- Iowa Medical License #40480 (inactive)
- District of Columbia. Medical License MD0035150 (inactive)
- Michigan Medical License #4301095947 (inactive)
- Missouri Medical License #2009005174 (inactive)

PROFESSIONAL SOCIETIES

- Fellow of the American College of Surgeons 2011
(ID# 03073128)
- Society of Thoracic Surgeons 2010
- American Medical Association 2008
- Society of Thoracic Surgeons
Adult Cardiac Surgery Task Force 2014-present

HONORS AND AWARDS

- Baystate CEO recognition for outstanding 2016 ratings from patients, Baystate Medical Center, Springfield, MA
- Samson Resident award Finalist. 34th Annual meeting of Western Thoracic Surgical Association, Kona, Hawaii, June 24-28 ,2008

- AATS Resident Traveling Fellowship Award. January 5- 20, 2008. Hospital of the University of Pennsylvania, Mentor: Dr. Joseph Bavaria
- Best Resident Presentation Award. Best Practices in Cardiac Surgery Meeting. September 14-15, 2007. Wake Forrester University Baptist Medical Center
- Georgetown University Hospital Program Director's Award for outstanding performance on the 2003 American Board of Surgery In-Service examination
- Georgetown University Hospital Program Director's Award for outstanding performance on the 2002 American Board of Surgery In-Service examination
- Dean's citation for Academic Excellence
Athens Medical School 1994

PROFESSIONAL ACTIVITIES - INVITED LECTURES

- Clinical Characteristics, Management and outcomes of Intraoperative Acute Type A Aortic Dissection. Invited Lecture. 2012 Surgery Postgraduate Conference: Management of Complications in Surgery. Sponsored by Department of Surgery and The University of Iowa, Carver College of Medicine.
- Aortic Root Reconstruction: Remodeling Vs. Reimplantation. Invited Lecture. The Aortic Symposium at Medical College of Wisconsin, February 5, 2015, Milwaukee, WI
- Trends of Aortic Root Replacement in the US. Invited Lecture. The Aortic Symposium at Medical College of Wisconsin, February 5, 2015, Milwaukee, WI
- Fate of the False Lumen in Extensive Aortic Dissection. Invited Lecture. The Aortic Symposium at Medical College of Wisconsin, October 30, 2015, Milwaukee, WI
- Outcomes of Repair of Acute Type A Dissection in the Current Era. Invited Lecture. The Aortic Symposium at Medical College of Wisconsin, October 30, 2015, Milwaukee, WI.
- The End of the Cold Era: Warm Cardioplegia as a Myocardial Protection Strategy in Cardiac Surgery. Annual Educational Meeting of Florida Perfusion Society. August 15, 2018, Hollywood, FL.

- Whole Blood del Nido Cardioplegia: Is it Prime Time?”
Annual Educational Meeting of Florida Perfusion Society. August 16, 2019,
Hollywood, FL

PUBLICATIONS

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Outcomes of Urgent Transcatheter Aortic Valve Replacement in Patients With Acute Decompensated Heart Failure: A Single-Center Experience.
Cureus. 2020;12:e10425
2. James TM, Nores M, Rousou JA, Lin Nicole, **Stamou SC**
Warm Blood Cardioplegia for Myocardial Protection: Concepts and Controversies
Texas Heart Institute Journal, 2020;47:108-116
3. **Stamou SC**, Conway BD, Nores MA.
Management of Aortic Pseudoaneurysms: Evolving Concepts and Controversies
Aorta, 2020;8:1-5
4. Moeller E, Nores M, **Stamou SC**.
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5. Lin N, Nores MA, James TM, Rothenberg M, **Stamou SC**.
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6. Makkar RR, Thourani VH, Kodali SK et al.
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7. James TM, Stamou SC, Faber C, Nores MA.
Whole Blood del Nido versus Cold Blood Microplegia in Adult Cardiac Surgery: A Propensity-Matched Analysis
In press, International Journal of Angiology

8. **Stamou SC**, Chen K, James TM, Rothenberg M, Kapila A, Faber C, Nores MA.
Predictors and Outcomes of Patient-Prosthesis Mismatch after Transcatheter Aortic Valve Replacement
Journal of Cardiac Surgery, 2020;35:360-366
9. Hatfield SA, Nores MA, James TM, Rothenberg M, Kapila A, Cubeddu R, **Stamou SC**.
Predictors and Outcomes of Stroke after Transcatheter Aortic Valve Replacement
Journal of Cardiac Surgery, 2020;35:21-27
10. Kouchoukos NT, Masetti P, **Stamou SC**, Kulik A.
Outcomes after Left Ventricular Outflow Tract Reconstruction with a Tube Graft for Annular erosion
The Annals of Thoracic Surgery, 2020;109:1820-1825.
11. James TM, Nores MA, **Stamou S**
A Technique for 360-degree Rigid Sternal Fixation with Sternal Plates and Wire Cerclage
Thoracic and Cardiovascular Surgeon, 2020;68:752-754.
12. **Stamou SC**, Polcari K, Abdallah A, James T, Rothenberg M, Daniel G, Nores MA.
Early Experience with Embolic Protection Devices during Transcatheter Aortic Valve Replacement
Journal of Invasive Cardiology, 2019;31:296-299
13. **Stamou SC**, Lopez C, Novello C, Nores M.
Modified Whole Blood Microplegia in High Risk Patients
Journal of Cardiac Surgery, 2019;34:118-123
14. James TM, Stamou SC, Rothenberg M, Nores M.
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Catheterization and Cardiovascular Interventions, 2019;93:117-1172.
15. **Stamou SC**, Lin N, James T, Rothenberg M, Lovitz, L, Faber C, Kapila A, Nores MA.
Alternative Access Versus Transfemoral Transcatheter Aortic Valve Replacement in Nonagenarians
Journal of Invasive Cardiology, 2019;31:171-175.
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17. **Stamou SC**, McHugh M, Conway BD, Nores M.
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International Journal of Angiology, 2018;27:190-195
18. **Stamou SC**, Nores M.
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19. **Stamou SC**, Gartner D, Kouchoukos NT, Lobdell KW, Khabbaz K, Murphy E, Hagberg RC.
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20. **Stamou SC**, Rausch LA, Kouchoukos NT, Lobdell KW, Khabbaz K, Murphy E, Hagberg RC.
Comparison Between Antegrade and Retrograde Cerebral Perfusion or Profound Hypothermia as Brain Protection Strategies During Repair of Type A Aortic Dissection.
Annals of Cardiothoracic Surgery, 2016;5:328-335.
21. Gunn M, **Stamou SC**, Kouchoukos NT, Lobdell KW, Khabbaz K, Patzel LH, Hagberg RC.
Techniques of Proximal Root Reconstruction and Outcomes Following Repair of Acute Type A Aortic Dissection
Aorta, 2016;4:33-41.
22. Leon MB, Smith CR, Makkar RR, et al.
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New England journal of Medicine, 2016;374:1609-1620
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International Journal of Angiology, 2015;24:93-98
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Aortic Root Surgery in the United States: A Report from the Society of Thoracic Surgeons Database
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25. Conway BD, **Stamou SC**, Kouchoukos NT, Lobdell KW, Khabbaz KR, Murphy E, Hagberg RC.
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Interactive Cardiovascular and Thoracic Surgery. 2014;19:971-976.
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Aorta, 2014;2:121-122
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Aorta, 2014;2:22-27
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Journal of Cardiac Surgery, 2014;29:231-233.
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The Annals of Thoracic Surgery, 2012;94:988-989.
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Interactive Cardiovascular and Thoracic Surgery, 2012;14:143-145.
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Aprotinin In Cardiac Surgery Patients: Is The Risk Worth The Benefit?
European Journal of Cardiothoracic Surgery, 2009;36:869-875
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Quality improvement in cardiac critical care
HSR proceedings in Intensive Care and Cardiovascular Anesthesia, 2009;1:16-20
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Early Tracheal Extubation Decreases Pulmonary Complications And Resource Utilization After Cardiac Surgery.

Journal of Cardiac Surgery, 2009;24:414-423

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Beneficial effect of l-carnitine on patients with heart failure due to dilated cardiomyopathy
Oral presentation, *3rd International Congress on Heart Failure*, May 21-25, 1995, Geneva, Switzerland.

RESEARCH TRIALS

1. PARTNER trial, S3 registry: regional PI and Surgical Director
2. Edwards Magna Mitral #23: Institutional PI
3. Post-Approval magna Mitral valve trial : Institutional PI

Exhibit 3

**AFFIDAVIT OF JONATHAN SCHWARTZ, MD, MBA, REGARDING
CHARLENE DOGGETT**

Personally appears before the undersigned authority, duly authorized to administer oaths, Jonathan Schwartz, MD, who after being duly sworn, states as follows.

Introduction

1. This affidavit concerns Charlene Doggett's back-to-back hospitalizations at Tift Regional Medical Center ("Tift"), in Tifton, Georgia, in February 2020.
2. The first hospitalization took place February 20-23, 2020; the second, February 24, 2020, the date of Ms. Doggett's death.
3. I have been asked to provide this affidavit for the limited purpose of Georgia statute OCGA § 9-11-9.1.
4. The process of creating this affidavit was as follows:
 - a. Plaintiff's counsel contacted me, outlined the basic medical facts of the case, and identified the issues they wanted me to analyze. I reserved judgment until I reviewed the medical records myself.
 - b. After I reviewed the medical records, I formed my own views and reached my own conclusions, and then shared them with Plaintiff's counsel.
 - c. Plaintiff's counsel then prepared a draft of this affidavit, based on my views and conclusions.
 - d. I then reviewed the draft and edited it to make sure it correctly states my views and conclusions. I have not edited the affidavit for style.
5. This affidavit addresses matters that Plaintiff's counsel have asked me to address. I have not attempted to identify all standard-of-care violations, state every causation opinion, or anticipate or address every issue that the Defense might raise or that may otherwise arise as the case unfolds.
6. As to the matters this affidavit addresses, I have tried to give a reasonably detailed explanation, but I have not attempted an exhaustive discussion. In deposition or trial testimony, I may elaborate with additional details.

7. I use the term “standard of care” to refer to that degree of care and skill ordinarily exercised by members of the medical profession generally under the same or similar circumstances and like surrounding conditions as pertained to the medical providers I discuss here.
8. I hold all the opinions expressed below to a reasonable degree of medical certainty—that is, more likely than not. If additional information later becomes available, my views may change.
9. The purpose of this affidavit is to let the Defendants, their lawyers, and their insurers know the conclusions I will testify to at trial—in enough detail that the Defense can evaluate them and prepare to cross-examine me.
10. I understand that Plaintiff’s counsel may have consulted with other experts, who may have drawn the same conclusions. I would expect most other experts, possibly all, to draw the same or similar conclusions.
- 11.
12. I understand that Plaintiff’s counsel will provide this affidavit to the Defendants’ lawyers, and that Defendants’ insurers will hire lawyers and medical experts to review this case and this affidavit. If anyone on the Defense believes that I have not been given, or have overlooked or misconstrued, any relevant information, I invite the Defense to communicate with me by letter through Plaintiff’s counsel. The Defense need not wait to take my deposition to communicate with me. I will consider any information the Defense brings to my attention. Insofar as such information warrants reconsideration of my views, I will reconsider them and provide a supplemental affidavit.

Evidence Considered

13. I have reviewed medical records for Charlene Doggett’s back-to-back hospitalizations at Tift in February 2020.

Principal Opinions

14. My principal opinions are summarized here. In deposition or trial testimony, I may elaborate upon these principal opinions, and in doing so, I may offer related, subsidiary, or incidental opinions.

Standard-of-Care Violations

15. This affidavit first identifies requirements of the standard of care that apply under the following circumstances present in this case:
- a cardiologist (here, Dr. Paul Murray) is caring for a patient with an NSTEMI, at a hospital without the capability to perform coronary artery bypass grafting surgery (“bypass surgery” or “bypass”);
 - the cardiologist finds a 100% in-stent occlusion in the patient’s mid-RCA, through a catheterization study;
 - the cardiologist is unable to clear the occlusion with angioplasty; and
 - the patient is discharged from the hospital two days later, with a completely occluded RCA and without further investigation of the adequacy of collateral blood-flow or myocardial perfusion.

This affidavit then outlines how each identified requirement was violated.

16. First Violation: Admitting patient to Tift.

- a. **Requirement:** When the patient returns the next day with a STEMI and the cardiologist refuses to perform another catheterization, the standard of care requires a hospitalist to deny the patient’s admission, so that the patient may be transferred to a facility capable of providing definitive care for the STEMI, including bypass surgery or another angioplasty, or both.
- b. **Violation:** On February 24, 2020, Hospitalist Cynthia Phillips violated this requirement by admitting Ms. Doggett to Tift, even though Tift lacked both the capability and a plan to provide definitive care for the STEMI.

This violation was all the more egregious because:

- Ms. Doggett had just had an NSTEMI;
- the attending physician in the ER diagnosed Ms. Doggett with a STEMI immediately upon her return that morning;
- Ms. Doggett’s medical history, clinical presentation, and EKGs made it clear that she was having an acute inferior STEMI;

- the inferior STEMI was consistent with an occlusion in the mid-RCA; and
- Dr. Phillips admitted Ms. Doggett to the step-down unit (SDU) for medical management and hospital care.

17. Second violation: Failure to transfer to another hospital.

- a. **Requirement:** If the hospitalist nevertheless admits the patient, the standard of care then requires the hospitalist to transfer the patient emergently to a hospital capable of providing definitive care for the STEMI.

This requirement applies with even greater force where the hospitalist herself has confirmed and documented the STEMI.

- b. **Violation:** On February 24, 2020, Dr. Phillips violated this requirement by failing to transfer Ms. Doggett to a hospital capable of performing bypass surgery, so that Ms. Doggett could there undergo either bypass or another angioplasty with bypass as a backup, or both.

This violation is all the more egregious because:

- Ms. Doggett's medical history, clinical presentation, and EKGs confirmed an acute inferior STEMI in progress;
- the inferior STEMI was consistent with an occlusion in the mid-RCA;
- the attending physician in the ER confirmed his initial diagnosis;
- Dr. Phillips herself ordered a second EKG, which confirmed the STEMI;
- Dr. Phillips herself noted Ms. Doggett was having a STEMI;
- Troponin levels, telemetry, and a third EKG repeatedly reconfirmed a STEMI in progress while Ms. Doggett was in the SDU; and
- Ms. Doggett spent the last hours of her life painfully dying of an untreated STEMI as an admitted patient in the SDU.

18. Third violation: Failure to obtain informed consent.

Requirement: The standard of care requires a hospitalist to obtain the patient's informed consent to the patient's admission to a hospital that cannot provide definitive care for the STEMI, in lieu of transfer to a hospital that can.

Violations: On February 24, 2021, Dr. Phillips violated this requirement by:

- a. failing to inform Ms. Doggett that she was having a STEMI;
- b. failing to inform Ms. Doggett that Tift lacked the capability to provide definitive care for her STEMI;
- c. failing to inform Ms. Doggett that bypass surgery and another angioplasty were definitive-care options available at other hospitals;
- d. failing to obtain Ms. Doggett's informed consent to remaining at a hospital that lacked the capability to provide definitive care for her STEMI; and
- e. failing to obtain Ms. Doggett's informed consent to a course of treatment that excluded the definitive care available at other hospitals.

Causation

19. Assuming Ms. Doggett was a candidate for bypass surgery upon her return to Tift on February 24, 2020, Dr. Phillips's violations led to Ms. Doggett's death from a STEMI that day, in excruciating pain.
20. On February 21, 2020, the catheterization study showed that Ms. Doggett's heart was fundamentally normal except for the mid-RCA occlusion itself. On that date, she still had well preserved ventricular function—a major determinant of prognosis after a heart attack.
21. But-for each of Dr. Phillips's violations, Ms. Doggett would have been transferred to another hospital to undergo bypass surgery, another angioplasty, or both.
22. As a result, assuming that Ms. Doggett was eligible for bypass surgery, each of Dr. Phillips's violations deprived her of the definitive care available at other hospitals, and thus caused Ms. Doggett to endure pain, suffering, a major heart attack, cardiac arrest, and death.

Qualifications

23. I am over 18 years of age, lack legal disabilities, and provide this affidavit upon my own personal knowledge and belief.
24. I do not recite my full qualifications here. I recite them only to the extent necessary to establish my qualifications for purposes of expert testimony under OCGA 24-7-702.
25. My curriculum vitae, attached as Exhibit A, provides additional detail regarding my qualifications. I incorporate and rely upon it here.
26. The acts and omissions at issue here occurred in February 2020.
27. I am qualified to provide expert testimony pursuant to OCGA 24-7-702, based on the following facts.
 - a. In February 2020, I was licensed by an appropriate regulatory agency to practice my profession in the States in which I was practicing or teaching in the profession at that time—Michigan and Wyoming. (In February 2020, I was also licensed to practice medicine in the States of Iowa, Montana, North Dakota, Ohio, and Washington.)
 - b. In February 2020, I had actual professional knowledge and experience in the area of practice or specialty which my opinions relate to—specifically, the tasks identified above on which I offer standard-of-care opinions.
 - c. I had this knowledge and experience as the result of having been regularly engaged in the active practice of the foregoing areas of specialty of my profession for at least three of the five years prior to February 2020, with sufficient frequency to establish an appropriate level of knowledge of the matters my opinions address.

Specifically, I was at that time, and I am today, a physician specializing in internal medicine and hospital medicine, in the settings of hospitals and other long-term-care facilities, and for many years I have had great familiarity with each of the tasks on which I offer standard-of-care opinions here.

Attached Documents

28. The documents identified below are attached to this affidavit largely for the benefit of (a) the insurance adjustors responsible for evaluating this case on behalf of the Defendants, and (b) the lawyers provided by the insurers.

29. Attached to this affidavit is a document that recites medical principles that apply here. While the Defendants themselves will not need that recitation of basic medical information, Plaintiff's counsel created the medical-principles document for the benefit of the Defense. I have reviewed the document, and generally speaking, the hospital-medicine principles stated there are stated correctly.
30. Also attached to this affidavit is a chronology of facts of this case. In forming my substantive view of the case, I have relied on the medical records themselves, not the chronology. The chronology, however, provides a useful reference for relevant facts contained in the records in less-organized fashion. Plaintiff's counsel created the chronology. I have not edited it.

Supporting Literature


31. The general points discussed above are elementary, are likely well known to the Defendants, and should not require research. Insofar as any Defendant consulted or should have consulted reliable authorities on these points in treating Charlene Doggett, the literature cited in the attached medical-principles document represents such authorities, which here may also prove helpful to adjustors and lawyers in their evaluation of this case.



Jonathan Schwartz, MD, MBA

SWORN TO AND SUBSCRIBED before me

June 23rd, 2021



NOTARY PUBLIC

My Commission Expires 10/6/22

Attachment A

(Curriculum Vitae)

Jonathan M. Schwartz, MD MBA

Board Certification

Diplomat, American Board of Internal Medicine

Certificate Number 215221

Initial Certification

08/19/2003 – 12/31/2013

Recertification

09/25/2013 – 12/31/2023

Professional Experience

Grosse Pointe Physician Services, PLLC

01/2016 – present

Grosse Pointe Farms, MI

Owner, Hospitalist

Wayne Health

07/2019 — 12/2020

Wayne State University Physician Practice Group

Detroit, Michigan

Memorial Hospital of Sweetwater County

10/2018 – 4/2021

Rock Spring, Wyoming

Hospitalist

University of Michigan Hospital and Medical Center

4/2015 – 12/2015

Ann Arbor, Michigan

Hospitalist

University of Michigan School of Medicine

4/2015 – 12/2015

Ann Arbor, Michigan

Assistant Professor of Medicine

The Grosse Pointe Medical Group, PLLC

1/2013 – 3/2015

Grosse Pointe Park, Michigan

Owner, Private Practice, Internal Medicine

Henry Ford Medical Group

7/2002 – 12/2012

Detroit, Michigan

Medical Director, Managed Care

7/2007 – 12/2012

Senior Staff Physician, Internal Medicine

7/2004 – 12/2012

Associate Staff, Internal Medicine

7/2002 – 6/2004

Director, Physician Leadership Development Program

7/2005 – 12/2012

Medical Director, Referring Physician Office

7/2007 – 6/2010

Director, Referring Physician Programs & Services

7/2004 – 6/2007

Associate Medical Director, Managed Care

7/2003 – 6/2007

Assistant to the Chief Executive Officer

7/2003 – 6/2004

Education

Health Services Administration Fellowship (non-clinical) Henry Ford Health System One Ford Place Detroit, Michigan 48202	7/2002 – 6/2003
Internal Medicine Residency Henry Ford Hospital 2799 W. Grand Blvd Detroit, Michigan 48202	7/2000 – 6/2002
Internal Medicine Internship Henry Ford Hospital Detroit, Michigan	7/1999 – 6/2000
Doctor of Medicine Case Western Reserve University School of Medicine 2109 Adelbert Rd Cleveland, Ohio 44106	7/1995 – 6/1999
Master of Business Administration Case Western Reserve University Weatherhead School of Management 10900 Euclid Avenue Cleveland, Ohio 44106	7/1993 – 6/1995
Premedical Coursework, Non Degree Case Western Reserve University	7/1992 – 6/1993
Bachelor of Science in Business Administration (Summa Cum Laude) The Ohio State University College of Business Administration (Honors Program) 2100 Neil Avenue Columbus, Ohio 43210 <i>Major Field of Study: Accounting & Management Information Systems</i>	1/1988 – 3/1991

Hospital Privileges

Covenant Healthcare (Locum, CompHealth) 1447 N Harrison Street Saginaw, Michigan 48602	5/2021 - present
Detroit Receiving Hospital 4201 St. Antoine Street Detroit, Michigan 48201	07/01/2019 – 12/2020
Memorial Hospital of Sweetwater County 1200 College Drive Rock Springs, Wyoming 82901	12/07/2018 – 04/2021
Aultman Hospital (Locum, Hayes Locums) 2609 6 th Street SW Canton, Ohio 44710	11/2018 – 01/2019
SageWest Riverton (Locum, Locum Life) 2100 W. Sunset Drive Riverton, Wyoming 82501	7/13/2017 – 11/14/2019
TriHealth Good Samaritan Hospital (Locum, Hayes Locums) 375 Dixmyth Ave Cincinnati, Ohio 45220	6/21/2017 – 09/2018
TriHealth Bethesda North Hospital (Locum, Hayes Locums) 10500 Montgomery Road Cincinnati, Ohio 45242	10/19/2016 – 09/2018
Billings Clinic Hospital (Locum, Hayes Locums) 2800 10 th Ave N Billings, Montana 59101	7/15/2016 – 8/31/2018
Altru Hospital (Locum, CompHealth) 1200 S. Columbia Rd Grand Forks, North Dakota 58201	1/1/2016 – 9/01/2016
University of Michigan Medical Center 1500 E. Medical Center Drive Ann Arbor, Michigan 48109	4/1/2015 – 12/31/2015
Gallup Indian Medical Center (Locum, CompHealth) 516 E. Nizhoni Blvd Gallup, New Mexico 87301	10/1/2014 – 3/31/2015
Great River Medical Center (Locum, CompHealth) 1221 S. Gear Ave West Burlington, Iowa 52655	12/1/2014 – 3/31/2015

Beaumont Grosse Pointe Hospital (Bon Secours-Cottage)
468 Cadieux Rd
Grosse Pointe, Michigan 48230

2/25/2014 – 1/1/2015
7/21/2005 – 4/25/2013

St. John Hospital and Medical Center
22101 Moross Rd.
Detroit, Michigan 48236

4/1/2014 – 12/31/2014

Henry Ford Hospital
2799 W. Grand Blvd.
Detroit, Michigan 48202

7/1/2002 – 12/31/2012

Henry Ford Cottage Hospital
159 Kercheval Ave.
Grosse Pointe Farms, Michigan 48236

7/1/2002 – 9/27/2010

Licensure and Regulatory Information

NPI Number 1104994631

CAQH Number 10892228

State of Michigan Board of Medicine Physician Practitioner

License Number 4301073836

Issued 02/25/2002

Expires 01/31/2024

State of Michigan Board of Pharmacy Controlled Substance Prescriber

License Number 5315008848

Issued 02/25/2002

Expires 01/31/2024

State of Ohio Board of Medicine

License Number 35.094492

Issued 10/30/2009

Expires 01/01/2022

State of Iowa Physician License

License Number MD.42160

Issued 10/24/2014

Expires 11/01/2021

State of Iowa Board of Pharmacy Controlled Substance Provider

License Number 1246562

Issued 10/30/2014

Expires 02/28/2021

State of North Dakota Physician License

License Number 13941

Issued 03/18/2016

Expires 11/12/2021

State of Montana Physician License

License Number 48176

Issued 03/23/2016

Expires 03/31/2022

Montana Medical Legal Panel

Number 9091 current

State of Wyoming Physician License

License Number 11106A

Issued 07/14/2017

Expires 06/30/2021

State of Wyoming Board of Pharmacy Controlled Substance Provider

License Number CS01475
Issued 06/06/2017
Expires 06/30/2021

State of Washington Physician License

License Number MD60881154
Issued 09/20/2018
Expires 11/12/2021

State of Minnesota

License Number 68420
Issued 11/06/2020
Expires 11/30/2021

State of Wisconsin

License Number 1069-320
Issued 11/13/2020
Expires 10/31/2021

DEA Controlled Substance Prescriber

License Number BS7696315
Issued 1/19/2017
Expires 2/29/2023
Michigan Assignment

License Number FS5881431
Issued 4/01/2016
Expires 02/28/2022
Wyoming Assignment

License Number FS8255829
Issued 4/05/2019
Expires 2/28/2022
Ohio Assignment

Other Certifications

Advanced Cardiac Life Support (ACLS)

expires 7/2022

Basic Life Support (BLS)

expires 7/2022

Examinations

USMLE

Exam I	(attempted and completed once)	06/10/1997
Exam II	(attempted and completed once)	08/25/1998
Exam III	(attempted and completed once)	09/25/2001

Medical Malpractice Insurance

Certificates of Insurance available on request

Publications

Schwartz, J.M.: Insurance Status and the Transfer of Hospitalized Patients. *Annals of Internal Medicine*, 2014;160(11):810

Yaremchuck, K; Schwartz, J; Neslon, M: Copayment Levels and Their Influence on Patient Behavior in Emergency Room Utilization in an HMO Population. *Journal of Managed Care Medicine*, 2010; Vol. 13, No. 1:27–31.

Frolkis, J P; Zyzanski S J; Schwartz, J M; Suhan, P S: Physician Noncompliance with the 1993 National Cholesterol Education Program (NCEP–ATPII) Guidelines. *Circulation*. 1998; 98:851–855.

Teaching

Oakland University School of Business Administration (Rochester Hills, Michigan) 2011 – 2012

Adjunct Faculty

Hospital Administration (HCM 634) Executive MBA Program

Guest Lecturer

2010

Executive MBA Program

University of Michigan Ross School of Business (Ann Arbor, Michigan)

2007 – 2012

Guest Lecturer

MBA program, Seminar in Healthcare Management

Research

Physician Compliance with NCEP–ATPII Guidelines in a Cardiac ICU 1996 – 1997
Mt. Sinai Medical Center, Cleveland, Ohio

Lectures and Presentations

Oakland University School of Management

Conference on Cost in Healthcare

Expert Panel Member and Lecturer

2008

American Medical Group Association Annual Conference

“Physician Leadership Education”

2008

“Specialty Access: A Novel Approach”

2007

Six Clinics Annual Meeting

“Specialty Access: A Novel Approach”

2006

Board of Trustees, Henry Ford Hospital and Health Network

“Specialty Access”

2006

Board of Trustees, Henry Ford Health System Joint Conference

“Specialty Access”

2005

“Physician Leadership Development”

2005

“In–Sourcing Care of HFMG Capitated Patients”

2004

Advisory Board and Panel Membership

Oakland University Executive MBA Program Advisory Board	2007 – 2012
United Health, South East Michigan Physician Advisory Committee	2007 – 2009
American Medical Group Association Expert Panel on the Economic Costs Associated with Metabolic Syndrome	2007

Committee Experience

United Physicians. Regional Physician Leadership Council, East Region	2014
Henry Ford Health System Henry Ford Medical Group Care Management Redesign Team	2011 – 2012
Chair, Patient Alignment Work Group	
Chair, End Stage Renal Disease Patient Work Group	
Chair, Radiology Utilization Work Group	
Chairs Council	2003 – 2012
Finance Committee	2003 – 2012
Contracting Subcommittee	2010 – 2012
Practice Affairs Committee	2009 – 2012
Credentials Committee	2006 – 2008
Specialty Access Task Force	2005 – 2007
Referring Physician Committee	2002 – 2003
Henry Ford Health System Growth, Contact Center Subcommittee	2008 – 2012
Service Excellence Committee	2006
Corporate University Steering Committee	2005 – 2012
Safety Net Access and Charity Care	2006 – 2012
Telecommunications Assessment Steering Committee	2006
Patient Transportation Steering Committee	2006 – 2007
Retail Strategies Committee, Access Subcommittee	2006
Health Alliance Plan Benefits Administration Committee	2007 – 2012
Network Medical Director Committee	2007 – 2012
Henry Ford Physician Network Payment and Contract Advisory Committee	2011 – 2012
HFMG–HAP–HFH Steering Committee	2007 – 2012
HFMG–HAP–HFH Joint Operating Committee	2007 – 2012
HFMG – HAP – HFH Leadership Committee	2003 – 2009

Professional Society Membership

American College of Physicians	2002 – present
American Medical Association	2004 – present
Society of General Internal Medicine	2014 – 2015
Society of Hospital Medicine	2014 – 2015
American College of Healthcare Executives	2002 – 2013
American College of Physician Executives	2007 – 2013
Michigan State Medical Society	2005 – 2014
Liaison Committee with Third Party Payers	2005 – 2012
Committee on Health Care Quality, Efficiency, and Economics	2005 – 2014
Sub Committee on Data Integrity	2005
Sub Committee on Pay for Performance	2005
Wayne County Medical Society	2005 – 2014
Delegate Body Member	2005 – 2009
Legislative Affairs Committee	2006 – 2012
Young Physician Committee	2006 – 2009

Awards and Special Recognition

Henry Ford Health System Board of Trustees: “Focus on People” 2008
 An award given for exceptional contributions to financial and operational performance, awarded for team work related to development of a corporate policy and practice for uninsured and underinsured patients.

Henry Ford Health System Board of Trustees: “Focus on People” 2004
 An award given for exceptional contributions to financial and operational performance, awarded for work related to improving insourcing of admissions to Henry Ford Hospital.

Academic Scholarships and Honors

Pace Setters Award for Outstanding Achievement in the College of Business,
 The Ohio State University

The Ohio State University–University College Summa Award,
 The Ohio State University

Beta Alpha Psi National Accounting Honors Fraternity

Golden Key National Honor Society

Community Involvement

Detroit Institute for Children
 Board of Directors and Executive Committee of Board 2013 – 2015

Attachment B

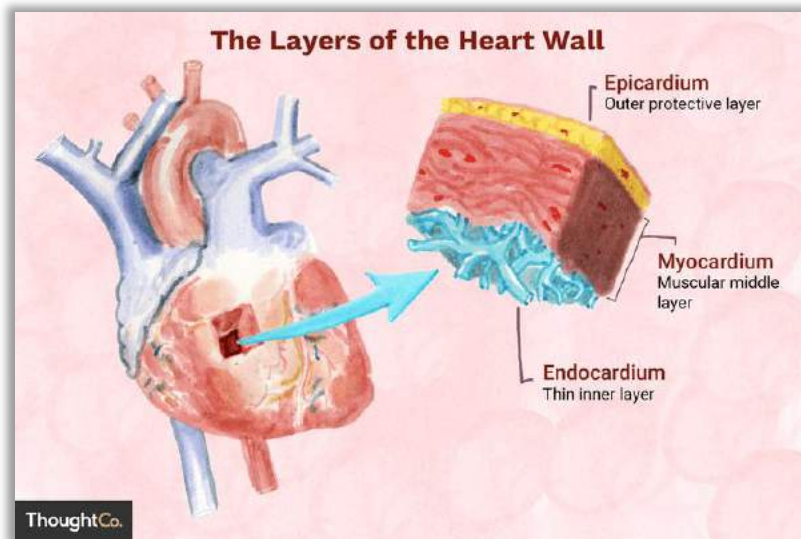
(to Affidavits of Merlon Levy, MD, Sotiris Stamou, MD,
and Jonathan Schwartz, MD)

Medical Principles

General Principles

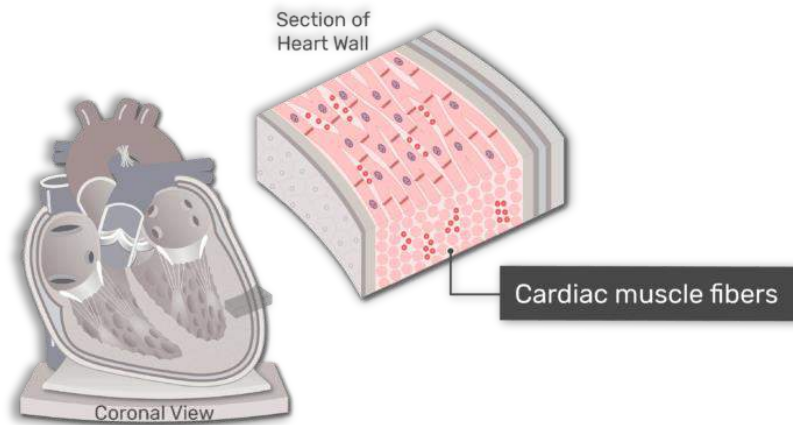
The Heart and Its Wall

1. The heart is a hollow muscular organ about the size of a closed fist.
2. The heart functions as the body's blood pump.
3. The purpose of the heart is to pump blood to the organs and tissues. Blood carries oxygen and nutrients needed to sustain health and life. For that reason, the heart must pump a continuous supply of blood.
4. The heart beats 100,000 times a day, pumping 5-6 gallons of blood every minute—approximately 2,000 gallons a day.
5. The heart's wall is made up of three layers.



6. The myocardium is the muscular middle layer.
myo = muscle
cardium = heart
7. The ventricles of the heart have thicker myocardia than the atria.

8. This is because blood is pumped out of the heart at greater pressure from the ventricles compared to the atria.
9. The left ventricle has a thicker myocardium than the right ventricle.
10. This is because the left ventricle pumps blood around the entire body (the systemic circuit), whereas the right ventricle pumps blood through the nearby lungs (the pulmonary circuit).
11. The myocardium is made up of specialized cells called cardiomyocytes.
12. Cardiomyocytes can stretch and shrink, producing the pumping action of the heart muscle.



13. When a person has a heart attack, cardiomyocytes die.
14. The death of cardiomyocytes damages the myocardium.
15. Damage to the myocardium diminishes or even stops the heart's ability to pump blood.
16. Myocardial infarction means death of the cardiomyocytes.

myo = muscle

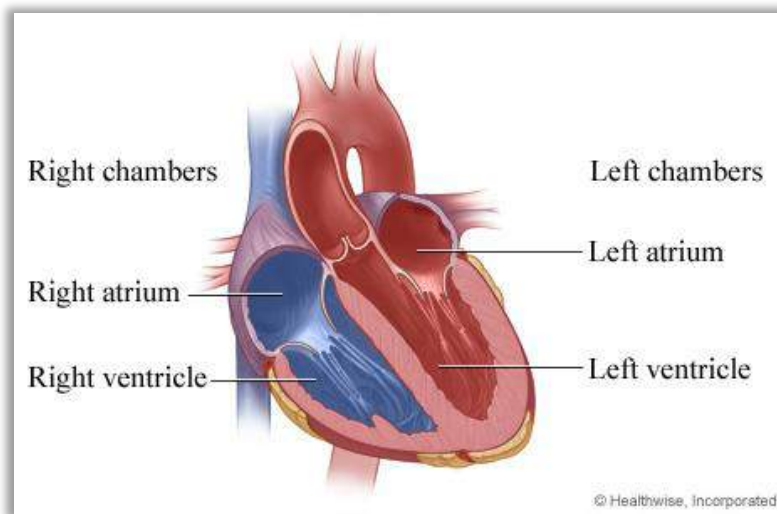
cardium = heart

infarction = death

17. During a heart attack, cardiomyocytes die. Hence “myocardial infarction” is a medical name for a heart attack.

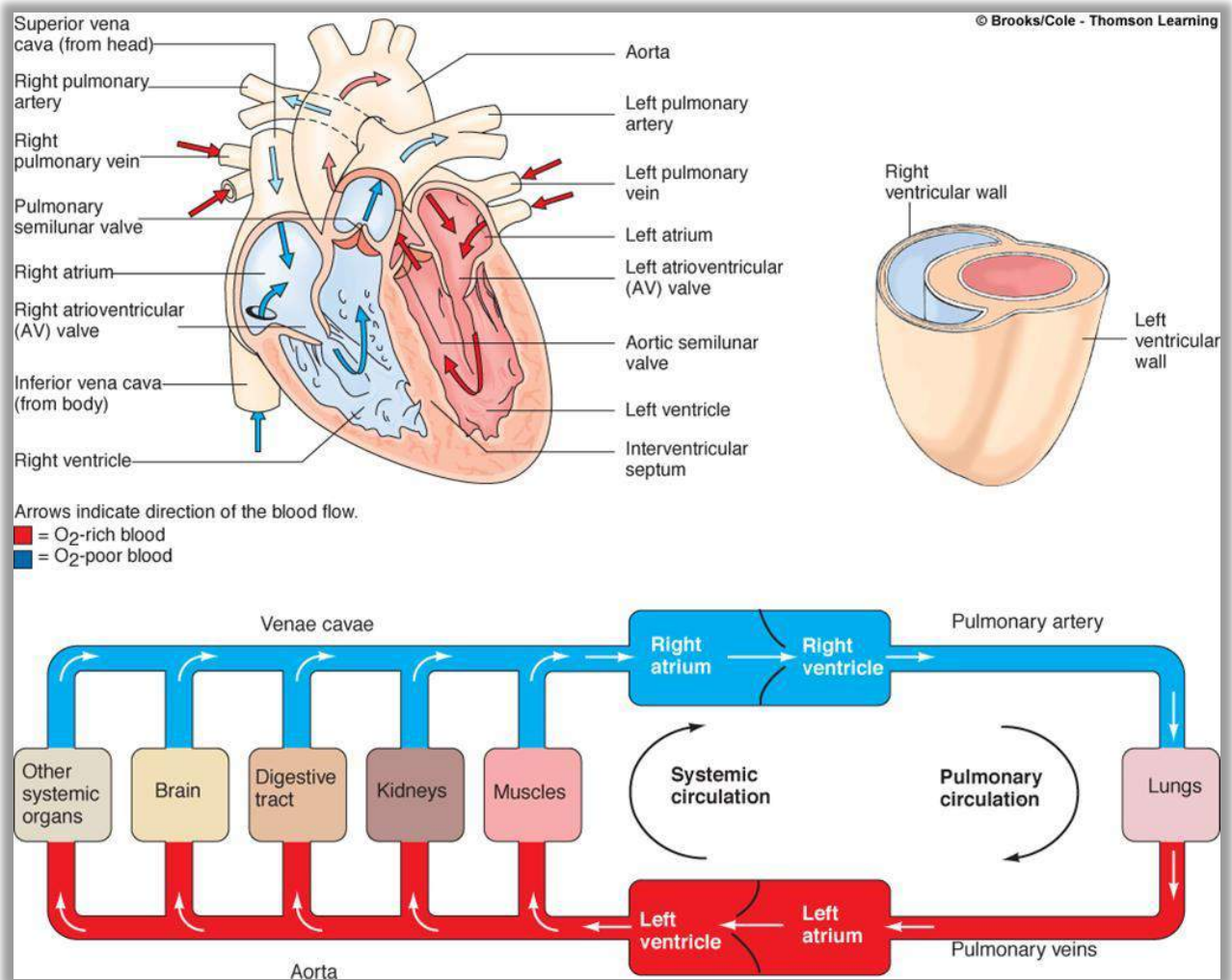
The Cardiac Cycle

18. The heart wall gives shape to the hollow chambers of the heart.
19. The heart has four chambers. The two atria are on top; the two ventricles, at bottom.



20. The right side of the heart thus has two chambers: the right atrium and the right ventricle.
21. The left side has two chambers: the left atrium and the left ventricle.
22. The cardiac cycle is the four-step process by which blood flows through the chambers.
23. In the first two steps, after receiving oxygen-depleted blood from the veins, the right side of the heart pumps this blood out to the lungs.
24. In step 1, the right atrium pumps the blood down to the right ventricle. In step 2, the right ventricle pumps the blood out to the lungs for oxygenation.
25. The blood then travels through the lungs, receives oxygen, and returns to the heart as oxygenated (oxygen-rich) blood.

26. In the next two steps, the left side of the heart pumps the oxygenated blood out to the body.
27. In step 3, the left atrium pumps the blood down the left ventricle. In step 4, the left ventricle pumps the blood out to the body, including the heart itself.

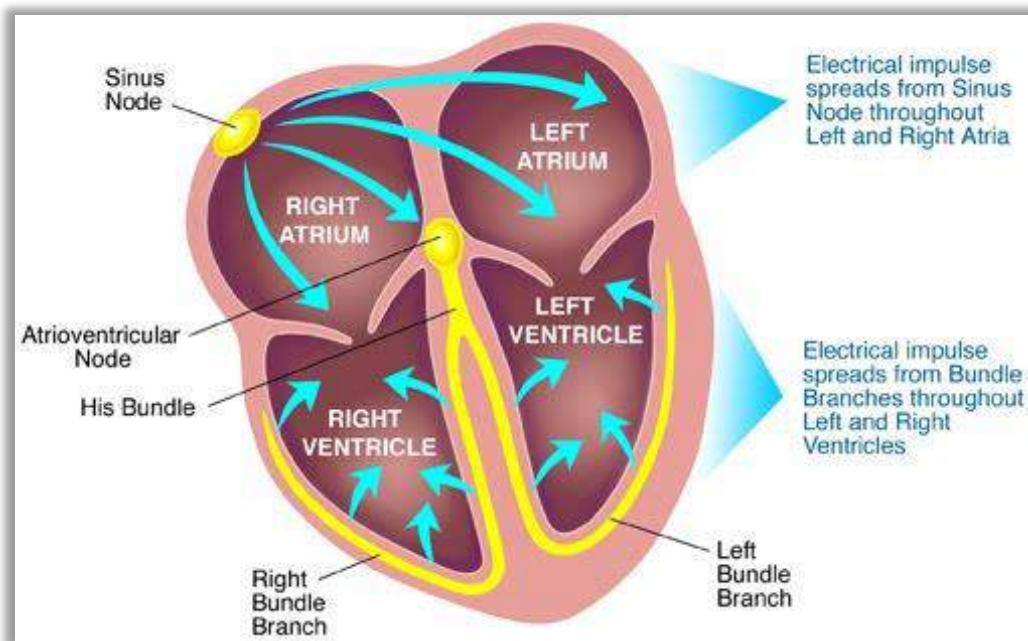


28. The heart then resets by relaxing and refilling with blood. The cycle then begins again.

The Heart's Conduction System

29. Conduction refers to the way electricity is transmitted.

30. In cardiology, conduction refers to the way the heart transmits the electrical signal that triggers the cardiac cycle.
31. The sinoatrial (SA) node fires the signal.
32. The SA node is also known as the sinus node.
33. The SA node is a tiny body of specialized muscle cells in the wall of the right atrium. These cells have the rare ability to generate the signal automatically.

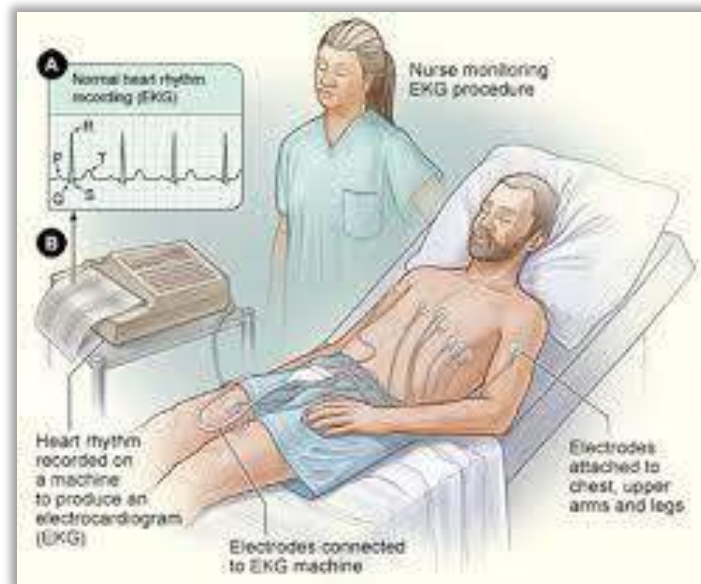


34. The signal first travels from the SA node through the atria, causing them to pump at virtually the same time.
35. At the same time, the signal travels to the atrioventricular (AV) node, where it pauses for a split second. The AV node thus functions as a relay station.
36. The signal then resumes its course, traveling down the inner wall of the heart and around the walls of the ventricles, causing the ventricles to pump at the same time.
37. An EKG captures and records the electrical signal, as explained below.

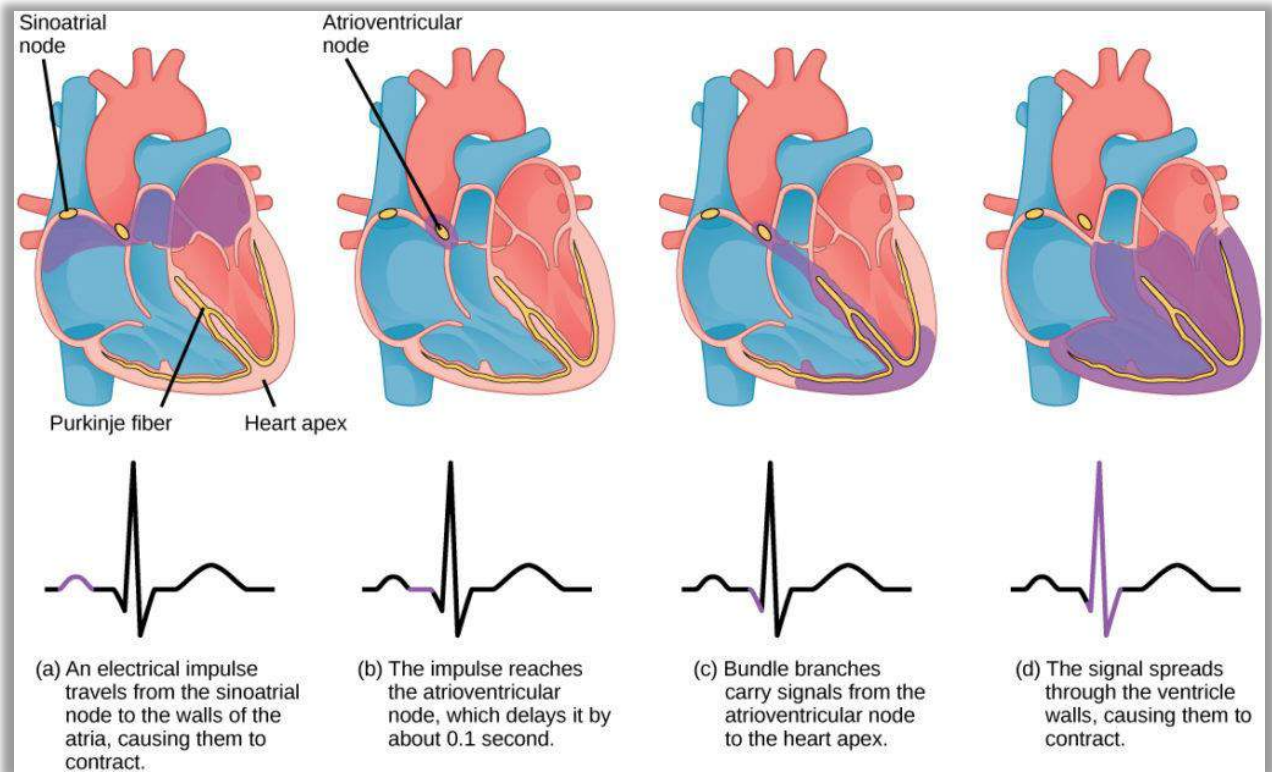
38. Each heartbeat reflects the activity of each signal as it travels through the heart. Because the SA node's signal triggers each heartbeat, the SA node is known as the heart's natural pacemaker.

Electrocardiogram

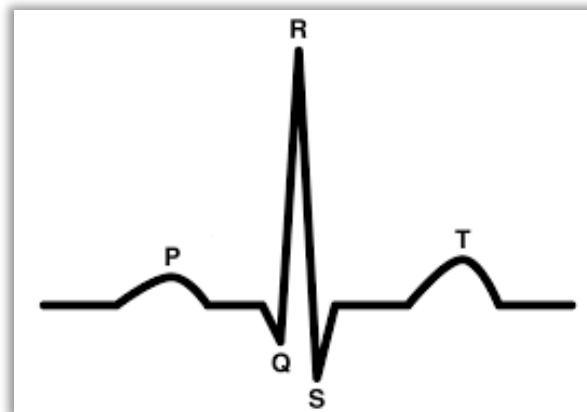
39. An electrocardiogram (EKG) is an important tool in the diagnosis of myocardial infarction (heart attacks) and other heart problems.
40. An EKG is a medical test that reads and records the heart's electrical signal as it travels through the heart. The test is also referred to as an ECG.
41. During the test, an EKG machine picks up the signal through electrode patches attached to the patient's chest, arms, and legs.



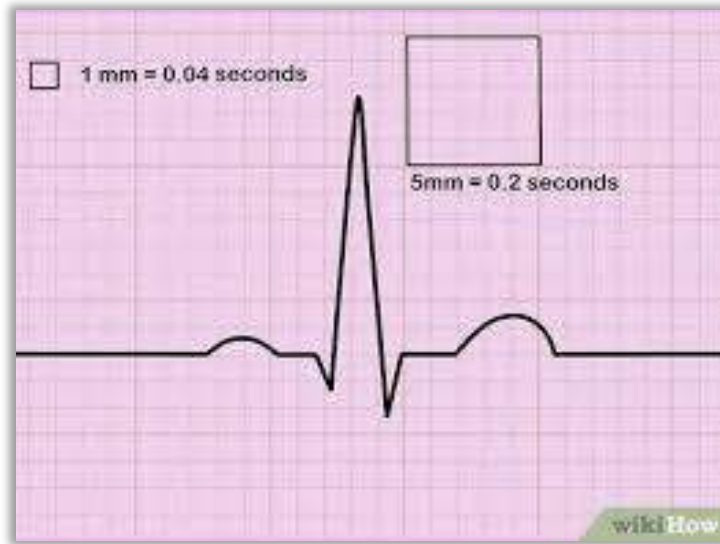
42. The machine traces the signal as line on a screen or on paper. This tracing is also called an EKG or ECG.
43. An EKG thus graphs the heart's electrical signal as it travels through the heart, causing the heart's chambers to contract.



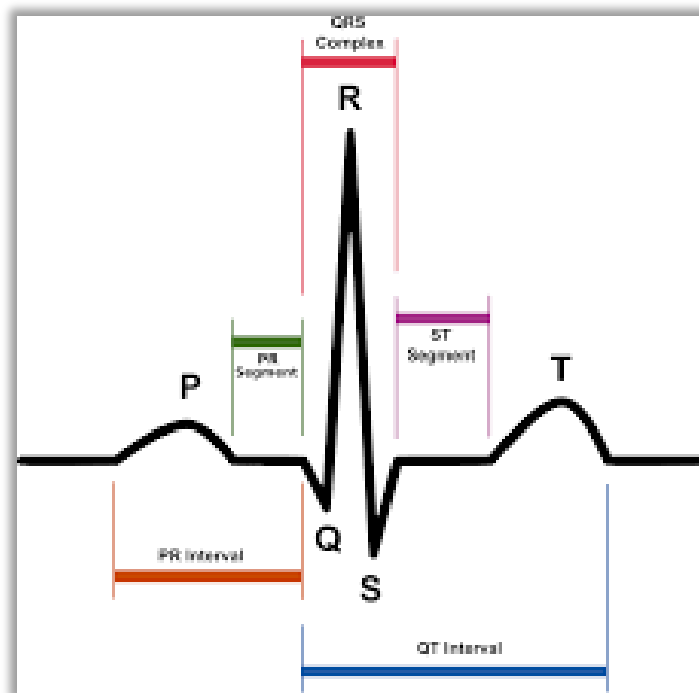
44. In a healthy heart, an EKG tracing typically looks as a repeating interval of this familiar pattern:



45. The height of the line represents the strength of the electric current (the voltage). The voltage is thus highest at the R-wave.
46. The horizontal length of the line represents time. The length of each box represents .04 seconds, or 4 milliseconds.



47. Each part of an EKG traces the conduction of the electrical signal that drives the cardiac cycle.

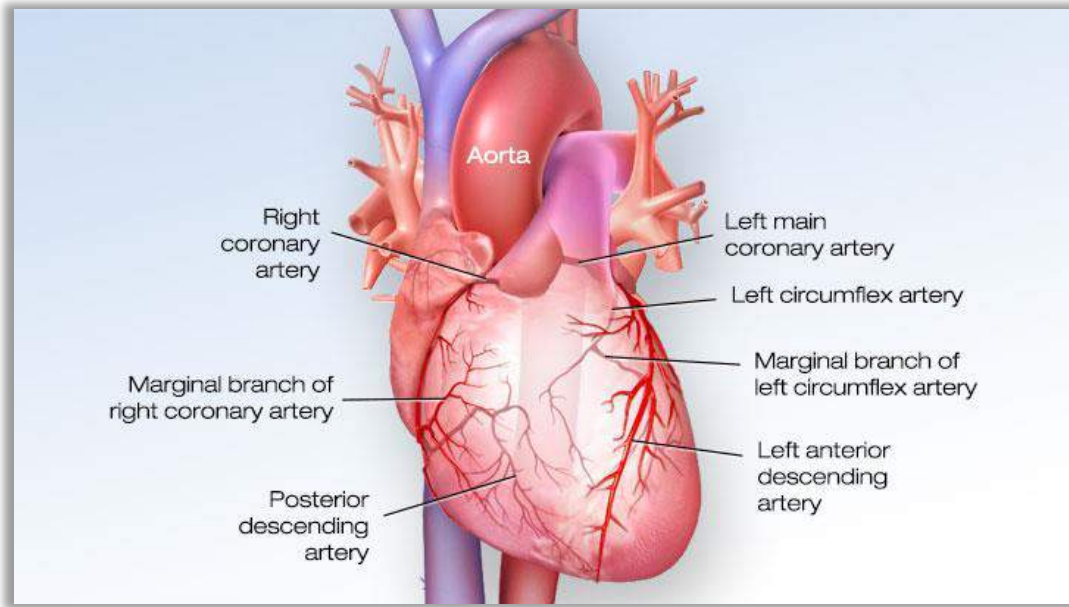


48. The P-wave represents signal as it spreads from the SA node to the atria, causing the two atria to contract and pump blood down to the ventricles.
49. The shape of the P-wave thus can help doctors diagnose whether the atria are having problems pumping blood.

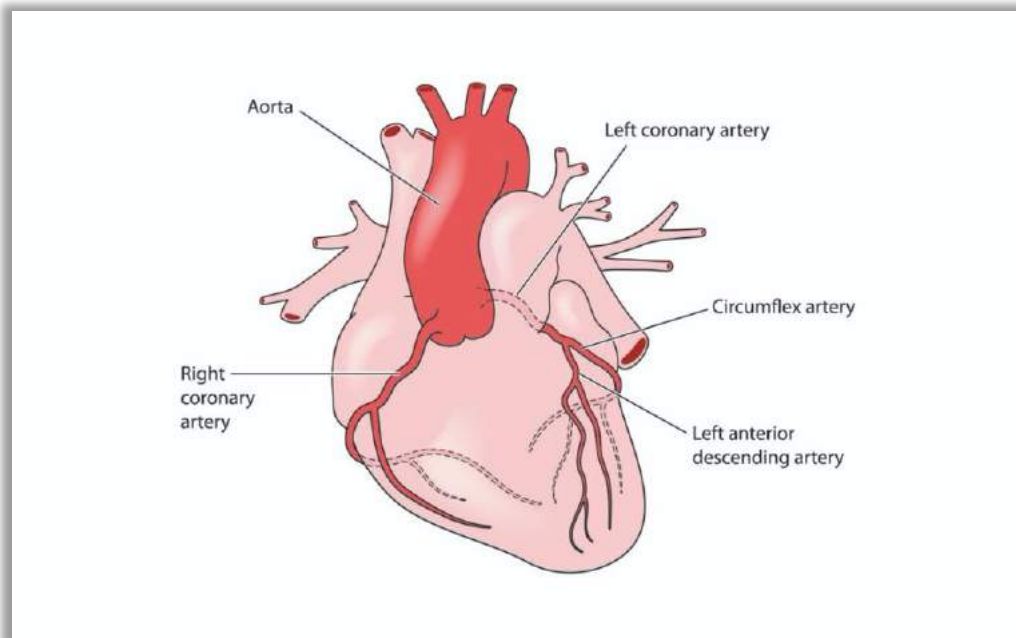
50. The PR segment represents the signal's split-second delay at the AV-node.
51. The QRS complex represents the conduction of the signal down the inner wall of the heart (the interventricular septum) and around the ventricles, causing them to contract and pump blood.
52. The shape of the QRS complex thus can help doctors diagnose whether the ventricles are having problems pumping blood.

The Coronary Arteries

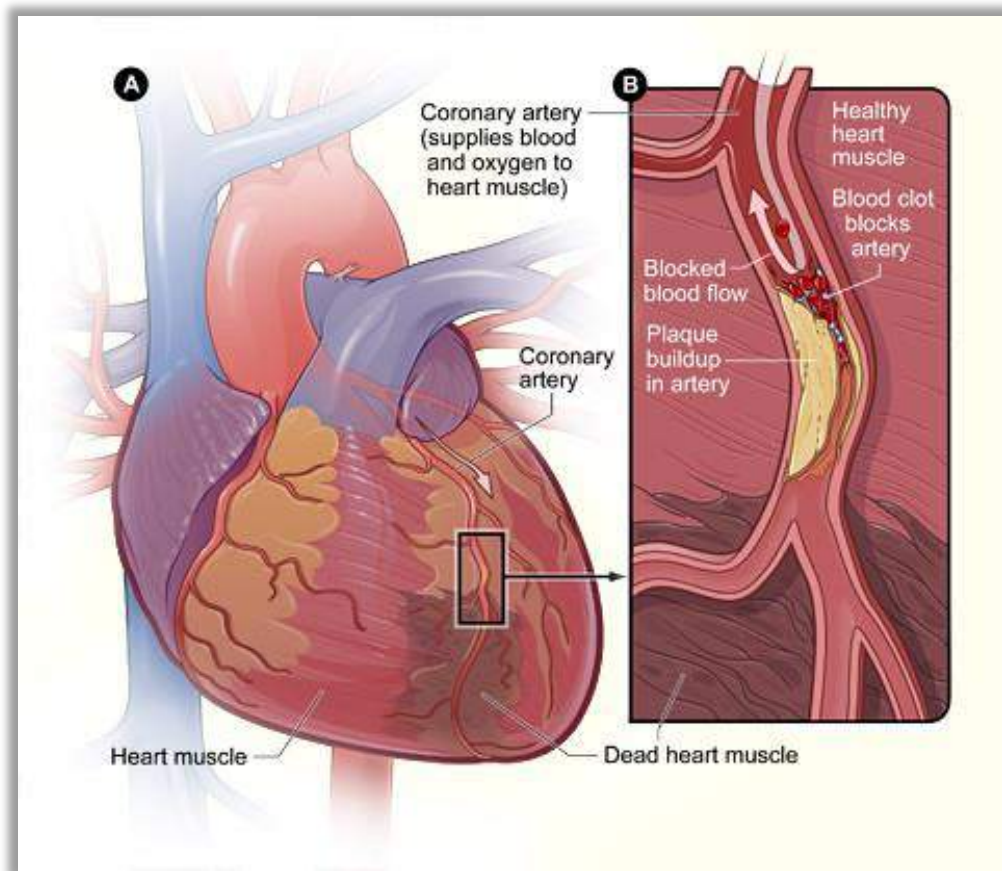
53. Like other organs of the body, the heart itself needs the oxygen and nutrients carried in the blood. The heart thus also needs a continuous supply of blood.
54. Arteries are the blood vessels that carry blood from the heart to the body.
55. The coronary arteries are the arteries that carry blood to the heart itself.
56. The left ventricle pumps out oxygenated blood to the body through the aorta. From there, a portion of the blood flows down to the coronary arteries, to supply the heart.
57. There are two major branches of the coronary arteries: the right coronary artery (RCA) and the left coronary artery (LCA).
58. The RCA and LCA in turn branch off into smaller arteries. The LCA, for example, branches off into the left descending artery (LDA).



59. Each branch in the network supplies the region of the heart where it runs.
60. The RCA supplies the right atrium, right ventricle, the bottom part of both ventricles, and the back of the interventricular septum (the interior wall separating the ventricles.)
61. The LCA supplies the left atrium, left ventricle, the bottom of the left ventricle, and the front of the septum.

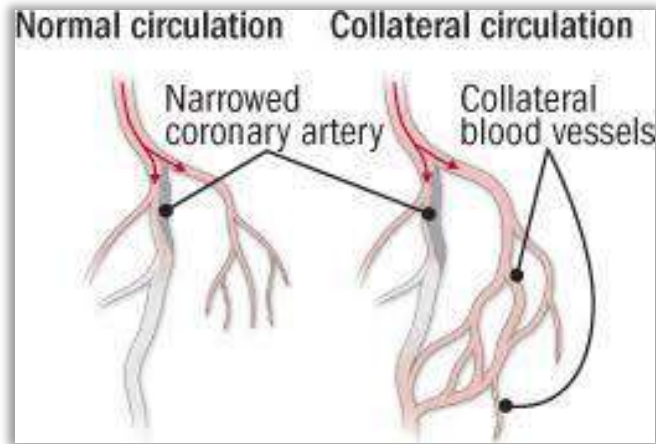


62. When a coronary artery is blocked, the region supplied by the artery suffers a shortage of oxygen and nutrients, potentially leading to a heart attack.

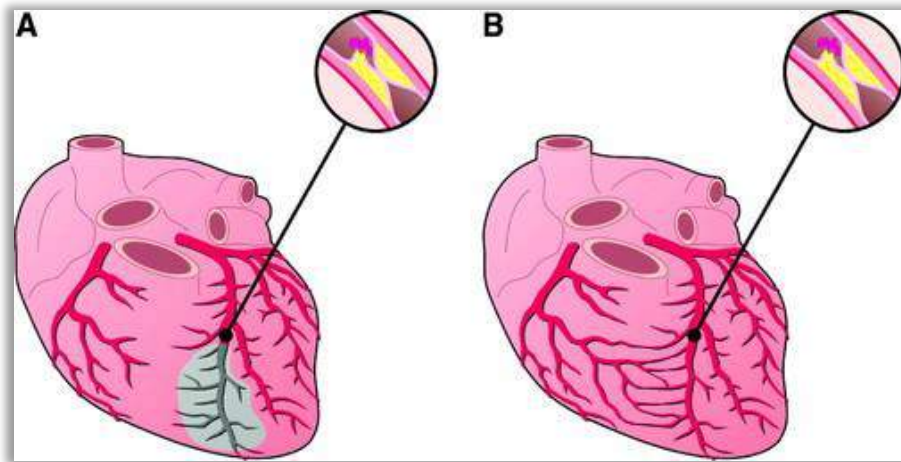


Collateral Circulation

63. Collateral circulation refers to the circulation of blood around a blocked artery through a network of tiny blood vessels known as collaterals.
64. Collaterals are not open under normal circumstances.
65. When a blocked artery deprives a region of the heart of oxygen, collaterals in the region may become enlarged and active.



- 66. If that occurs, collaterals may then provide channels for blood to flow around the blockage in the artery.
- 67. These pathways allow blood-flow around the blockage, either to the same artery beyond the blockage, or to another artery, or both.



- 68. Collaterals thus provide a natural bypass for blood-flow around an occlusion.
- 69. Collateral circulation is an alternative source of blood supply for a myocardial region jeopardized by an occlusion.

Coronary Arterial Dominance

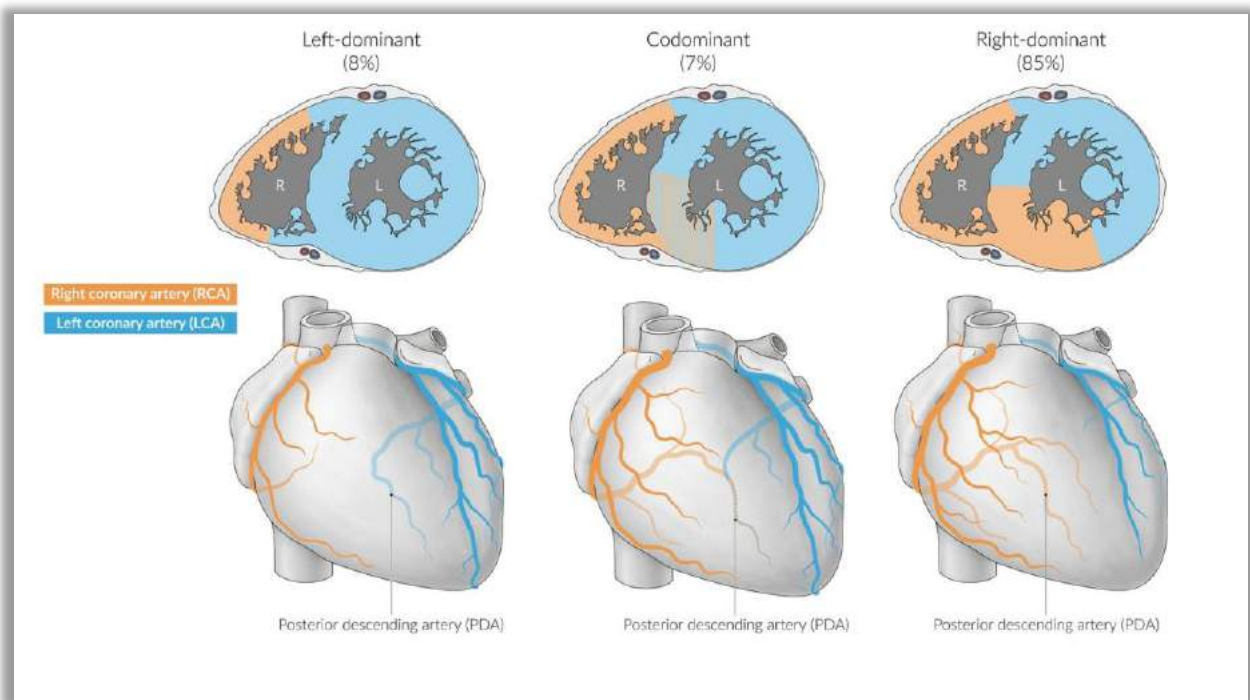
- 70. The posterior descending artery (PDA) runs along the back of the heart and down to its apex.

posterior = back

descending = downward

apex = the bottom cap of the heart

71. The PDA supplies the heart muscle of the bottom 1/3 of the interventricular septum.
72. The PDA also supplies the posterior (back) wall of the left ventricle.
73. Coronary arterial dominance is defined by the major artery that gives rise to the PDA.

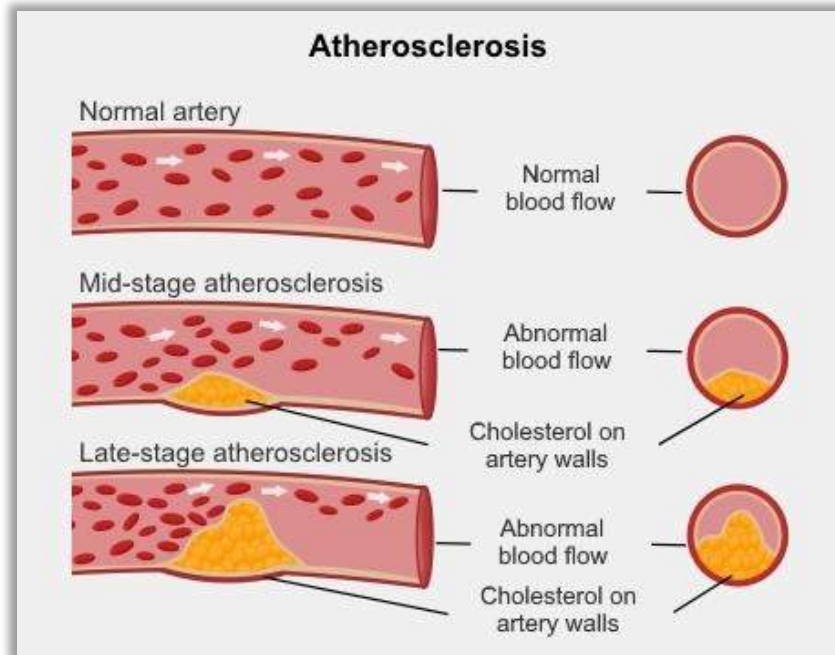


74. In a right-dominant heart, the RCA gives rise to the PDA. The RCA thus flows into the PDA.
75. In a left-dominant heart, a branch of the LCA gives rise to the PDA. The LCA thus flows into the PDA through the branch.
76. In a codominant heart, both the RCA and a branch of the LCA give rise to the PDA. The RCA and that branch thus flow into the PDA.

77. In a right-dominant heart, the RCA supplies about 40% of the myocardium (the heart muscle).
78. In a left-dominant heart, RCA supplies about 30% of the myocardium.
79. In a codominant heart, the RCA supplies about 35% of the myocardium.
80. About 85% of the population have right-dominant hearts. The rest are about equally split between left-dominant and codominant hearts.
81. In a right-dominant heart, a blockage in the RCA will cut off blood-flow not only to the regions of the heart supplied by the RCA itself, but also the region supplied further downstream by the PDA.

Atherosclerosis

82. Coronary artery disease (CAD) is the narrowing of the coronary arteries.
83. CAD is also known as coronary heart disease, ischemic heart disease, or simply heart disease. The leading cause of CAD is atherosclerosis.
84. Atherosclerosis is the progressive thickening and hardening of the walls of the arteries caused by fatty deposits on their inner lining.
85. These deposits are also known as plaque.



86. Plaque consists of fat, cholesterol, calcium, and other substances found in the blood.
87. As plaque builds up in the inner lining of arteries, plaque gradually narrows and hardens the arteries, reducing blood-flow.
88. Atherosclerosis is often the cause of occlusions.

Coronary Occlusions

89. A blockage in an artery is called an occlusion. An occlusion may be partial or total.
90. A coronary occlusion is a blockage in a coronary (heart) vessel.
91. A significant coronary occlusion is a serious medical condition.
92. A coronary occlusion is all the more serious if it is in a major branch of the coronary arteries.
93. An occlusion is even more serious if it is located in a major coronary artery.

94. A 100% occlusion in a major branch of the coronary arteries is potentially a life-threatening medical emergency.
95. A 100% occlusion in the mid-RCA is a potentially life-threatening medical emergency.
96. A physician who finds a 100% occlusion in the mid-RCA (or any other coronary artery) of a patient must promptly inform the patient of the finding.
97. A physician who finds a 100% occlusion in the mid-RCA of a patient must promptly provide definitive treatment for the occlusion, or must promptly refer the patient to a provider who can provide definitive treatment.
98. An unresolved 100% occlusion in the mid-RCA may require around-the-clock intensive care at a medical facility.

Ischemia

99. Ischemia is a condition in which a person does not get enough oxygen to an organ or tissue to maintain its health.
100. Ischemia occurs when the blood supply is reduced, preventing the organ or tissue from receiving enough oxygen.
101. Coronary ischemia occurs when the blood-supply to the heart is reduced, impeding the heart from receiving enough oxygen.
102. Coronary ischemia is also known as cardiac ischemia and myocardial ischemia.
103. When the heart has coronary ischemia, the heart is said to be “starved” of oxygen.
104. An occlusion (blockage) in a coronary artery, such as from atherosclerosis, is usually the cause of the reduced blood-flow.

Atherosclerosis → Occlusion → Ischemia

105. The most common symptom of coronary ischemia is a type of chest pain known as angina.

Atherosclerosis → Occlusion → Ischemia → Angina

106. Angina is a common symptom of heart attacks.

Acute Coronary Syndrome

107. Acute coronary syndrome (ACS) is an umbrella term for a continuum of conditions that occur when the blood-flow to the heart is suddenly blocked.

108. In order of severity, the three types of ACS are unstable angina, NSTEMI, and STEMI. The difference is one of degree.

109. All three occur suddenly when a blood clot forms in a narrowed coronary artery, reducing blood-flow through the artery.

110. Unstable angina occurs when reduced blood-flow causes chest discomfort or pain even when the patient is at rest.

111. As explained below, NSTEMI and STEMI are the two types of myocardial infarction (heart attacks).

112. In contrast to unstable angina, stable angina occurs in short bursts and only when the heart is made to work harder, such as during exercise. Stable angina is not categorized as ACS.

113. The most common symptom of ACS is angina (chest pain), often described as pressure, tightness, or squeezing.

114. Especially by patients suffering a STEMI, the classic description of the pain is “like an elephant sitting on my chest.”



115. ACS is an absolute medical emergency requiring prompt diagnosis and care.

Myocardial Infarction (Heart Attack)

116. A heart attack is a medical emergency.

117. Heart attacks are the leading cause of death in the United States, affecting one in five men and one in six women. Heart attacks are also the leading cause of death worldwide.

118. Thanks to modern medical advances, the survival rate for those who suffer a heart attack is about 90%.

119. Myocardial infarct is the medical name for a heart attack.

120. Myocardial infarction is the permanent damage to the heart muscle caused by an infarct.

myo = muscle

cardial = heart

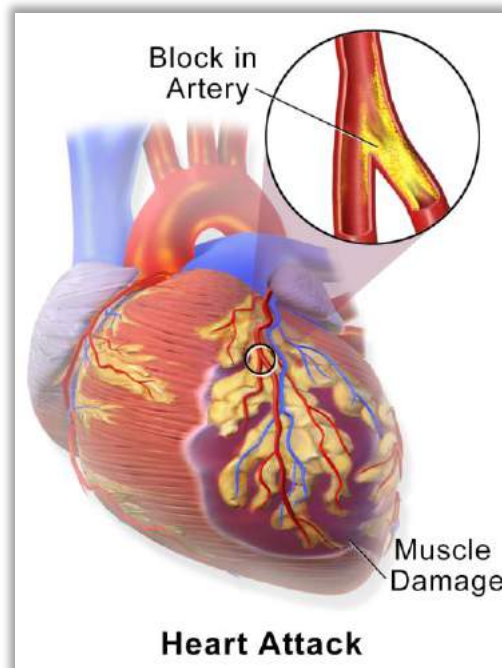
infarction = death to tissue from lack of blood supply

121. Doctors often refer to a heart attack as “myocardial infarct” or “myocardial infarction” or simply “MI.”

Causes of Heart Attacks

122. Myocardial infarction occurs when an occlusion (blockage) in the coronary arteries reduces blood-flow to the heart, causing a shortage of oxygen to the myocardial muscle downstream, and in turn damage to the muscle.

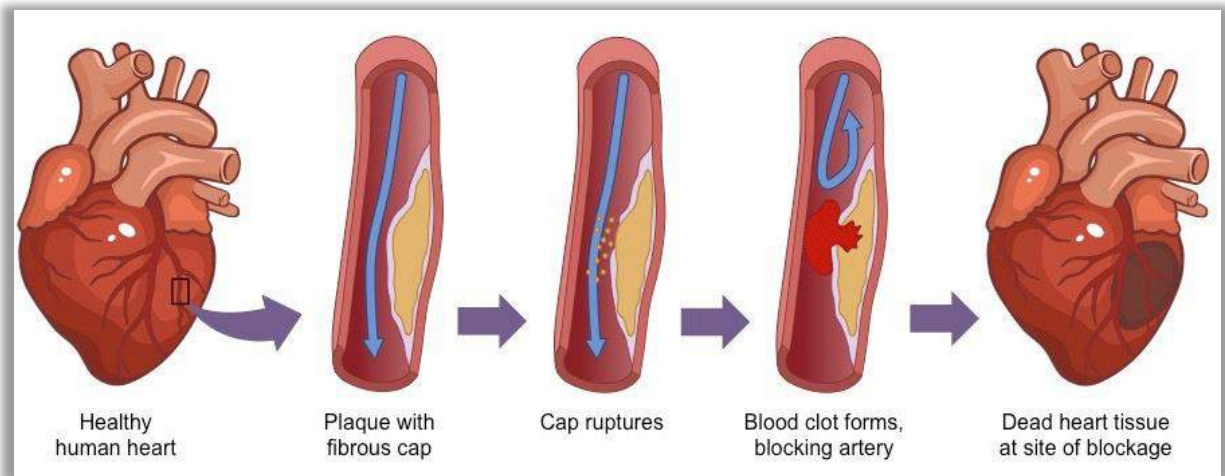
Occlusion → Ischemia → Infarction (Heart Attack)



123. Atherosclerosis is usually the root cause of myocardial infarction.

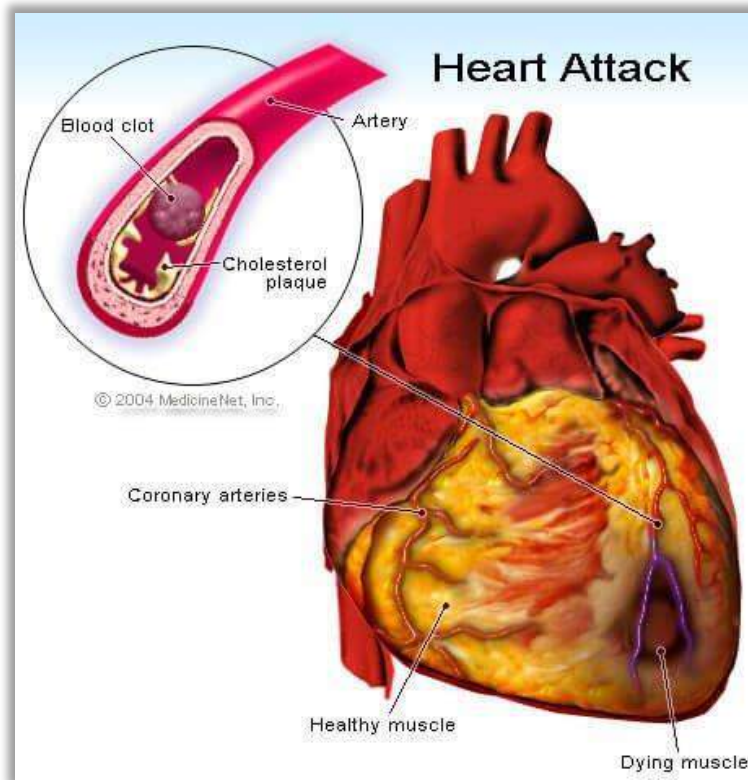
Atherosclerosis → Occlusion → Ischemia → Infarction (Heart Attack)

124. A heart attack typically occurs when plaque breaks off from the inner wall of an artery and further obstructs blood-flow. A blood clot may then form around the ruptured plaque, causing or worsening an occlusion.



- 125. Thrombus is the medical name for a blood clot.
- 126. Arterial thrombosis is the medical name for the formation of a blood clot inside an artery.
- 127. If the occlusion significantly blocks blood-flow, it may lead to the death of the myocardial muscle downstream. That's a heart attack.

Atherosclerosis → Plaque Rupture → Thrombus → Occlusion → Ischemia →
Infarction (Heart Attack)



128. Sudden stress often sets these events in motion. That is why heart attacks often occur unexpectedly.
129. For example, when a person with advanced atherosclerosis sprints or lifts a heavy weight, the heart's increased demand for oxygen may build pressure in the arteries. The pressure may then dislodge plaque and cause a blood clot.
130. If not treated quickly, a heart attack causes permanent damage to the region of the heart muscle (myocardium) downstream from the occlusion.

Myocardial Necrosis

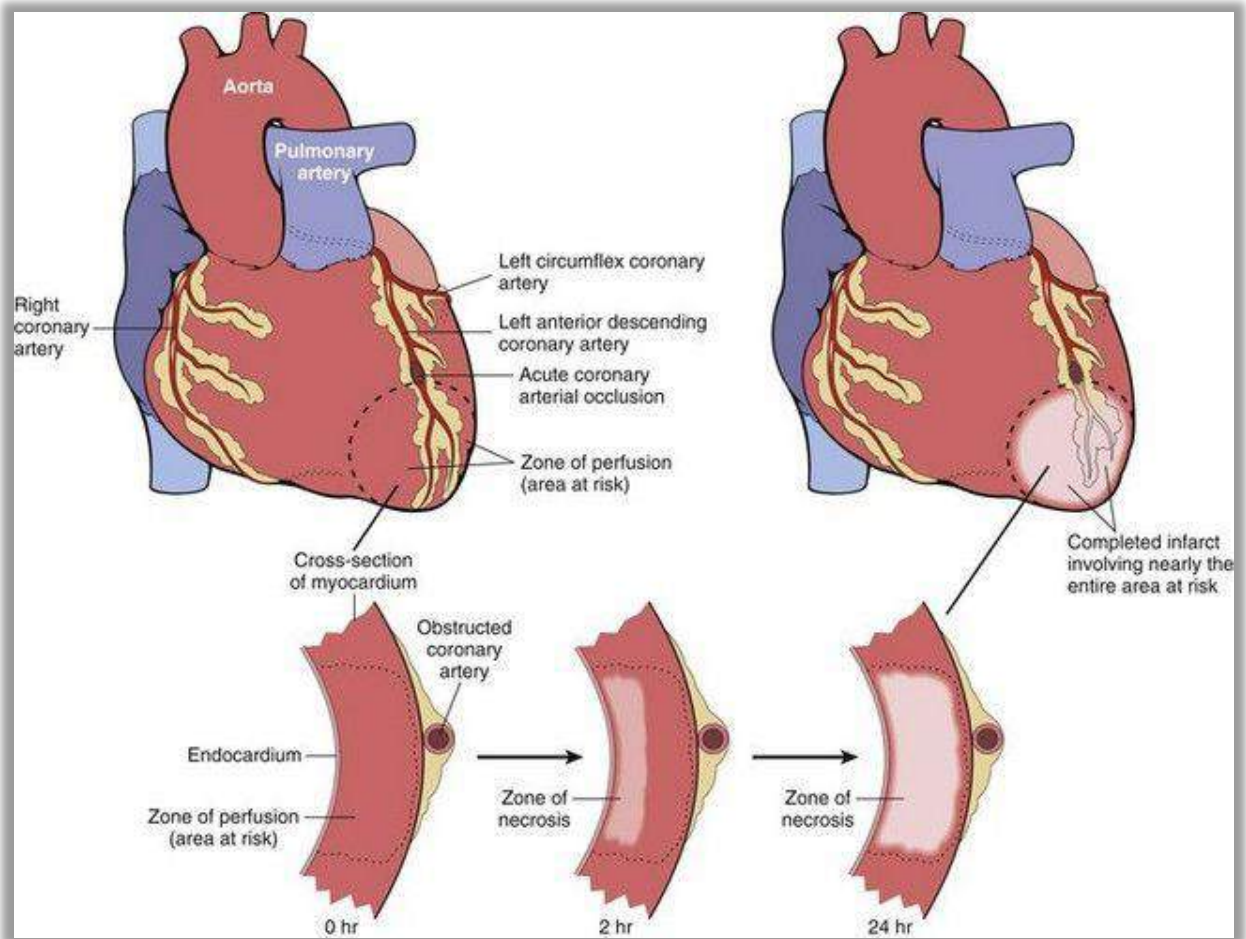
131. Necrosis is the medical name for the death of cells in an organ or tissue.
132. Myocardial necrosis refers to the death of myocardial (heart-muscle) cells.
133. During an MI, the cells in the heart muscle undergo necrosis. They die.

Occlusion → Ischemia → Infarction (Myocardial Necrosis)

134. The size of an infarction depends on the size of the region supplied by the blocked artery.
135. The size of the infarction also depends on how soon the patient receives effective treatment after symptoms emerge.
136. Myocardial necrosis can result in devastating complications such as heart failure, cardiogenic shock, cardiac arrest, and death.

NSTEMI and STEMI

137. There are two types of myocardial infarction:
 - NSTEMI, which stands for Non-ST-elevation myocardial infarction.
 - STEMI, which stands for ST-elevation myocardial infarction.
138. Doctors sometimes refer to an NSTEMI as a minor heart attack, and a STEMI as a major heart attack.
139. An NSTEMI occurs when there is a partial but significant occlusion in a coronary artery. The occlusion significantly reduces blood-flow.
140. In an NSTEMI, the limited supply of oxygen in the blood reaches the proximal (near) regions of the myocardium, but not the distal (far) regions. As a result, necrosis is typically limited to the distal regions.
141. After having an NSTEMI, a patient is at a higher risk of a follow-up heart attack and of death.
142. A STEMI is a full-blown heart attack.
143. A STEMI occurs when there is a total occlusion in a coronary artery. The occlusion blocks blood-flow.
144. In a STEMI, necrosis starts in the distal region of the heart muscle, and then creeps proximally towards the artery.

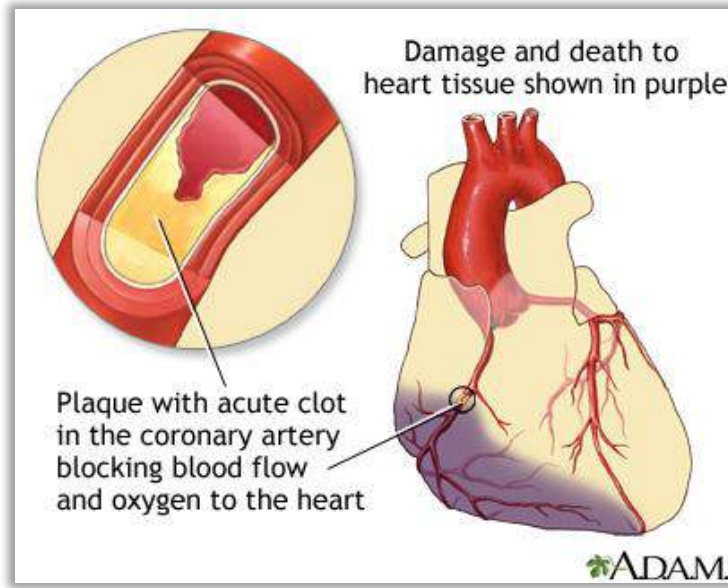


145. As a result, if untreated, a STEMI will bring death to the full thickness of the myocardium.
146. The damage to the full thickness of the heart muscle is sometimes called transmural (cross-wall) necrosis or transmural infarction.
147. During a STEMI, cardiac muscle starts to die within 20 minutes of the onset of symptoms.
148. For this reason, medical students are taught that “time is muscle.”
149. When a patient has a complete occlusion in a major coronary artery like the RCA, a cardiologist must promptly provide or arrange for definitive treatment for the occlusion, such as bypass surgery or angioplasty. If the hospital does not have the capability to provide definitive treatment, the cardiologist must promptly refer the patient to a hospital that does.

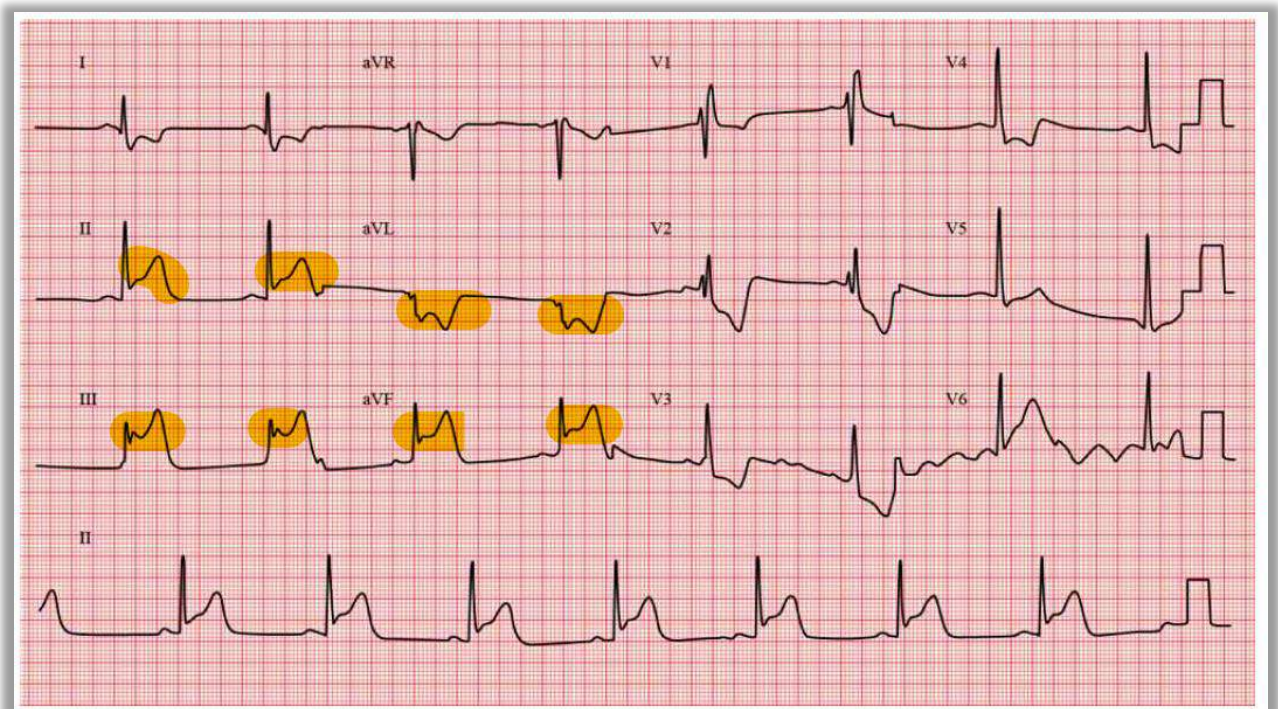
150. When a patient is having a STEMI, a cardiologist must diagnose STEMI.
151. When a patient is having a STEMI, a cardiologist must not rule out STEMI.
152. When a patient presents at a hospital with a STEMI, a physician must promptly provide or arrange for definitive care for the STEMI. If the hospital does not have the capability to provide definitive care for the STEMI, the physician must refer and transfer the patient emergently to a hospital that does.
153. When diagnostic tools confirm an acute STEMI, a physician must treat the situation as a medical emergency, promptly taking steps reasonably available to treat the STEMI and limit its damage to the patient's heart.
154. In deciding whether or not a patient is having a STEMI, a physician must consider available diagnostic tools, such as a physical examination, presentation, medical history, EKGs, and biomarker results.
155. A physician must not overlook these tools or disregard their results when making the diagnosis.

Inferior STEMI

156. An inferior STEMI is a STEMI in the bottom (inferior) wall of the heart. About half of all STEMIs are inferior STEMIs.
157. Because the RCA supplies blood to the inferior wall, an inferior STEMI often occurs when the heart has an occlusion in the RCA.
158. An inferior STEMI is consistent with an occlusion in the mid-RCA.



159. An inferior STEMI is characterized by ST-segment elevation in the inferior leads (II, III, and aVF), and a reciprocal ST-segment depression in lead aVL.



160. An inferior STEMI is also known as an interior wall myocardial infarction (IWMI).

Heart Attack Complications

161. The damage the heart suffers during a heart attack may produce serious complications, including arrhythmia, cardiac arrest, and heart failure.
162. Each of these complications can be deadly.
163. An arrhythmia is an abnormal heart beat, such as beating too quickly (tachycardia), beating too slowly (bradycardia), or beating irregularly.
164. Arrhythmias can develop after a heart attack as a result of damage to the heart muscle or to the electrical-conduction system of the heart.
165. Some arrhythmias can be life-threatening and deadly.
166. Arrhythmias pose a risk of death during the first 24 hours after a heart attack.
167. Cardiac arrest occurs when the heart suddenly stops pumping blood because its electrical system malfunctions.
168. Cardiac arrest can cause death quickly if proper steps such as CPR are not taken immediately.
169. Heart failure occurs when the heart cannot pump blood as well as it should. The heart cannot keep up with its workload.

Prognostic Importance of Left-Ventricular Function

170. A patient's prognosis is a forecast of the likely or expected course of the patient's condition.
171. A prognosis predicts whether signs and symptoms will improve, worsen, or remain stable; expectations of quality of life, such as the ability to carry out daily activities; the potential for complications and associated health issues; and the likelihood of survival, including life expectancy.
172. Left-ventricular function (including wall abnormalities) is significant in the prognosis of patients with coronary artery disease.

173. Left-ventricular function (including wall abnormalities) is a major determinant in a patient's prognosis after a heart attack.
174. The key measure of left-ventricular function is left ventricular ejection fraction (LVEF).
175. With each heartbeat, the left ventricle pumps out only part (a fraction) of the blood it contains.
176. The LVEF is the percentage of blood the left ventricle pumps out to the body with each heartbeat (contraction).
177. The LVEF thus tells doctors how well a patient's heart is pumping blood out with each heartbeat.
178. An LVEF of 55-70% is normal. A healthy, well-functioning left ventricle thus has an LVEF of 55-70%.
179. In other words, a patient with normal left-ventricular function pumps out 55% to 70% of the blood in the left ventricle with each heartbeat.
180. An LVEF of 40-54% is slightly below normal.
181. An LVEF of 35-39% is moderately below normal.
182. An LVEF below 35% is severely below normal.
183. A low LVEF indicates dysfunction, and represents the left-ventricle's reduced ability to pump blood.
184. A low LVEF may be accompanied by wall-motion abnormalities, such as those caused by active ischemia, myocardial necrosis, and/or scar-tissue formation.
185. As the LVEF goes down, the patient's risk of death goes up.
186. A patient rarely loses left-ventricular function as a result of an NSTEMI. That is because an NSTEMI does not damage the full thickness of the heart muscle, like a STEMI does.

Medical History

187. A patient's medical history is an important tool in diagnosing possible myocardial infarction.

Clinical Presentation – Chest Pain

188. In the diagnosis of MI, clinical presentation, especially any chest pain, is an important part of the patient's medical history.
189. The most common symptom of myocardial infarction is chest pain.
190. Patients suffering myocardial infarction often describe the pain as a weight on the chest—"like an elephant sitting on my chest."
191. When the patient reports such pain, a physician must promptly take steps to confirm or rule out angina and myocardial infarction.
192. A physician must take into account the onset, duration, and intensity of a patient's chest pain, in deciding whether the patient is suffering an MI.
193. A physician must not disregard a patient's chest pain in deciding whether the patient is suffering myocardial infarction.
194. If the patient is having a STEMI, a physician must recognize and diagnose the patient's angina.

Prior Heart Attacks

195. In the diagnosis of MI, any prior heart attack is also an important part of the patient's medical history, particularly if the heart attack occurred recently.
196. When a patient with a history of heart attacks reports having chest pain, a physician must promptly take steps to confirm or rule out angina and myocardial infarction.
197. A physician must take into account a patient's prior heart attacks in determining whether the patient is suffering myocardial infarction.
198. These requirements apply with special force if patient had an MI recently.

Prior Angioplasties and Stentings

199. In the diagnosis of MI, a prior angioplasty or stenting is also an important part of the patient's medical history, particularly if the procedure occurred recently.
200. When a patient with a prior angioplasty or stenting reports having chest pain, a physician must promptly take steps to confirm or rule out myocardial infarction.
201. A physician must take into account any prior angioplasty and stenting, in determining whether the patient is experiencing myocardial infarction.
202. These requirements apply with special force if the angioplasty or stenting occurred recently.

Risk Factors

203. In the diagnosis of myocardial infarction, a patient's risk factors are also an important part of the patient's medical history.
204. Risk factors for myocardial infarction include age, tobacco use, obesity, and high cholesterol or triglyceride levels.
205. Age is a risk factor for women over 55 and men over 45.
206. When a patient with these risk factors reports having chest pain, a physician must promptly take appropriate steps to confirm or rule out angina and myocardial infarction.
207. A physician must take into account the patient's risk factors, in determining whether the patient is experiencing myocardial infarction.

TIMI Score and HEART Score

208. A TIMI Risk Score and a HEART Score each predicts the risks of heart attack and death in patients who arrive at the emergency department of a hospital with chest pain.

209. These risk scores help physicians determine the right course of treatment for individual patients, ranging from discharge, to admission for clinical observation, to early invasive strategies like angioplasty or bypass surgery.
210. A TIMI Risk Score predicts the chances the patient will experience one or more of these “heart events” within 14 days:
- a. coronary ischemia requiring urgent revascularization
 - b. a new or recurrent heart attack
 - c. death
211. Revascularization is a medical or surgical therapy that restores perfusion (blood-flow) to a part of the body that has suffered ischemia.
212. Revascularization of a coronary artery may be accomplished through (a) angioplasty, (b) bypass surgery, or (c) “clot-dissolving,” if angioplasty and bypass surgery are not promptly available.
213. To calculate the TIMI Score, doctors give one point for each of the following seven factors:
- being older than 65
 - using aspirin within the last week
 - having at least two angina episodes in the last 24 hours
 - having elevated serum cardiac biomarkers
 - having an ST-segment deviation
 - having known coronary artery disease
 - having at least three risk factors for heart disease, including:
 - high blood pressure (greater than 140/90)
 - smoking (being a current smoker)
 - low HDL cholesterol (less than 40 mg/dL)
 - diabetes
 - a family history of heart disease

214. A patient's score predicts the patient's risk as a percentage.

Score	Risk of heart event
0 to 1	4.7%
2	8.3%
3	13.2%
4	19.9%
5	26.2%
6 to 7	At least 40.9%

215. Accordingly, a patient with TIMI Risk Score of 5 has a 26.2% chance of experiencing at least one "heart event" within 14 days, and patient with score of 6 has a 40.9% or greater risk of that outcome.

216. The HEART Score is similar predictive tool.

217. A HEART Score predicts the chances that a patient will experience one or more of these heart events within six weeks:

- a. an angioplasty
- b. a heart attack
- c. coronary bypass surgery
- d. death.

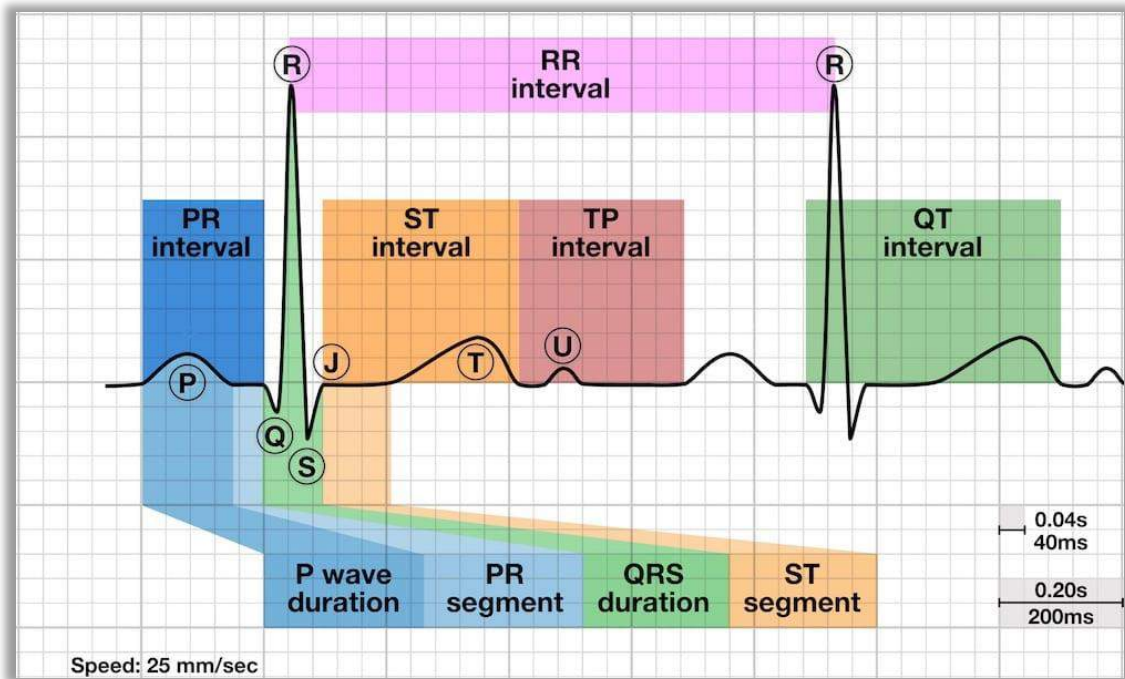
218. To calculate a HEART Score, doctors give 0-2 points for each of five factors, according to the following table.

The HEART Score for Chest Pain Patients in the ED		
History	<ul style="list-style-type: none"> Highly Suspicious Moderately Suspicious Slightly or Non-Suspicious 	<ul style="list-style-type: none"> 2 points 1 point 0 points
ECG	<ul style="list-style-type: none"> Significant ST-Depression Nonspecific Repolarization Normal 	<ul style="list-style-type: none"> 2 points 1 point 0 points
Age	<ul style="list-style-type: none"> ≥ 65 years > 45 - < 65 years ≤ 45 years 	<ul style="list-style-type: none"> 2 points 1 point 0 points
Risk Factors	<ul style="list-style-type: none"> ≥ 3 Risk Factors or History of CAD 1 or 2 Risk Factors No Risk Factors 	<ul style="list-style-type: none"> 2 points 1 point 0 points
Troponin	<ul style="list-style-type: none"> ≥ 3 x Normal Limit > 1 - < 3 x Normal Limit ≤ Normal Limit 	<ul style="list-style-type: none"> 2 points 1 point 0 points
Risk Factors: DM, current or recent (<one month) smoker, HTN, HLP, family history of CAD, & obesity		
Score 0 – 3: 2.5% MACE over next 6 weeks → Discharge Home		
Score 4 – 6: 20.3% MACE over next 6 weeks → Admit for Clinical Observation		
Score 7 – 10: 72.7% MACE over next 6 weeks → Early Invasive Strategies		

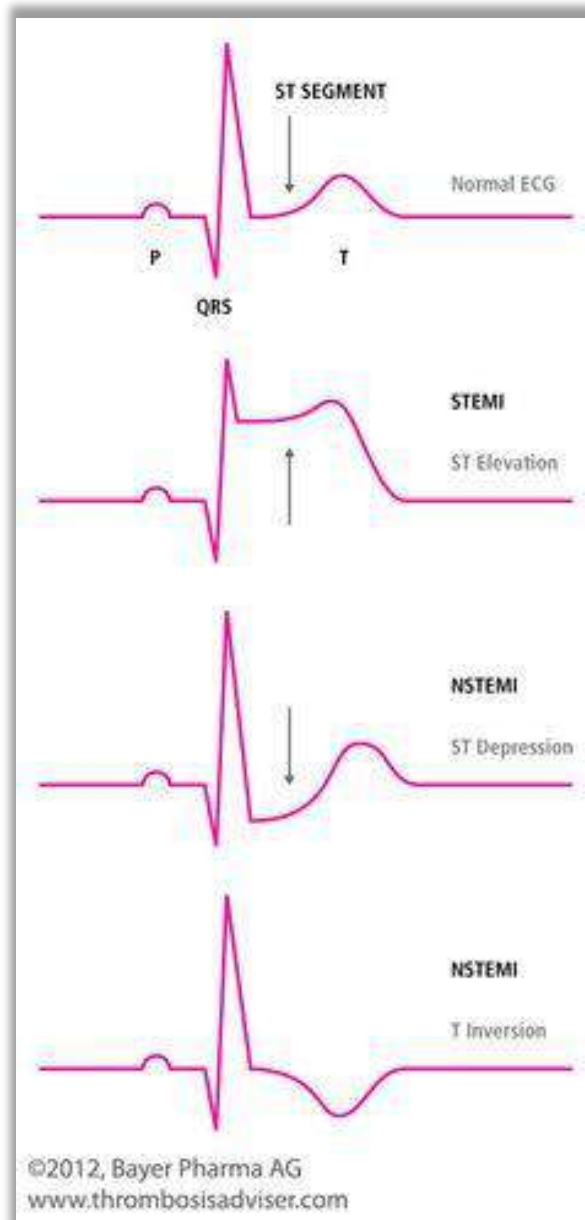
219. A patient's HEART Score predicts the patient's risk as a percentage.
220. Accordingly, a patient with a score of 7-10, has a 72.7% chance of experiencing an angioplasty, a heart attack, coronary bypass surgery, and/or death, within six weeks.
221. A physician must accurately compute a patient's TIMI Risk Score or HEART Score when the patient presents at the ED with chest pain.
222. A physician must provide for a course of treatment suitable to the risks reflected in the patient's score.
223. If a patient has a HEART Score of 7 or higher, for example, the physician must provide for an early invasive strategy, such as angioplasty or bypass surgery, to treat the patient.

Electrocardiogram (EKG or ECG)

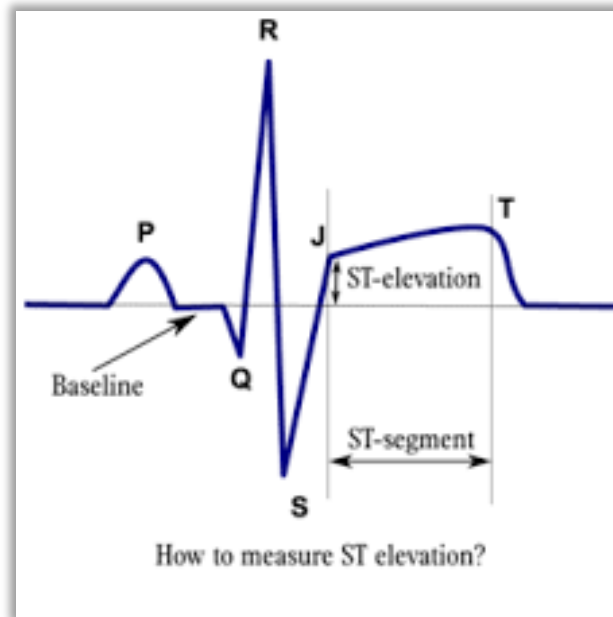
224. An EKG records the electrical signal from a patient's heart.
225. An EKG consists of the waves, segments, and intervals represented in the illustration below.



226. These elements may be crucial in diagnosing heart attacks and other heart problems.
227. Certain changes (deflections) in an EKG indicate a myocardial infarction.
- ST-segment depressions and T-wave inversions indicate an NSTEMI.
 - ST-segment elevations indicate a STEMI.



228. The PR-segment serves as the baseline (also called a reference line or isoelectric line) of the EKG curve.
229. Elevations and depressions are therefore measured against the level of the PR-segment.



230. A physician must take into account the patient's EKGs in determining whether the patient is having a heart attack.
231. In deciding whether or not a patient is having a heart attack, a physician must not overlook or disregard the patient's EKGs.
232. When an EKG indicates a STEMI or NSTEMI, a physician must promptly take steps to confirm or rule out MI. This is especially true if the patient recently suffered a heart attack, or if other diagnostic tools, such as presentation, medical history, and biomarkers, confirm the EKG.

Biomarkers as Diagnostic Tools

233. Biomarkers are another essential tool in heart-attack diagnosis.
234. Biomarkers are proteins the muscles release into the bloodstream when stressed, injured, or damaged.
235. The heart muscle (myocardium) releases cardiac biomarkers into the bloodstream during myocardial infarction.
236. The more damage the heart has suffered, the greater the concentration of cardiac biomarkers in the bloodstream.

237. Blood tests that measure cardiac biomarkers are thus important tools in identifying the occurrence and extent of a heart attack.
238. A physician must take into account a patient's cardiac biomarkers in confirming or ruling out an NSTEMI or STEMI.

Troponin

239. Today, Troponin-I and Troponin-T are the preferred biomarkers for evaluating a patient with suspected acute myocardial infarction.
240. In most patients, the normal range for Troponin-I is 0.0 to .04. Depending on certain factors, a patient's normal range may be 0.0 to 0.3.
241. A level above .04 thus indicates that the patient has recently experienced or is currently experiencing stress or damage to the heart muscle, including myocardial infarction.
242. This is especially the case if the level rises or falls, or both rises and falls, through a series of tests over several hours.
243. Even an uptick in Troponin-I levels may signal a heart attack.

CK-MB and CK-MB Index

244. CK-MB is a another commonly used cardiac biomarker.
245. CK-MB is a variant of an enzyme called Creatine Kinase (CK).
246. Because CK-MB is found mostly in the heart muscle, high levels of CK-MB indicate damage to the heart muscle.
247. The normal range for CK-MB is 0.5 to 5.0.
248. Levels above 5.0 thus indicate that the patient has recently suffered or is currently suffering damage to the heart, including possible myocardial infarction.
249. A ratio known as the CK-MB index further confirms heart damage by ruling out damage to other muscles.

250. The CK-MB index is calculated as follows.¹

$$(\text{CK-MB} \times 100) / \text{Total CK} = \text{CK-MB Index}$$

251. First, the patient's CK-MB level is multiplied by 100.

252. Second, the answer is divided by the patient's CK level.

253. A CK-MB index above 5 indicates acute myocardial infarction.

254. Even a CK-MB index between 3 and 5 may suggest acute myocardial infarction.

B-Type Natriuretic Peptide (BNP)

255. BNP is a protein hormone produced by the ventricles of the heart.

256. The ventricles release BNP in response to changes in pressure inside the heart.

257. BNP is primarily released in response to left-ventricular stretching (wall tension).

258. Generally, BNP levels from 0 to 100 are considered normal.

Biomarker Sensitivity and Specificity

259. Sensitivity and specificity measure the diagnostic accuracy of medical tests.

260. Sensitivity measures how well a test detects the people who have the medical condition being tested. For example, a test with 99% sensitivity picks up 99% of the people who have the condition among those tested.

261. Specificity measures how well a test excludes people who do not have the medical condition being tested. A test with 99% specificity excludes 99% of the people who do not have the condition among those tested.

¹ In calculating the index, CK-MB levels are measured in nanograms per milliliter (ng/mL), and CK levels are measured in international units per liter (IU/L).

- 262. The Troponin-I test, the CK-MB test, and the CK-MB index are sensitive and specific for diagnosing acute myocardial infarction.
- 263. BNP is sensitive and specific for diagnosing heart failure, including left-ventricular dysfunction.

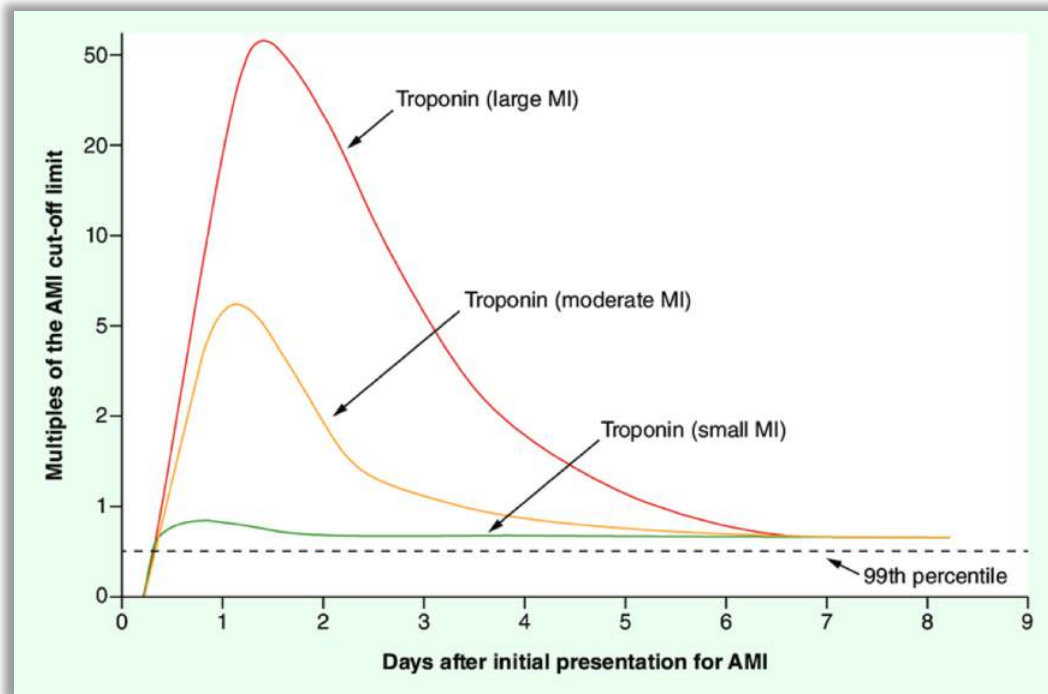
General Principles: Biomarker Monitoring

- 264. Blood biomarker tests detect elevated Troponin and CK-MB levels 3-12 hours after the onset of symptoms of myocardial infarction. Angina (chest pain) is the most common symptom. From there, these biomarkers peak and fall at different rates, following their own curves.

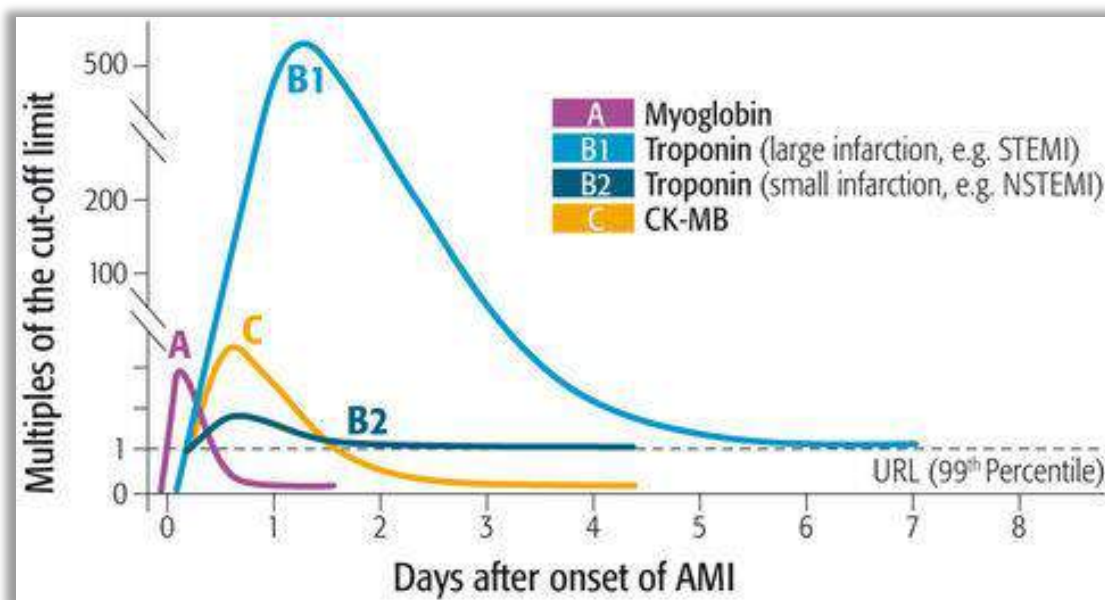
Table 29.8 Markers of cardiac damage

	Initial rise	Peak elevation	Return to normal
CK-MB	3–12 h	24 h	48–72 h
TnT	3–12 h	12–48 h	5–14 d
TnI	3–12 h	24 h	5–10 d

- 265. Troponin-I peaks 24 hours after the onset of symptoms.



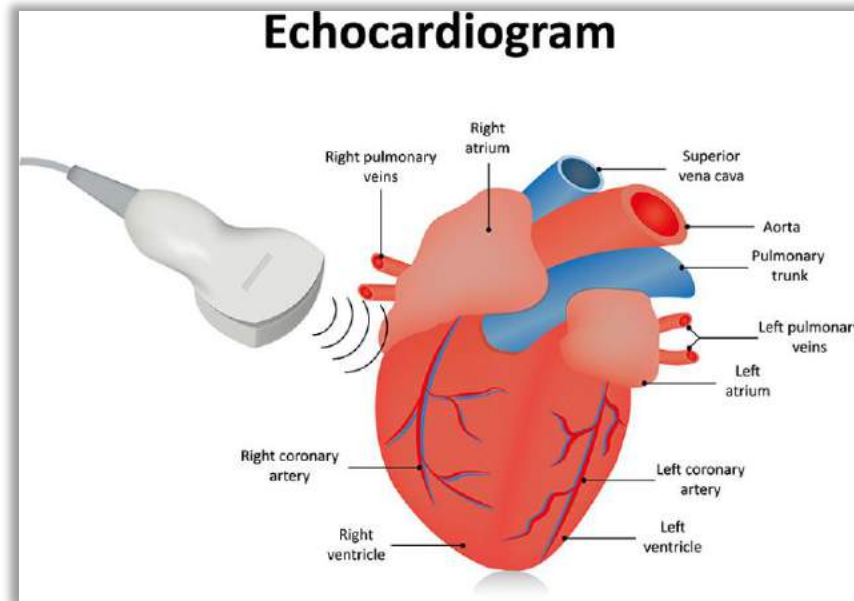
- 266. The type of heart attack determines when Troponin-I drops back to normal.
- 267. If the patient suffered a small or moderate heart attack, Troponin-I returns to normal within 2-3 days after the onset of symptoms.
- 268. If the patient suffered a large heart attack (typically a STEMI), Troponin-I returns to normal 5-14 days after the onset.



- 269. CK-MB peaks within 24 hours after the onset of symptoms.
- 270. CK-MB returns to normal within 2-3 days after onset.
- 271. Thus, after a person has suffered a small or moderate heart attack, both Troponin and CK-MB levels return to normal within 2-3 days after the onset of symptoms.
- 272. If a patient who has suffered a small or moderate heart attack still has elevated Troponin and CK-MB after the third day, each biomarker suggests that the patient may be suffering a second heart attack.
- 273. At minimum, the sustained elevation suggest that the patient is still suffering coronary ischemia and myocardial necrosis.
- 274. If a second heart attack occurs shortly after a first, Troponin and CK-MB levels may stay elevated longer than normal or may rise again.

Echocardiogram

- 275. An echocardiogram is one of the most widely used diagnostic tests in cardiology.
- 276. An echocardiogram is an ultrasound of the heart.
- 277. An echocardiogram is often called an echo for short.
- 278. During an echo, a technician scans the heart with a hand-held device called a transducer.

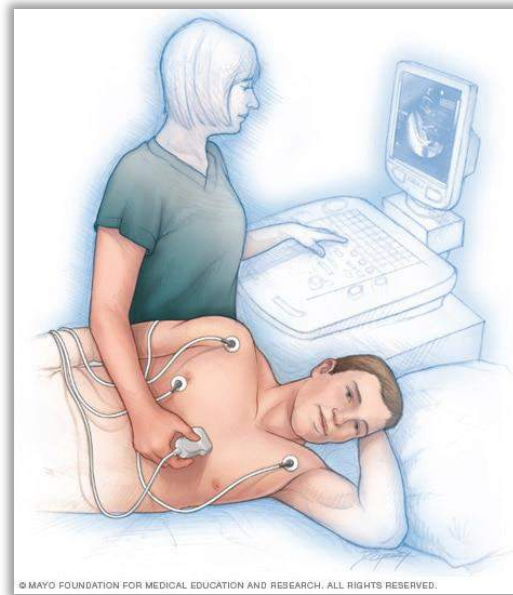


279. The transducer sends high-frequency sound waves (ultrasound) that bounce off the heart's structures.
280. The waves produce moving images and sounds of the beating heart that are captured on a monitor.



281. Doctors use the images and sounds to detect heart damage and disease, including problems with the chambers and valves of the heart.

282. An echocardiogram provides a wealth of helpful information about the heart, including its size and shape, its ability to pump blood, and the location and extent of any tissue damage.
283. An echo is a reliable tool for detecting motion abnormalities in the walls of the heart, including their ability to contract to pump blood.
284. An echo is also specifically used to estimate the amount of blood pumped out of the left ventricle with each heartbeat (the LVEF).
285. A transthoracic echocardiogram (TTE) is the standard and most-common echo.
286. In a TTE, the transducer is aimed at the heart through thorax (chest).

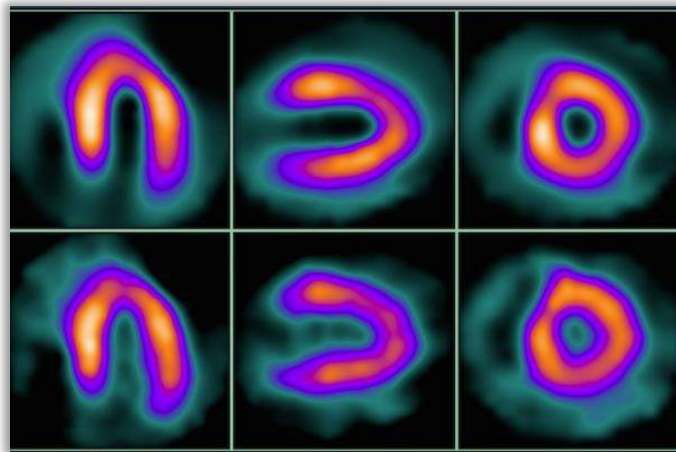


287. The word “transthoracic” means across or through the thorax.

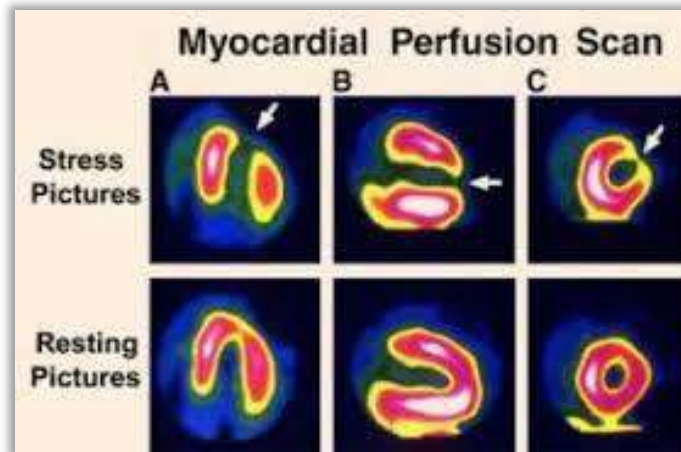
Myocardial Perfusion Test as Diagnostic Tool

288. A myocardial perfusion stress test is an imaging test that shows how well the blood is flowing through the heart muscle during stress.
289. For the test, the patient is injected with a tiny amount of a radioactive substance called a tracer.

290. The tracer travels through the bloodstream to the heart muscle.
291. Because it has good blood-flow, healthy heart muscle absorbs the tracer.
292. In contrast, because it has poor blood-flow, heart muscle that is damaged, or that is in jeopardy of being damaged, absorbs little to no tracer.
293. A special camera that picks up radioactive activity is then used to scan the heart and take images.



294. The colors of these images range from red (hot) for the portions of the heart that best absorb the tracer, to blue (cold) for the portions of the heart that absorb little or no tracer.
295. The better the blood-flow, the closer the color will be to red.
296. The poorer the blood-flow, the closer the color will be to blue.
297. Images are taken when the heart is in stress and at rest.
298. A comparison of the two sets helps doctors identify areas of damage and poor blood-flow.



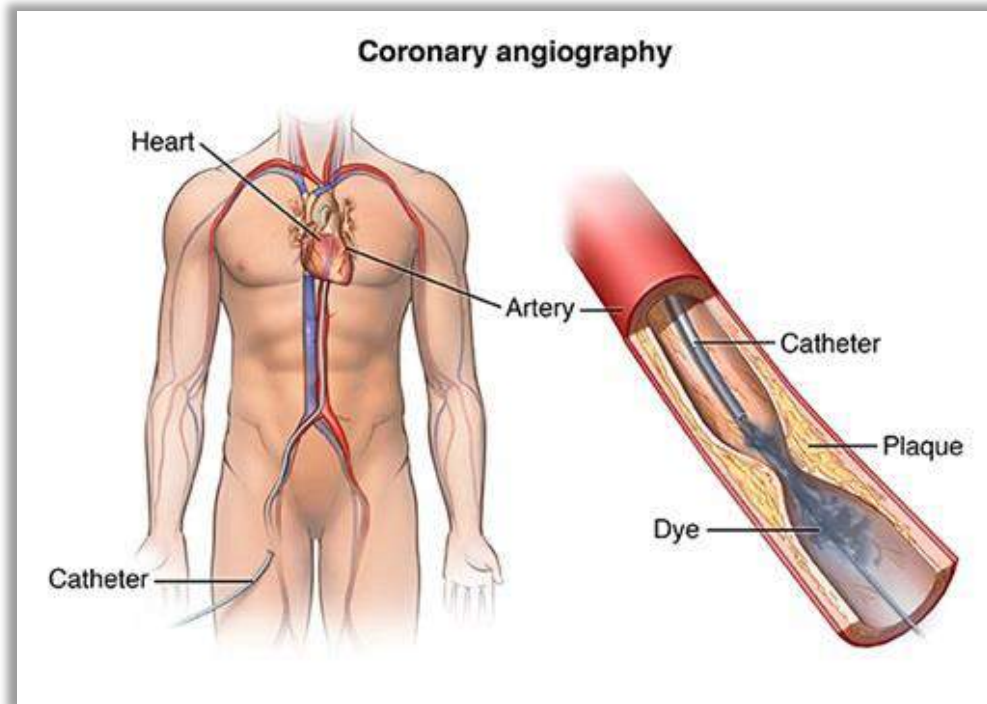
299. Cooler (bluer) colors during stress indicate deficient blood-flow to that area.
300. Myocardial perfusion imaging thus identifies, more precisely than cardiac catheterization, the myocardial territories with a perfusion defect.
301. In addition, myocardial perfusion imaging helps doctors determine whether a perfusion defect is fixed or reversible. A perfusion defect is fixed if the affected myocardium is scarred and no longer viable. A perfusion defect is reversible if the affected myocardium remains viable despite the defect.
302. A myocardial perfusion test also assesses left-ventricular function more precisely than cardiac catheterization.
303. There are two types of myocardial perfusion stress tests: exercise and pharmacological.
304. In the exercise test, the patient walks or runs on a treadmill in order to put stress on the heart.



- 305. In the pharmacological test, a patient receives a medicine that simulates the effects of exercise by increasing heartrate or widening blood vessels.
- 306. The myocardial perfusion stress test goes by other names, including nuclear stress test, stress myocardial perfusion scan, and myocardial perfusion imaging.

Cardiac Catheterization as Diagnostic Tool

- 307. Cardiac catheterization is a medical procedure in which a catheter is moved through a blood vessel to the heart to better diagnose heart conditions.
- 308. Cardiac catheterization is also called cardiac cath, angiogram, or angio.
- 309. In a cardiac catheterization, a doctor inserts a small, flexible, hollow tube (a catheter) into a blood vessel in the groin, arm, or neck.
- 310. Guided by x-ray, the doctor then threads the catheter through the blood vessel to the coronary arteries. Once the catheter is in place, the doctor may perform diagnostic tests, including coronary angiography.



311. Coronary angiography is a test to obtain x-ray images of the coronary arteries. A doctor uses the catheter to inject a contrast dye into the coronary arteries so that they become visible and can be captured on x-ray imaging.
312. Doctors use coronary angiography to see if, where, and how much coronary arteries are blocked.



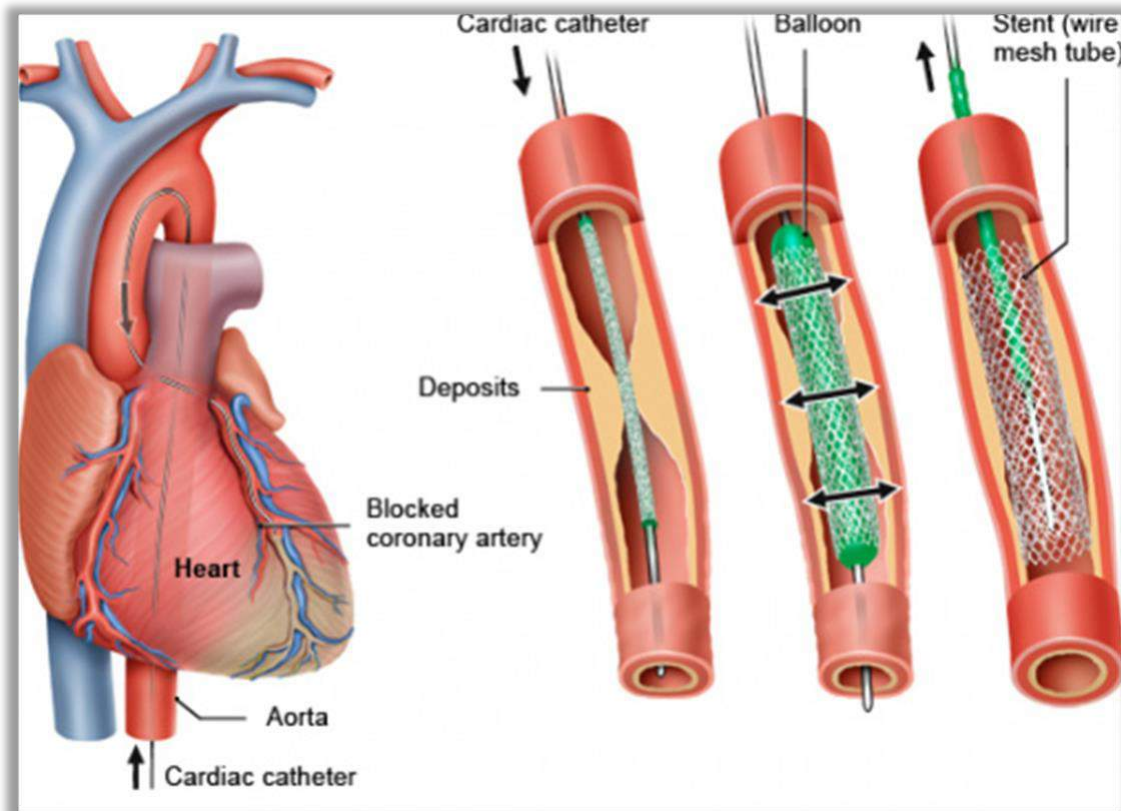
313. A cardiac catheterization helps doctors decide if and where a patient's heart condition needs treatment, such as angioplasty, stenting, or bypass surgery.

TIMI Flow Grade

314. With angiography, doctors can grade blood-flow through the blockage using a scale known as the Thrombolysis in Myocardial Infarct (TIMI) Flow Grade.
315. The TIMI Flow Grade is a widely used method for assessing coronary artery blood-flow in acute coronary syndromes.
316. The TIMI Flow Grade ranges from 0 to 3.
317. A TIMI 3 means complete perfusion: the artery has normal blood-flow that fills even the far coronary bed supplied by the artery, without slowing down.
318. A TIMI 2 means there is partial perfusion.
319. A TIMI 1 means there is penetration without perfusion.
320. A TIMI 0 means that there is no flow—the artery is completely blocked.

Angioplasty

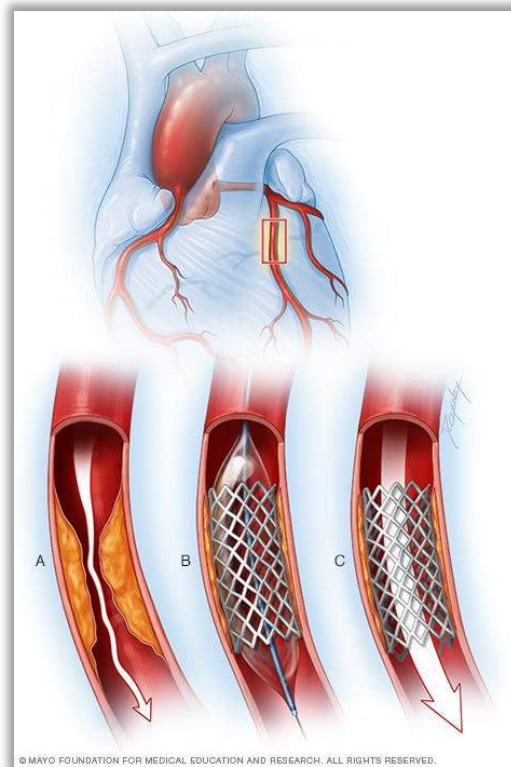
321. Doctors use cardiac catheterization to both find and fix problems.
322. After doctors find and grade a blocked artery, doctors can perform treatment procedures – angioplasty and stenting – to open the blockage.
323. Angioplasty is a procedure that widens a coronary artery by inflating a tiny balloon at the site of a blockage.



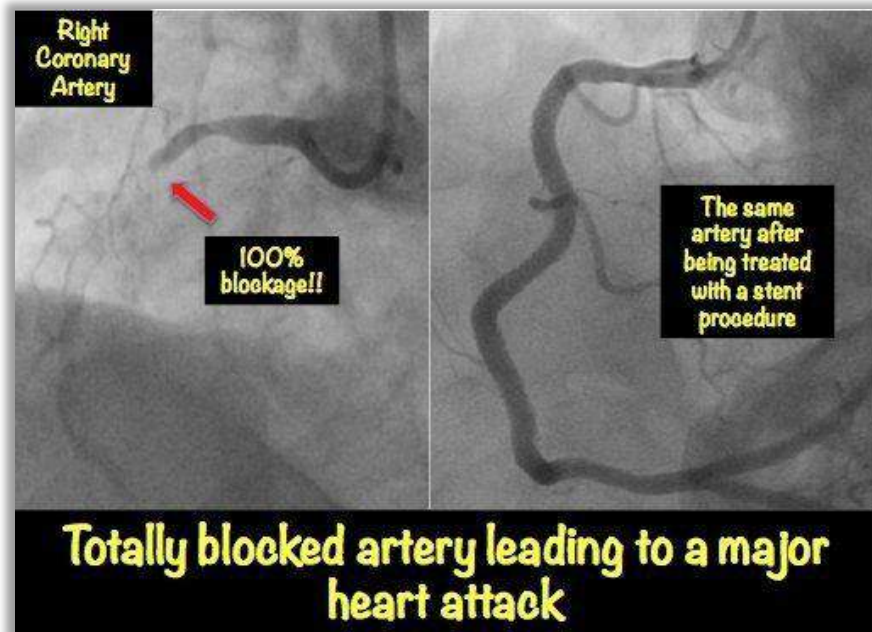
324. The pressure of the balloon presses the plaque against the arterial wall, widening the passage for blood to flow through.
325. Another name for angioplasty is percutaneous coronary intervention, or PCI.
326. Angioplasty can improve symptoms of blocked arteries, such as angina (chest pain) and shortness of breath.
327. Angioplasty is often used during a heart attack to quickly open a blocked artery and limit damage to the heart.
328. Angioplasty is often combined with stenting. Most people who have angioplasty also have stenting during the same catheterization.

Stenting

329. A stenting is a procedure to place a stent at the site of a blockage after an angioplasty, in order to keep the artery open. The procedure is sometimes called a stent-placement.
330. A stent is a wire-mesh tube that props up an artery, like scaffolding inside a tunnel, decreasing the odds that the artery will narrow again.



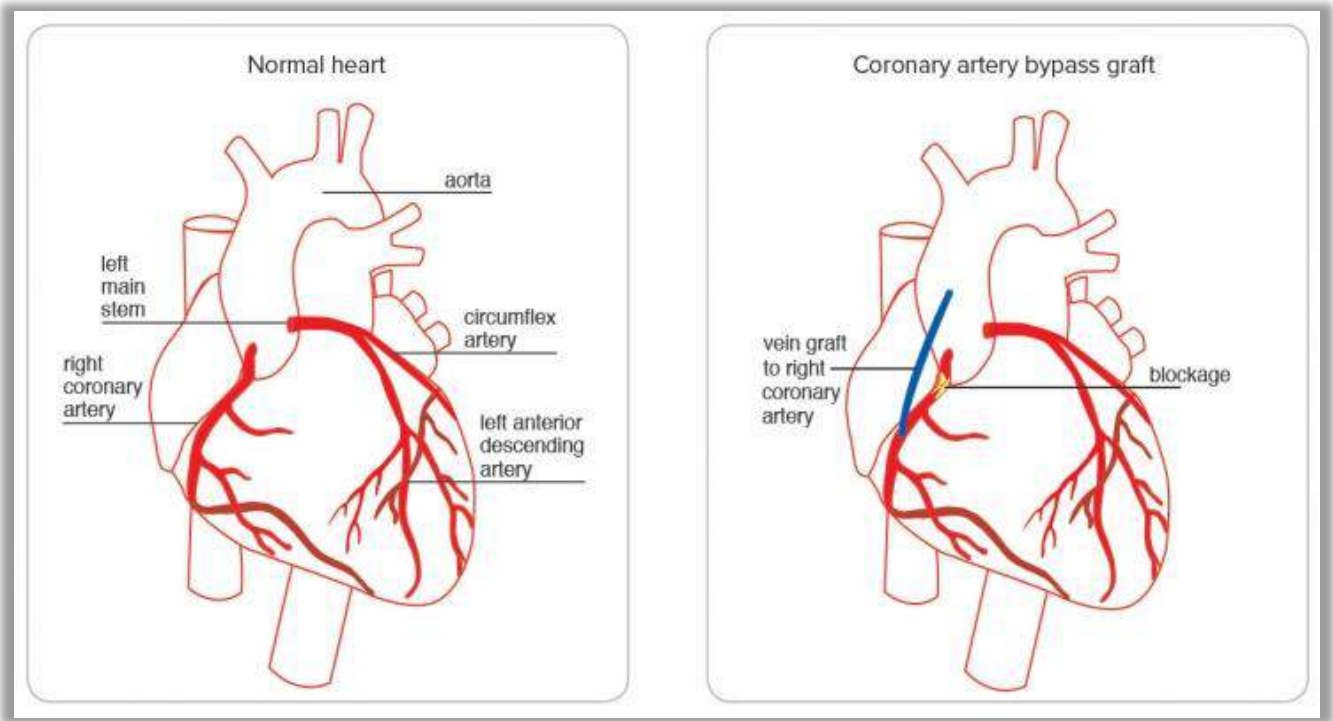
331. In a stenting, the stent is guided to the occluded artery wrapped around a balloon at the tip of the catheter.
332. When the balloon is inflated at the site of the blockage, the stent expands spring-like and locks into place.



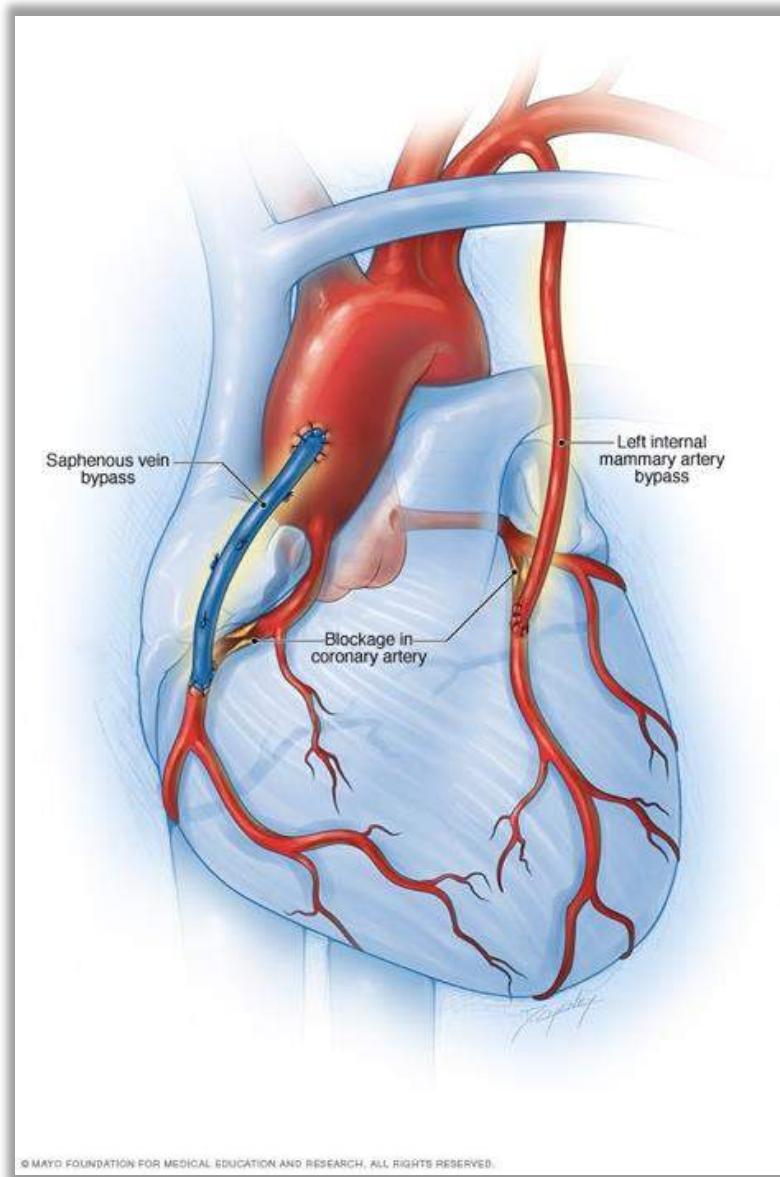
- 333. In some cases, more than one stent may be needed to prop up an artery.
- 334. A drug-eluting stent (DES) is a stent coated with time-released medication. A drug-eluting stent gradually elutes (releases) the medication to prevent the blockage from reoccurring.
- 335. A stent without this time-released medication is called a bare-metal stent.
- 336. DESs are preferred over bare-metal stents for most people, because DESs are more likely to keep the blockage from reoccurring.
- 337. Restenosis is the re-narrowing of an artery after it was already opened with angioplasty and stenting.
- 338. In-stent restenosis (ISR) is re-narrowing at the site of a stent.

Bypass Surgery

- 339. Coronary artery bypass grafting (CABG) is a surgery that uses a healthy vessel (a graft) to redirect blood around a blocked coronary artery.
- 340. The graft creates a new pathway for blood to flow directly to a part of the heart cut off from blood-flow by the blockage.



341. A graft may be a healthy vein or artery, or a manmade (artificial) vessel.



342. Doctors often call a CABG just “bypass surgery” or “bypass” for short. Doctors also use the acronym CABG, pronouncing it like the vegetable “cabbage.”
343. CABG is generally recommended when a patient has a high-grade blockage in any of the major coronary arteries.
344. CABG is also generally recommended when a PCI (angioplasty) fails.²

² See *Netter’s Cardiology*, Third Edition, Elsevier, Inc., 2019, at 156.

BOX 23.1 Indications for Coronary Artery Bypass Surgery

- Left main coronary disease
- Triple-vessel disease with normal or diminished ejection fraction
- Two-vessel disease with involvement of the proximal left-sided anterior descending coronary artery with normal or diminished ejection fraction
- Unstable (crescendo) angina
- **Post-myocardial infarction angina**
- Life-threatening ventricular arrhythmias with >50% left main disease or triple-vessel disease
- **Acute coronary occlusion after percutaneous coronary intervention**
- Persistent symptoms despite maximal medical therapy
- Coronary artery disease and the need for heart surgery for other indications (i.e., valve replacement surgery)
- Mechanical complications of acute myocardial infarction
- Ventricular septal defect
- Acute mitral regurgitation
- Free wall rupture
- Cardiogenic shock

Data from Brown ML, Sundt TM, Gersh BJ. Indications for revascularization. In: Cohn LH, ed. *Cardiac Surgery in the Adult*. New York: McGraw Hill; 2007.

345. After a failed PCI, an emergency CABG is recommended if the patient has either ongoing ischemia, or a threatened occlusion that puts substantial myocardium at risk.
346. CABG is also recommended when the patient has post-MI angina.
347. CABG is contraindicated (not recommended) when the patient refuses to have the surgery, when the patient's coronary arteries are incompatible with grafting, and/or when the patient does not have viable myocardium to graft.

Informed Consent

348. When a physician finds or diagnoses an illness, disease, or condition in a patient, the physician must (a) inform the patient of the finding or diagnosis, and (b) present available treatment options to the patient.
349. Having made these disclosures, the physician must then obtain the patient's informed consent to the proposed treatment-plan.
350. These requirements apply with special urgency and force if the illness, disease, or condition is life-threatening.

Hospital Admission

351. If a patient arrives at a hospital with an acute STEMI, a hospitalist must not admit the patient to the hospital unless it has the capability to provide definitive care for the STEMI, such as bypass surgery or a PCI.
352. If the hospital cannot provide definitive care to the patient, the hospitalist must refer and transfer the patient emergently to a hospital that can, such as a heart center.
353. If the hospitalist nevertheless admits the patient, the hospitalist must then refer and transfer the patient emergently to a hospital with the capability to provide definitive care for the STEMI.
354. These requirements also apply to other physicians in a position to admit, refer, or transfer the patient, such as cardiologists and ER physicians.

Record Keeping

355. A physician must promptly and accurately document a diagnosis in the patient's medical records.
356. A cardiologist's consultation notes must set forth clear and accurate information about any diagnosis made by the cardiologist, so that other providers downstream are able to understand and rely upon the diagnosis.

Supporting Literature

357. The following literature supports medical principles set forth above.
- Andersson, David, *EKG/ECG Interpretation: Everything You Need to Know About the 12-Lead EKG/ECG Interpretation and How to Diagnose and Treat Arrhythmias*, David Andersson, 2016.
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 - Grover, Frederick L., et al., *Cardiac Surgery*, Wolters Kluwer, 2016.
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 - Kastritsis, Demosthenes, et al., *Clinical Cardiology: Current Practice Guidelines*, Updated Edition, Oxford University Press, 2016.
 - McKean, Sylvia, et al. (editors), *Principles and Practice of Hospital Medicine*, Second Edition, McGraw Hill 2017.
 - Sabatine, Marc (editor), *Pocket Cardiology*, Wolters Kluwer Health, 2016.
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 - Zipes, Douglas, et al. (editors), *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*, Eleventh Edition, Elsevier, Inc., 2019.

Attachment C

(to Affidavits of Merlon Levy, MD, Sotiris Stamou, MD,
and Jonathan Schwartz, MD)

Medical Chronology

Prologue

Ms. Doggett's medical history prior to Tift

1. In 2013, when she was 57, Charlene Doggett was hospitalized with a heart attack at Phoebe Putney Memorial Hospital (“Phoebe”), in Albany, Georgia. TRH 178, TRH 213, TRH 38.
2. At that time, she underwent an angioplasty and received two stents. TRH 178, TRH 213.

History of Present Illness

This patient is a 63-year-old female who has a known history of coronary artery disease. States that she had an MI in 2013 and subsequently had cardiac stents. She does continue to smoke. She says she has had some left-sided dull pressure type chest pain since yesterday. Went to an urgent care and was told that she had an upper respiratory infection, but symptoms have been persistent and perhaps a bit worse. This morning seem to be even worse and so she decided to come to the emergency room for evaluation. At this time patient is resting comfortably and in no acute distress although she does complain of left-sided chest pain which she rates as 10 of 10. Stable for work-up. Patient did have 3 nitro tabs and aspirin in route. Patient presents via EMS.

TRH 178.

Patient is a 63-year-old Caucasian female who presented 2/20/2024 chest pain. Cardiology was consulted. She does have history of coronary artery disease, tobacco abuse, left heart cath in the past with stents x2 per patient at Phoebe. Patient had increasingly elevated troponins with T wave inversion. Patient agreed to left heart cath today. Cardiac catheterization was reviewed in detail to include the administration of contrast dye and taking of radiographic images to define his coronary anatomy. Risks of the procedure were reviewed, to include but not limited to; bleeding complications, loss of limb, kidney failure, heart attack, stroke, need for emergency bypass surgery, and / or sudden death. The patient understands and is willing to proceed.

TRH 213.

3. By early 2020, Ms. Doggett “had chest pain on and off.” TRH 212.
4. On or about February 12, 2020, the pain became “constant,” and then “worsened” over the subsequent few days. TRH 212.
5. On February 19, 2020, Ms. Doggett sought treatment for her chest pain at an urgent-care facility, where she was diagnosed with an upper-respiratory infection. TRH 212, TRH 176.

History of Present Illness

Patient is a 63-year-old Caucasian female not known to our service admitted for chest pain. Patient states she is had chest pain on and off over the last couple months however she had constant chest pain starting Wednesday that is worsened over the past couple days worse this morning. She did go to a quick care that diagnosed with upper respiratory infection. She does have a history of smoking and COPD. Cardiology was consulted due to chest pain and elevated troponin levels. She does have a history of coronary artery disease with stents in the past at Phoebe. Troponin levels have steadily increased from 1.30 on 2/20/2020; 5.03, 9.93, 12.76, and this a.m. 18.69. Patient was added on for a left heart cath per Dr. Murray. EKG on 2/2020 shows T wave inversion.

TRH 212.

First Tift Hospitalization – February 20-23, 2020

Ms. Doggett takes EMS to ER with chest pain

Thursday, February 20

- 6. On February 20, 2020, after she awoke “feeling worse,” Ms. Doggett took an ambulance to Tift Regional Medical Center (“Tift”), in Tifton, Georgia. TRH 176, TRH 178, TRH 193, TRH 212.
- 7. On route, EMS gave her aspirin and nitroglycerin, relieving her chest pain. TRH 176, TRH 178, TRH 193, TRH 212.

ED Triage Part 1 - Adult

Chief Complaint : Chest pain, started last night, went to urgent care, Dx with URI. Given meds. woke up this am feeling "worse" EMS given 3 nitro and a 325 ASA

TRH 176.

- 8. At 07:27, Ms. Doggett arrived and checked into the Tift emergency department (“ED” or “ER”). TRH 188, TRH 187.

PERSON INFORMATION

Name: DOGGETT, CHARLENE H

Sex: Female

Marital Status: Single

MRN: 700453307

Visit Reason: Chest pain; chest pain

Age: 63 Years

Language: English

Phone: (229)206-0961

Acct# 2001271730

Acuity: 3 - Urgent

DOB: _____

PCP: Wilder, MD, Doris

Med Service: Medical

Arrival: 02/20/20 07:27:24

LOS: 000 06:14

TRH 188.

9. Ms. Doggett was registered as an uninsured, "Self Pay" patient. TRH 167.

Primary Insurance	
Subscriber Name: DOGGETT, CHARLENE H	Insurance Name: Self Pay
Patient's Reltn: Self	Claim Address: PO BOX 807
Sex: Female	TIFTON, GA 317930807
DOB:	Insurance Phone:
Age: 63 Years	Policy Number:
Employer Name:	Group Number:
Employer Phone:	Authorization Number:
Financial Class: Self Pay	Authorization Phone:
Group Name:	Authorization Contact:

TRH 167.

10. Ms. Doggett's chief complaint was chest pain. TRH 176, TRH 414.

ED Triage Part 1 - Adult
Chief Complaint : Chest pain, started last night, went to urgent care, Dx with URI. Given meds. woke up this am feeling "worse" EMS given 3 nitro and a 325 ASA
Lynx Mode of Arrival : Ambulance

TRH 176.

ER Doctor Ross Moorman recommends admission to investigate "high risk of cardiac etiology"

11. At 07:29, Nurse Laurajean Smith triaged Ms. Doggett. Nurse Smith assigned Ms. Doggett's condition an acuity level of "3 - Urgent." TRH 176, TRH 410.

DCP GENERIC CODE
Tracking Acuity : 3 - Urgent
Tracking Group : Tift ED Tracking Group
Smith, RN, Laurajean - 2/20/2020 7:29 AM EST

TRH 176.

12. Between 07:28 and 07:35, Ms. Doggett underwent a stat EKG and a stat chest x-ray, for chest pain. TRH 186.

Radiology Orders:
CV Electrocardiogram 12 Lead 02/20/20 7:28:00 EST, Stat, Chest Pain, 02/20/20 7:28:00 EST, Cardiovascular Type
XR CHEST PORTABLE 02/20/20 7:35:00 EST, Stat, Reason: chest pain

TRH 186.

13. The EKG was “abnormal.” TRH 331. It showed “sinus bradycardia” and a “nonspecific T-wave abnormality.” TRH 331.

RR Interval: 1018 ms PP Interval: 0 ms PR Interval: 175 ms QRS Duration: 105 ms QT Interval: 455 ms QTc Interval: 453 ms P Axis: 45 deg QRS Axis: 47 deg T Axis: 114 deg QTc Bazett: 450 ms QTc Fredericia: 452 ms Ventricular Heart Rate: 58 BPM	*Auth (Verified)* Feb 20, 2020 7:30:03 AM SINUS BRADYCARDIA NONSPECIFIC T-WAVE ABNORMALITY ABNORMAL ECG Confirmed By: Hancock, MD, William 2/20/2020 9:04:29 AM
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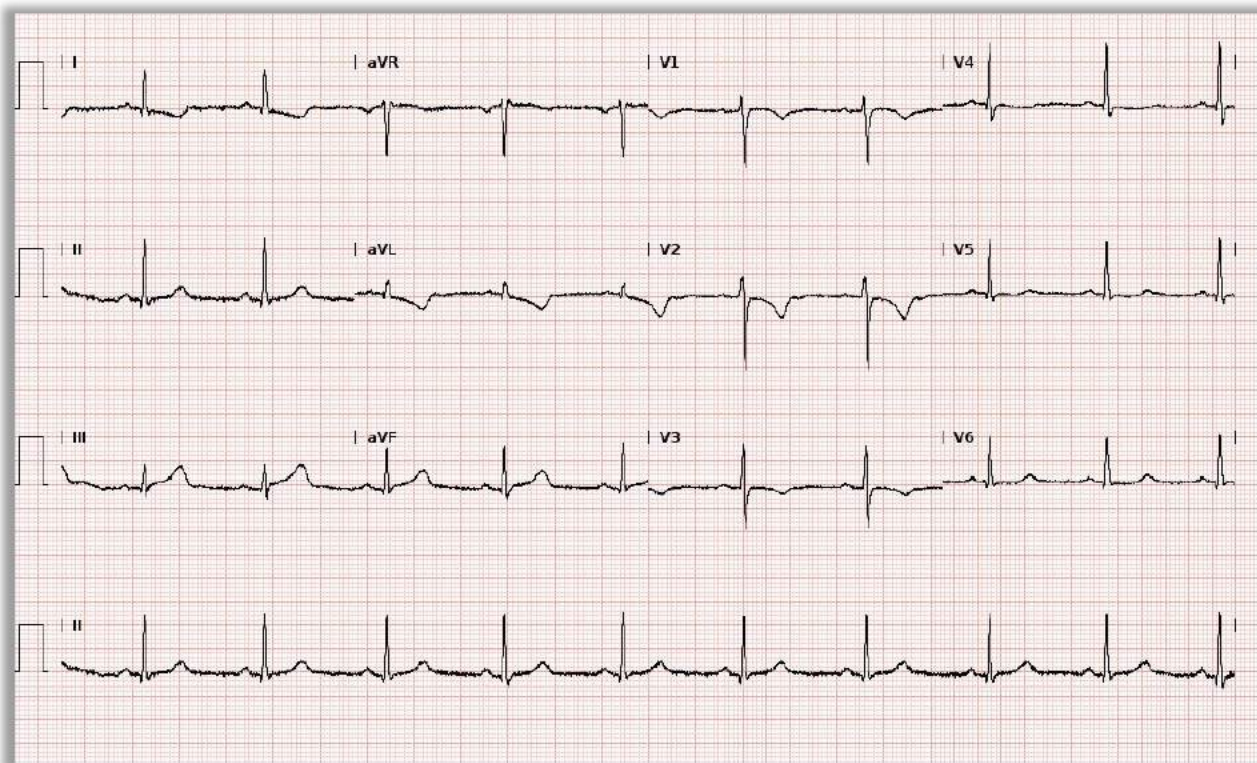
TRH 331.

14. The abnormality was a “T wave inversion.” TRH 207, TRH 331, TRH 212, TRH 213.

History of Present Illness
Patient is a 63 year old WF with PMH of COPD/smoker, CAD s/p stents.

Patient presented with c/o chest pain that has been off and on over the last few months, but worsened over the past couple of days. TI elevated on admission with EKG showing T wave inversion. Cardiology consulted. Scheduled for LHC/echo this am. Seen post cath. nurse reports, failed attempt to open mid RCA, plans for observation, serial TI, and medications adjusted.

TRH 207.



TRH 331.

15. The chest x-ray revealed clear lung-fields, no evidence of pleural effusions, and “no significant abnormality.” TRH 339, TRH 180, TRH 194.
16. The chest x-ray “showed no acute cardiopulmonary abnormality.” TRH 193.

FINDINGS

Heart is within normal limits in size. The hila are normal. The aorta is calcified. The lung fields are clear. No pleural effusions are identified. The bony thorax is unremarkable.

IMPRESSION

No significant abnormality identified

TRH 339.

Work-up in the ED showed normal troponin. CXR showed no acute cardiopulmonary abnormality. Hospitalist team was consulted to admit patient for further management.

TRH 193.

17. The chest x-ray was also “negative” for bronchitis. TRH 210.

3. Acute bronchitis
 - poa; recent URI; nebs; CXR negative; s/p Solumedrol in ED; exam negative
 Ordered:
 HM Sbsq Observation Care/ Day Low Severity 99224

TRH 210.

18. By 07:35, Ms. Doggett had stat cardiac-biomarker tests. TRH 186.

Laboratory Orders:

Automated Diff Blood, Stat, Collected, 02/20/20 7:43:00 EST, Once, *, 281745076.000000
B-Type Natriuretic Peptide (BNP) Blood, Stat, 02/20/20 7:35:00 EST, Once, *
CBC w/ Differential Blood, Stat, 02/20/20 7:34:00 EST, Once, *
CK Blood, Stat, 02/20/20 7:34:00 EST, Once, *
CMP Blood, Stat, 02/20/20 7:34:00 EST, Once, *
D Dimer Quantitative Blood, Routine, 02/20/20 10:21:00 EST, Once, *
Estimated Glomerular Filtration Rate Blood, Stat, Collected, 02/20/20 7:43:00 EST, Once, *, 281745077.000000
Glucose (POCT) Blood, RT collect, Collected, 02/20/20 8:17:21 EST, Once, *
Lipase Level Blood, Stat, 02/20/20 7:34:00 EST, Once, *
Magnesium Level Blood, Add On, 02/20/20 10:21:00 EST, Once
PT-INR Blood, Stat, 02/20/20 7:35:00 EST, Once, *
PTT Blood, Stat, 02/20/20 7:35:00 EST, Once, *
Troponin-I Blood, Stat, 02/20/20 7:34:00 EST, Once, *
Troponin-I Blood, Timed Study, 02/20/20 12:01:00 EST, every 6 hr, for 2, times, *

TRH 186.

19. At 07:43, Ms. Doggett’s Troponin-I level was 0.03—the high-end of normal. TRH 336, TRH 179.

20. Ms. Doggett’s BNP level was 97, near the high-end of normal. TRH 336.

	Collected Date	2/20/2020	2/20/2020		
	Collected Time	13:19 EST	07:43 EST		
Procedure				Units	Reference Range
Troponin-I		1.30 ^{c[†]}	0.03 ^{*1}	ng/mL	[0.01-0.03]
CK		-	50 ^{*1}	IntlUnit/mL	[30-135]
B-Type Natriuretic Peptide		-	97 ^{*1}	pg/mL	[0-100]

TRH 336.

21. At 07:44, Ms. Doggett rated her pain a 10 out of 10, meaning that it was the “worst possible pain.” TRH 368.

	Recorded Date	2/20/2020	2/20/2020	2/20/2020
	Recorded Time	09:51 EST	09:15 EST	07:44 EST
	Recorded By	McBrayer,Ryan	Edenfield,RN,Whitney	Smith,RN,Laurajean
Procedure				
Preferred Pain Tool		Numeric rating scale	Numeric rating scale	-
Pain,Unable to Self Report		-	-	No
Numeric Rating Pain Scale		10 = Worst possible pain	9	-
Numeric Pain Score (0-10)		-	-	10
Numeric Pain Score with Activity		-	-	10

TRH 368.

22. At 09:16, Ms. Doggett was “still in pain,” and medication had “not helped.” TRH 409.

2/20/2020 09:16 EST (Rounding Comments)

Pt sitting in bed with son at bedside. Pt states she is still in pain and medication has not helped. Dr. Moorman at bedside and states to wait 15-20 minutes after nitro application and give 1 mg dilaudid IV if pain persists. Pt denies needs at this time.

TRH 409.

23. At 09:54, ER Physician Ross Moorman examined Ms. Doggett. TRH 178-81.

24. At that time, her chest pain continued to be a 10 of 10. TRH 178, TRH 368.

History of Present Illness

This patient is a 63-year-old female who has a known history of coronary artery disease. States that she had an MI in 2013 and subsequently had to cardiac stents. She does continue to smoke. She says she has had some left-sided dull pressure type chest pain since yesterday. Went to an urgent care and was told that she had an upper respiratory infection, but symptoms have been persistent and perhaps a bit worse. This morning seem to be even worse and so she decided to come to the emergency room for evaluation. At this time patient is resting comfortably and in no acute distress although she does complain of left-sided chest pain which she rates as 10 of 10. Stable for work-up. Patient did have 3 nitro tabs and aspirin in route. Patient presents via EMS.

TRH 178.

25. Because the EKG revealed “sinus bradycardia at 58 bpm with some nonspecific ST and T wave changes and mild ST depression,” and the biomarkers were “relatively benign with a troponin which is at high end of

normal at 0.03,” Dr. Moorman concluded there was “no evidence of acute STEMI.” TRH 179.

26. Still, Dr. Moorman diagnosed Ms. Doggett with “chest pain, with a high risk of cardiac etiology.” TRH 179.
27. Accordingly, Dr. Moorman decided to “ask hospitalist service to evaluate for admission on basis of known coronary artery disease,” noting that Ms. Doggett would “most likely require sequential cardiac enzymes and further work-up.” TRH 179.

EKG reveals sinus bradycardia at 58 bpm with some nonspecific ST and T wave changes and mild ST depression. No evidence of acute STEMI.

Progress report at 09 53. Patient is still complaining of some pain. We placed an inch of Nitropaste but that has not made much of a difference. At this time she will be given 1 mg of Dilaudid IV. Laboratory exam is relatively benign with a troponin which is at the high end of normal at 0.03. Chest x-ray is benign. Will ask hospitalist service to evaluate for admission on the basis of known coronary artery disease. Will most likely require sequential cardiac enzymes and further work-up. Patient is agreeable.

TRH 179.

Assessment/Plan

1. Chest pain with high risk for cardiac etiology

2. Tobacco use

Orders:

Oximetry - Continuous

TRH 179.

Hospitalist Eric Afari diagnoses pain as “pleuritic”

28. At 10:24, Hospitalist Eric Afari examined Ms. Doggett. TRH 193-97.
29. Ms. Doggett had a “burning pain located on upper chest” radiating “to left arm.” TRH 193.
30. The pain was “triggered by cough” and “associated with exertion or rest.” TRH 193.

History of Present Illness

Patient is a 63-year-old female with ongoing chronic medical conditions including coronary artery disease status post stent (x2) who presented to the ED with complaint of chest pain. Patient reports about 3 days ago she developed nasal congestion and cough that has progressively worsened. A day prior to presentation she started experiencing chest pain. She describes the pain as burning pain located on upper chest and radiates to left arm. The pain is triggered by cough. The chest pain is associated with exertion or rest. Yesterday she went to urgent care center for treatment of URI and was given cough medication but did not improve. The cough is nonproductive. She also complains of chest congestion but she is unable to cough up sputum. She is a current smoker. The pain is relieved by aspirin or nitroglycerin which was given by EMS in route to the hospital. She denies shortness of breath, fever, abdominal pain, nausea or vomiting.

TRH 193.

31. Although the “EKG showed nonspecific T wave abnormalities,” her initial Troponin was normal, and her Heart Score was 5, Dr. Afari concluded that the chest pain was “likely due to cough from bronchitis.”¹ TRH 194.
32. Dr. Afari thus diagnosed Ms. Doggett with “atypical pleuritic chest plain,” with a differential diagnosis that included myocardial infarction. TRH 194.

Assessment/Plan

1. Chest pain

–Atypical pleuritic chest pain. EKG showed nonspecific T wave abnormalities. HEART score Initial troponin normal. HEART score 5. Risk factors include history of CAD with stent and smoking. She received aspirin en route to the hospital by EMS.
–Differential diagnosis includes bronchitis, MI or costochondritis. Her chest pain is likely due to cough from bronchitis. She had tenderness on palpation of upper chest. Less likely PE.

TRH 194.

33. Dr. Afari consulted the hospitalist team “to admit patient for further management.” TRH 193.

Work-up in the ED showed normal troponin. CXR showed no acute cardiopulmonary abnormality. Hospitalist team was consulted to admit patient for further management.

TRH 193.

¹ Dr. Afari computed a HEART Score of 5, noting risk factors including “history of CAD with stent and smoking.” TRH 194. But Ms. Doggett’s actual HEART Score was at least 7.

34. At 10:50, Dr. Afari ordered observation care for acute bronchitis and chest pain. TRH 254.

Order: HM Initial Observation Care/Day Moderate Severity 99219		
Order Date/Time: 2/20/2020 10:50 EST		
Order Status: Completed	Department Status: Completed	Activity Type: Evaluation and Management
End-state Date/Time: 2/20/2020 10:50 EST	End-state Reason:	
Ordering Physician: Afari,MD,Eric	Consulting Physician:	
Entered By: Afari,MD,Eric on 2/20/2020 10:50 EST		
Order Details: 2/20/20 10:50:00 AM EST, Incident To, Coronary artery disease Tobacco use Hypertensive urgency Acute bronchitis Chest pain		

TRH 254.

After Troponin rises, Ms. Doggett is admitted to floor with NSTEMI

35. At 13:19, Ms. Doggett’s Troponin-I level was 1.30—above the normal range. TRH 336.

Collected Date	2/20/2020	2/20/2020		
Collected Time	13:19 EST	07:43 EST		
Procedure			Units	Reference Range
Troponin-I	1.30 ^{C¹⁹*1}	0.03 ^{*1}	ng/mL	[0.01-0.03]

TRH 336.

36. At about 13:41, Ms. Doggett was discharged from the ED and admitted to the hospital floor.² TRH 187, TRH 370, TRH 416, TRH 192.
37. Notwithstanding Dr. Afari’s diagnosis of “pleuritic chest pain,” the admitting diagnosis was now: “Chest pain and NSTEMI.” TRH 172, TRH 9, TRH 36.

<u>Dates of Service</u> 2/20/20-2/23/20
<u>Admitting Diagnosis</u> Chest pain and NSTEMI

² Ms. Doggett was not placed in intensive care at Tift, either during this visit or the second one. Doggett Aff.

TRH 172.

History of Present Illness

PCP: Dr. Doris Wilder

Patient is a pleasant 63-year-old female who was admitted February 20 of February 23, 2020, for NSTEMI, has known CAD with previous tents and is a smoke - per the discharge

TRH 36.

38. At 14:21, LPN Tangla Reynolds reported the 1.30 Troponin-I level as a “critical value” to Dr. Afari at bedside. TRH 412-13.

39. Dr. Afari then ordered a cardiology consult. TRH 413.

Recorded Date	2/20/2020	2/20/2020
Recorded Time	16:19 EST	14:21 EST
Recorded By	Frantz,RN,Ellen	REYNOLDS,LPN,TANGLA
Procedure		
Provider Notification Reason	Pain (site)	Critical value reporting
Provider Notification Details	See Below ^{T70}	Troponin of 1.30
Provider Contacted	Yes	Yes

Recorded Date	2/20/2020	2/20/2020
Recorded Time	16:19 EST	14:21 EST
Recorded By	Frantz,RN,Ellen	REYNOLDS,LPN,TANGLA
Procedure		
Provider at Bedside	Afari, MD, Eric	Afari, MD, Eric
Provider Informed	Afari, MD, Eric	Afari, MD, Eric
Provider Response Time	2/20/2020 16:19 EST	2/20/2020 14:21 EST
Physician Requested Interventions	See Below ^{T71} ^{T13}	See Below ^{T72}
Textual Results		
T70: 2/20/2020 16:19 EST (Provider Notification Details) chest pain 7/10, worse w/cough, occasionally radiates to left arm		
T71: 2/20/2020 16:19 EST (Physician Requested Interventions) Orders received, Continue to monitor		
T72: 2/20/2020 14:21 EST (Physician Requested Interventions) Orders received, Other: Consult Cardiology.		

TRH 412-13.

Dr. Afari consults with Cardiologist Paul Murray, as Troponin climbs

40. Between 14:23 and 15:01, Dr. Afari consulted with Cardiologist Paul Murray about the increase in Ms. Doggett’s Troponin-I “from 0.03 to 1.30.” TRH 252.

Order: Consult to Cardiology		
Order Date/Time: 2/20/2020 14:23 EST		
Order Status: Discontinued	Department Status: Discontinued	Activity Type: Provider Consults
End-state Date/Time: 2/26/2020 15:01 EST	End-state Reason:	
Ordering Physician: Afari,MD,Eric	Consulting Physician: Murray,MD,Paul	
Entered By: Frantz,RN,Ellen on 2/20/2020 14:23 EST		
Order Details: Routine, Consult Reason: troponin went from 0.03 to 1.3, Murray, MD, Paul		

TRH 252.

41. At 17:27, Dr. Murray ordered a cardiovascular (CV) transthoracic echocardiogram (TTE) for “Chest Pain,” ASAP. TRH 250.

Order: CV Echo TTE Complete		
Order Date/Time: 2/20/2020 17:27 EST		
Order Status: Completed	Department Status: Signed	Activity Type: Cardiovascular
End-state Date/Time: 2/21/2020 11:44 EST	End-state Reason:	
Ordering Physician: Murray,MD,Paul	Consulting Physician:	
Entered By: REYNOLDS,LPN,TANGLA on 2/20/2020 17:27 EST		
Order Details: 2/20/20 5:27:00 PM EST, ASAP, Chest Pain, Ambulatory, 2/21/20 11:44:15 AM EST, Cardiovascular Type		

TRH 250.

42. At 17:53, Ms. Doggett’s Troponin-I climbed to 5.03. TRH 335.

Collected Date	2/21/2020	2/21/2020	2/20/2020	2/20/2020		
Collected Time	06:48 EST	02:19 EST	21:48 EST	17:53 EST		
Procedure					Units	Reference Range
Troponin-I	18.69 ^{C 15 '11}	12.76 ^{C 16 '11}	9.93 ^{C 17 '11}	5.03 ^{C 18 '11}	ng/mL	[0.01-0.03]

TRH 335.

43. At 19:46, Nurse Whitney Prater reported the Troponin-I level as a “critical value” to Family Nurse Practitioner Jessica Ashley at bedside. TRH 412.

Recorded Date	2/20/2020	2/20/2020
Recorded Time	22:27 EST	19:46 EST
Recorded By	Prater,RN,Whitney	Prater,RN,Whitney
Procedure		
Provider Notification Reason	Critical value reporting	Critical value reporting
Provider Notification Details	Trop 9.93, previously 5.03	trop 5.03, previously 1.30
Provider Contacted	Yes	Yes
Provider at Bedside	Parrish, FNP-C, Jessica Ashley	Parrish, FNP-C, Jessica Ashley
Provider Response Time	2/20/2020 22:54 EST ^{e2}	2/20/2020 19:46 EST
Physician Requested Interventions	No orders received	Orders received

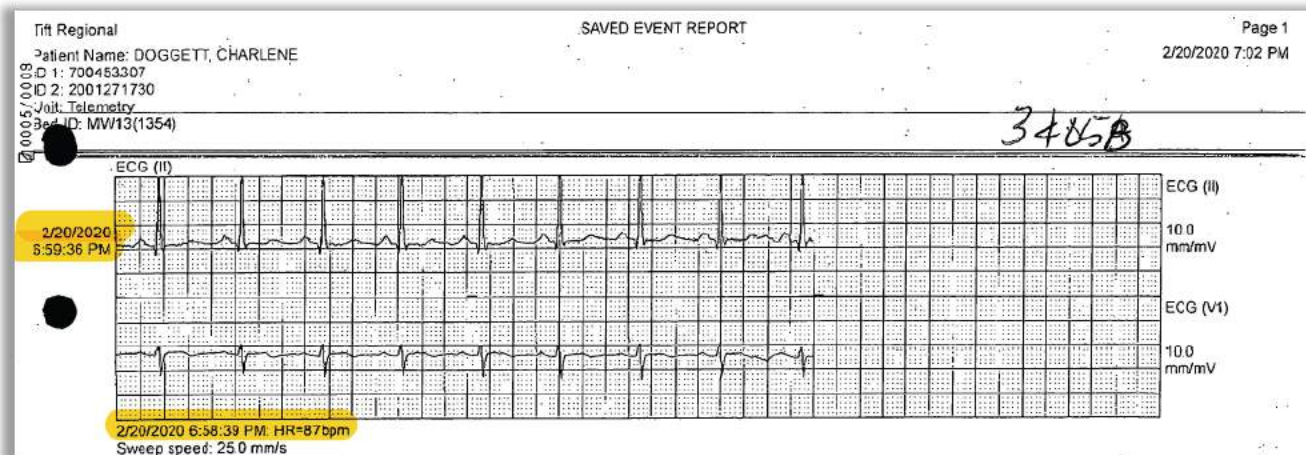
TRH 412.

44. At 18:30, Dr. James Darling performed a chest CT scan on Ms. Doggett (CT Chest Pulmonary Embolism Protocol). TRH 337-38.
45. The CT scan found COPD, “mild coronary artery calcifications with no mediastinal mass or adenopathy,” and “no evidence of pulmonary embolus.” TRH 338.
46. For the COPD, Dr. Darling suggested “follow up with serial chest x-rays.” TRH 338.

<p>IMPRESSION</p> <p>No evidence of a pulmonary embolus.</p> <p>Minimally dilated and mildly atherosclerotic thoracic aorta with no aneurysm or dissection.</p> <p>COPD the left mild bibasilar atelectasis vs early infiltrates or scarring posteriorly along the lung bases, suggest follow-up with serial chest x-rays.</p> <p>Mild coronary artery calcifications with no mediastinal mass or adenopathy.</p> <p>Partially calcified, mild-to-moderate, thyroid goiter. Suggest ultrasound follow-up.</p>

TRH 338.

47. At 18:59, Ms. Doggett’s telemetry was documented. TRH 171.



TRH 171.

- 48. At 21:48, Ms. Doggett's Troponin-I climbed to 9.93. TRH 335.
- 49. At 22:27, Nurse Whitney Prater reported the Troponin-I level as a "critical value" to FNP-C Ashley. TRH 412.

Friday, February 21

- 50. At 02:19, Ms. Doggett's Troponin-I was 12.76. TRH 335.

Collected Date	2/21/2020	2/21/2020	2/20/2020	2/20/2020		
Collected Time	06:48 EST	02:19 EST	21:48 EST	17:53 EST		
Procedure					Units	Reference Range
Troponin-I	18.69 C 15 '11	12.76 C 16 '11	9.93 C 17 '11	5.03 C 18 '11	ng/mL	[0.01-0.03]

TRH 335.

- 51. At 03:02, Nurse Whitney Prater reported the Troponin-I level as a "critical value" to Dr. Barbara Crawford. TRH 412.

Recorded Date	2/21/2020	2/21/2020
Recorded Time	07:39 EST	03:02 EST
Recorded By	Taylor,LPN,Holly	Prater,RN,Whitney
Procedure		
Provider Notification Reason	Critical value reporting	Critical value reporting
Provider Notification Details	Troponin 18.69	trop 12.76, previously 9.93
Provider Contacted	Yes	Yes
Provider at Bedside	Campbell, PA, Kristin Davis	Crawford, MD, Barbara
Provider Response Time	-	2/21/2020 03:03 EST
Physician Requested Interventions	-	No orders received

TRH 412.

As Troponin continues to climb, Dr. Murray performs cardiac catheterization

52. At 06:43, Dr. Murray ordered a left-heart catheterization for “Chest Pain,” ASAP. TRH 249.

Order: CV CCL Left Heart Cath		
Order Date/Time: 2/21/2020 06:43 EST		
Order Status: Completed	Department Status: Signed	Activity Type: Cardiovascular
End-state Date/Time: 2/21/2020 10:03 EST		End-state Reason:
Ordering Physician: Murray,MD,Paul		Consulting Physician:
Entered By: Murray,MD,Paul on 2/21/2020 06:43 EST		
Order Details: 2/21/20 6:43:00 AM EST, ASAP, Chest Pain, Chest pain, Ambulatory, Radial, 2/21/20 10:03:57 AM EST, Cardiovascular Type		

TRH 249.

53. At 06:48, Ms. Doggett’s Troponin-I was 18.69. TRH 335.

	Collected Date	2/21/2020	2/21/2020	2/20/2020	2/20/2020		
	Collected Time	06:48 EST	02:19 EST	21:48 EST	17:53 EST		
Procedure						Units	Reference Range
Troponin-I		18.69 ^{C¹⁵†}	12.76 ^{C¹⁶†}	9.93 ^{C¹⁷†}	5.03 ^{C¹⁸†}	ng/mL	[0.01-0.03]

TRH 335.

54. At 07:39, LPN Holly Taylor reported the Troponin-I level as a “critical value” to Physician’s Assistant Kristin Davis. TRH 412.

	Recorded Date	2/21/2020	2/21/2020
	Recorded Time	07:39 EST	03:02 EST
	Recorded By	Taylor,LPN,Holly	Prater,RN,Whitney
Procedure			
Provider Notification Reason		Critical value reporting	Critical value reporting
Provider Notification Details		Troponin 18.69	trop 12.76, previously 9.93
Provider Contacted		Yes	Yes
Provider at Bedside		Campbell, PA, Kristin Davis	Crawford, MD, Barbara
Provider Response Time		-	2/21/2020 03:03 EST
Physician Requested Interventions		-	No orders received

TRH 412.

55. At about 07:40, the catheterization got underway. TRH 321.

Surgery		
Order: Procedure Only		
Order Date/Time: 2/21/2020 07:06 EST		
Order Status: Ordered	Department Status: Ordered	Activity Type: Surgery
End-state Date/Time: 2/21/2020 07:40 EST	End-state Reason:	
Ordering Physician:	Consulting Physician:	
Entered By: Stapleton, Tammie on 2/21/2020 07:06 EST		
Order Details: Murray, MD, Paul, Primary Procedure?, LHC, 0, None, 2/21/20 7:40:00 AM EST		
Action Type: Activate	Action Date/Time: 2/21/2020 07:22 EST	Electronically Signed By: Stapleton, Tammie

TRH 321.

56. By 09:08, the procedure ended and Ms. Doggett was in the post-anesthesia care unit (PACU). At 10:01, she was discharged from the PACU. TRH 217.
57. At 10:03, Dr. Murray completed and signed his procedure notes for the catheterization. TRH 325-26.

TR - Case Times - Post - CCL	
	Entry 1
In PACU II	02/21/20 09:08:00
Ready for PACU II	02/21/20 09:20:00
Discharge	
Discharge from PACU II	02/21/20 10:01:00
Last Modified By:	Lasseter, Michael 02/21/20 10:14:57

TRH 217.

Prepared and electronically signed by
Paul Murray, MD
02/21/2020 10:03

TRH 326.

Catherization reveals 100% in-stent occlusion in Ms. Doggett's mid-RCA

58. The catheterization revealed the following about Ms. Doggett's condition.
 - a. She had a "diffuse, (20 mm (L)) 100% occlusion in the previous stent" in her mid-RCA. TRH 325.

- b. The occlusion was “consistent with atherosclerotic disease” and had “a filling defect consistent with thrombus.” TRH 326.
- c. The occlusion had a TIMI Flow Grade of 0, meaning that there was “no flow across the lesion.” TRH 326.
- d. The blocked portion of the RCA supplied “a moderate-sized vascular territory” in Ms. Doggett’s heart. TRH 326.

Right coronary: Prior intervention: stent in the mid RCA. **Mid-vessel lesion:** The diagnostic study demonstrated a diffuse, 20 mm (L), 100% occlusion in the previous stent. This lesion appears consistent with atherosclerotic disease. There is a filling defect consistent with thrombus. It is not a bifurcation lesion. There is TIMI grade 0 flow (no flow) across the lesion. The distal vessel supplies a moderate-sized vascular territory. The lesion is a likely culprit for the patient’s clinical presentation. The lesion presents an ACC/AHA type C “high risk” lesion for intervention. Angioplasty was performed, resulting in no improvement in angiographic appearance (see 1st lesion intervention). Following intervention, there is a residual 100% stenosis with TIMI grade 0 flow (no flow). There were no site complications.

TRH 326.

- 59. Noting that Ms. Doggett’s clinical presentation was “atypical chest pain and non-STEMI,” Dr. Murray concluded that “the lesion is a likely culprit for the patient’s clinical presentation.” TRH 325.

Summary:

- 1. INDICATION: CAD with prior stents at Phoebe Putney Hospital admitted with atypical chest pain and non-STEMI.
- 1. CORONARY ANATOMY: Patient has mild diffuse calcium of her left coronary system. Left main is normal. The RCA has been stented from the proximal to mid RCA. There is a 99% lesion of the second RV marginal branch at its ostium. The RCA is occluded within the stent at mid vessel. Is normal. There is 90% ostial D1 disease in a very small less than 1 mm vessel. There is a 40% mid LAD lesion. Diffuse irregularities of the circumflex and OM. Dominance: Right dominant. No collaterals seen from the left coronary system to the right PDA.

TRH 325.

2. **Right coronary: Mid-vessel lesion:** The diagnostic study demonstrated a diffuse, 20 mm (L), 100% occlusion in the previous stent. The distal vessel supplies a moderate-sized vascular territory. The lesion is a likely culprit for the patient’s clinical presentation. The lesion presents an ACC/AHA type C “high risk” lesion for intervention. Angioplasty was performed, resulting in no improvement in angiographic appearance (see 1st lesion intervention). Following intervention, there is a residual 100% stenosis with TIMI grade 0 flow (no flow).

Recommendations: NSTEMI presentation with recent return of chest pain. Unsuccessful PCI attempt. Will be assigned medical therapy.

TRH 325.

- 60. Dr. Murray thus recognized that the occlusion was the cause of Ms. Doggett’s condition—both her “NSTEMI” and her “chest pain.” TRH 325.

After angioplasty fails, Ms. Doggett's RCA remains blocked—with no collateral circulation

61. Dr. Murray tried to open the occlusion with angioplasty, but stopped after several inflations “to prevent coronary artery perforation.” TRH 325, TRH 326.
62. As a result, the angioplasty was an “unsuccessful attempt at opening occluded mid RCA.” TRH 325.
63. As Dr Murray explained: “Vessel remains occluded.” TRH 325.

*Unsuccessful attempt at opening occluded mid RCA. Able to get a Runthrough wire through the lesion with several balloon inflations using a 2.0 x 20 mm balloon. Vessel remains occluded. Decision made to stop to prevent coronary artery perforation.

TRH 325.

64. “Following the intervention,” there was still “a residual 100% stenosis with TIMI grade 0 flow (no flow).” TRH 325, TRH 326.
65. The catheterization thus resulted “in no improvement in angiographic appearance[.]” TRH 325, TRH 326.

2. Right coronary: Mid-vessel lesion: The diagnostic study demonstrated a diffuse, 20 mm (L), 100% occlusion in the previous stent. The distal vessel supplies a moderate-sized vascular territory. The lesion is a likely culprit for the patient's clinical presentation. The lesion presents an ACC/AHA type C "high risk" lesion for intervention. Angioplasty was performed, resulting in no improvement in angiographic appearance (see 1st lesion intervention). Following intervention, there is a residual 100% stenosis with TIMI grade 0 flow (no flow).

TRH 325.

Right coronary: Prior intervention: stent in the mid RCA. Mid-vessel lesion: The diagnostic study demonstrated a diffuse, 20 mm (L), 100% occlusion in the previous stent. This lesion appears consistent with atherosclerotic disease. There is a filling defect consistent with thrombus. It is not a bifurcation lesion. There is TIMI grade 0 flow (no flow) across the lesion. The distal vessel supplies a moderate-sized vascular territory. The lesion is a likely culprit for the patient's clinical presentation. The lesion presents an ACC/AHA type C "high risk" lesion for intervention. Angioplasty was performed, resulting in no improvement in angiographic appearance (see 1st lesion intervention). Following intervention, there is a residual 100% stenosis with TIMI grade 0 flow (no flow). There were no site complications.

TRH 326.

66. The angioplasty was thus an “unsuccessful PCI attempt” and a “failed attempt to open mid RCA.” TRH 325, TRH 207.

Recommendations: NSTEMI presentation with recent return of chest pain. Unsuccessful PCI attempt. Will be assigned medical therapy.

TRH 325.

History of Present Illness

Patient is a 63 year old WF with PMH of COPD/smoker, CAD s/p stents.

Patient presented with c/o chest pain that has been off and on over the last few months, but worsened over the past couple of days. TI elevated on admission with EKG showing T wave inversion. Cardiology consulted. Scheduled for LHC/echo this am. Seen post cath. nurse reports, failed attempt to open mid RCA, plans for observation, serial TI, and medications adjusted.

TRH 207.

67. In addition, Ms. Doggett's heart was "right dominant," TRH 325, meaning that her RCA gave rise to her posterior descending artery ("PDA").
68. Critically, Ms. Doggett's heart had "no collaterals" "from the left coronary system to the right PDA." TRH 325.

Summary:

1. INDICATION: CAD with prior stents at Phoebe Putney Hospital admitted with atypical chest pain and non-STEMI.

1. CORONARY ANATOMY: Patient has mild diffuse calcium of her left coronary system. Left main is normal. The RCA has been stented from the proximal to mid RCA. There is a 99% lesion of the second RV marginal branch at its ostium. The RCA is occluded within the stent at mid vessel. Is normal. There is 90% ostial D1 disease in a very small less than 1 mm vessel. There is a 40% mid LAD lesion. Diffuse irregularities of the circumflex and OM. Dominance: Right dominant. No collaterals seen from the left coronary system to the right PDA.

TRH 325.

69. Nevertheless, Dr. Murray assigned Ms. Doggett medical therapy. TRH 325.

Recommendations: NSTEMI presentation with recent return of chest pain. Unsuccessful PCI attempt. Will be assigned medical therapy.

The TTE shows Ms. Doggett's heart is otherwise healthy

70. By 11:44, Ms. Doggett had the TTE Dr. Murray had ordered the night before. TRH 328-29, TRH 250. Dr. Murray read and noted the results. TTH 328.
71. The TTE demonstrated that, other than "mild mitral-valve regurgitation," all the structures of Ms. Doggett's heart were normal, including the four chambers and four valves. TRH 328-29, TRH 37.

History and indications: Chest Pain.

Study data: Patient unit: TCARD. Patient room number: 2160. **Study status:** Routine. **Procedure:** Transthoracic echocardiography was performed. Image quality was adequate. Scanning was performed from the parasternal, apical, and subcostal acoustic windows. **Study completion:** The patient tolerated the procedure well.

Left ventricle: The cavity size is normal. Wall thickness is moderately increased. Systolic function is normal. The estimated ejection fraction is 55-60%. Wall motion is normal; there are no regional wall motion abnormalities. Doppler parameters are consistent with abnormal left ventricular relaxation (grade 1 diastolic dysfunction).

Aortic valve: The valve is structurally normal. The valve is trileaflet. Cusp separation is normal. Transvalvular velocity is within the normal range. There is no stenosis. There is no regurgitation.

Aorta: **Aortic root:** The aortic root is not dilated.

Mitral valve: The valve is structurally normal. Leaflet separation is normal. Transvalvular velocity is within the normal range. There is no evidence for stenosis. There is mild regurgitation.

Left atrium: The atrium is normal in size.

Right ventricle: The cavity size is normal. Systolic function is normal.

Right atrium: The atrium is normal in size.

Atrial septum: The septum is normal.

Tricuspid valve: The valve is structurally normal. Leaflet separation is normal. Transvalvular velocity is within the normal range. There is no evidence for stenosis. There is trivial regurgitation.

Pulmonic valve: The valve is structurally normal. Cusp separation is normal. Transvalvular velocity is within the normal range. There is no regurgitation.

Systemic veins:

Inferior vena cava: The vessel is normal in size.

Pericardium: There is no pericardial effusion. No evidence of pleural fluid accumulation.

TRH 328.

72. Notably, the function of Ms. Doggett's left ventricle was well preserved.

- a. Her left-ventricle's wall motion was "normal," with "no regional wall motion abnormalities." TRH 328.
- b. Her left-ventricle's cavity was "normal," and its systolic (squeezing) function was also "normal." TRH 328.
- c. Her ejection fraction was "55-60%." TRH 328, TRH 37.

Reading physician: Paul Murray, MD
Sonographer: Lauren Goode
Ordering physician: Paul Murray, MD

Summary:

1. **Left ventricle:** The cavity size is normal. Wall thickness is moderately increased. Systolic function is normal. The estimated ejection fraction is 55-60%. Wall motion is normal; there are no regional wall motion abnormalities. Doppler parameters are consistent with abnormal left ventricular relaxation (grade 1 diastolic dysfunction).
2. **Mitral valve:** There is mild regurgitation.

TRH 328.

73. In sum, Ms. Doggett's heart had "an EF of 55 to 60%, no wall motion abnormality and mild mitral regurgitation." TRH 37.

She also had an echocardiogram February 20, 2020 that showed an EF of 55 to 60%, no wall motion abnormality and mild mitral regurgitation.

TRH 37.

Despite blocked RCA, Ms. Doggett is placed on observation care

74. At 13:53 and 14:44, respectively, Physician's Assistant Kristin Davis Campbell and Hospitalist Vince Faridani documented cardiology's treatment plan for Ms. Doggett post-catheterization. TRH 207-11.

Plan

1. per cardiology observation overnight, serial TI, medications adjusted, am labs, echo updated
2. noted on CT chest - recommends thyroid US - Partially calcified mild to moderate thyroid goiter

Attestation Statement

I have reviewed the mid-level documentation, agree with the documentation, medical decision making and treatment plan as outlined by the mid-level provider.

By my electronic signature I authenticate all mid-level provider orders and attest that all pages have been reviewed and completed.

TRH 211.

75. Ms. Doggett's chest pain was from the NSTEMI. TRH 210, TRH 211.
76. Although the angioplasty "failed" to "open mid RCA," the plan consisted of low-severity "observation care" and serial Troponin tests. TRH 210, TRH 207.

Assessment/Plan

1. Chest pain

- poa; NSTEMI
- elevated TI; abnormal EKG; cardiology consulted; LHC/echo this am - failed attempt to open mid RCA, plans for observation, serial TI, medications adjusted per cardiology (ASA, plavix, statin, BB)

Ordered:

HM Sbsq Observation Care/ Day Low Severity 99224

TRH 210.

6. Non-STEMI (non-ST elevated myocardial infarction)

- poa; see #1

Ordered:

HM Sbsq Observation Care/ Day Low Severity 99224

TRH 210.

77. Dr. Murray was "following and managing" this treatment plan. TRH 211.

Addendum by Faridani, MD, Vince on February 21, 2020 2:42:23 PM EST

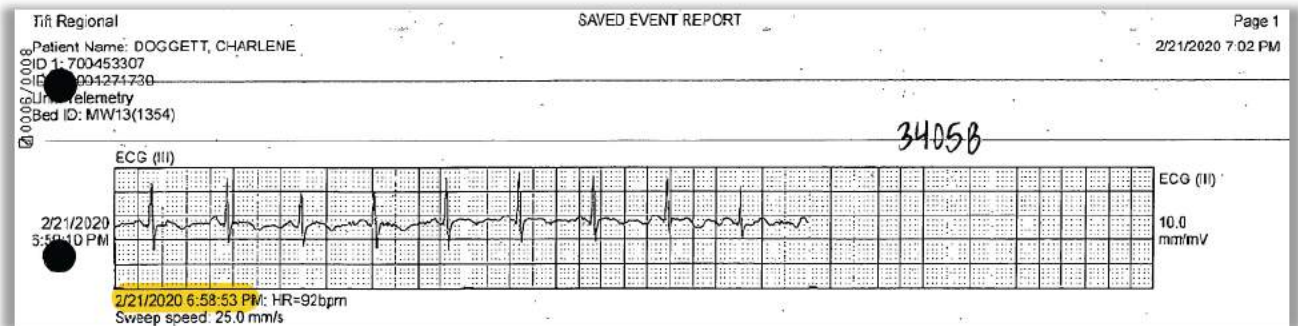
Chest Pain/NSTEMI/CAD:

- known hx of stents
- underwent LHC, stent attempted, however, unable to obtain
- cardiology following and managing; Dr. Murray
- continue plavix

TRH 211.

78. At 18:58, telemetry demonstrated sinus rhythm with an inverted T-wave.

TRH 222.



TRH 222.

Date: 2/21/20	Time: 19:30	Tech: W. Brown
Date: 2/21/20	Time: 1941	Interpreting Nurse: Nayla Samadpour, RN
Interpretation: SR-c inverted T-wave		

TRH 222.

Despite blocked RCA, Cardiologist Tronolone clears Ms. Doggett for discharge pending drop in Troponin

Saturday, February 22

79. At 05:47, Ms. Doggett's Troponin-I peaked at 43.27. TRH 335.

Cardiac Markers

Collected Date	2/23/2020	2/22/2020	2/22/2020		
Collected Time	07:06 EST	18:34 EST	05:47 EST	Units	Reference Range
Procedure					
Troponin-I	20.90 ^{C12**}	27.81 ^{C13**}	43.27 ^{C14**}	ng/mL	[0.01-0.03]

TRH 335.

80. At 07:14, LPN Holly Taylor reported the Troponin-I level as a “critical value” to Dr. Harris at bedside. TRH 412.

Provider Notification

Recorded Date	2/23/2020	2/22/2020
Recorded Time	08:15 EST	07:14 EST
Recorded By	Taylor,LPN,Holly	Taylor,LPN,Holly
Procedure		
Provider Notification Reason	Critical value reporting	Critical value reporting
Provider Notification Details	Troponin 20.90	Troponin 43.27
Provider Contacted	Yes	Yes
Provider at Bedside	Harris, MD, Erinn	Harris, MD, Erinn

TRH 412.

81. At 11:19, Cardiologist Jonathan Tronolone saw Ms. Doggett. TRH 203-05.
82. Ms. Doggett’s present illness was “Chest pain-NSTEMI.” TRH 203.
83. Ms. Doggett’s RCA remained “occluded at the distal stent edge.” TRH 204.
84. Nevertheless, Dr. Tronolone approved Ms. Doggett’s discharge pending a drop in her Troponin levels. TRH 204.
- a. Although Troponin had just risen to its highest level, Dr. Tronolone concluded that the “elevation” was “from washout.” TRH 203-04.
 - b. Ms. Doggett’s NSTEMI was “stable” and she was not having “any further” chest pain. TRH 203-204.
 - c. “Given no pain,” Dr. Tronolone cleared Ms. Doggett for discharge “later today,” if her “trop is trending down.” TRH 204.

History of Present Illness

1. Chest pain- NSTEMI. Not having any further CP this AM. Significant elevation in her troponin from washout.
2. Tobacco abuse- current use.
3. COPD- stable.
4. HTN- stable.

TRH 203.

Assessment/Plan

1. NSTEMI stable and not having any further CP; RCA remains occluded at the distal stent edge. On meds.(ASA/statin/plavix/BB). Given no pain and if her trop is trending down, she can be discharged home later today.
2. Tobacco abuse- current use. Needs to quit.
3. COPD- stable.

TRH 204.

85. At 12:13, Hospitalist Erinn Harris examined Ms. Doggett. TRH 205-07.
86. Ms. Doggett's chest pain was "resolved" after "[left-heart catheterization] with NSTEMI." TRH 207.
87. Although the Troponin had risen (and not fallen) to this point, Dr. Harris resolved to "continue to monitor [] downtrend of troponin today." TRH 207.
88. At 12:13, Dr. Harris ordered Ms. Doggett's discharge "today or tomorrow as troponin trend[s] down." TRH 207.
89. Dr. Harris anticipated discharging Ms. Doggett even though Ms. Doggett's RCA "was occluded from prox[imal] to mid RCA." TRH 207.
90. Dr. Harris planned Ms. Doggett's discharge based on two erroneous beliefs: (a) that a "stent was placed" in an occlusion from the proximal to mid RCA, and (b) that the untreated occlusion was a "distal occlusion of RCA," which was "most like[ly]" the "cause of elevated Tropon[in]." TRH 207.

Assessment/Plan

1. Chest pain

Resolved; s/p LHC with NSTEMI. RCA was occluded from prox to mid RCA and stent was placed. Distal occlusion of RCA not treated. Most like cause of elevated Tropon, continue plavix and metoprolol on discharge

2. Coronary artery disease

Tobacco use and hyperlipidemia; residual stenosis in Ostial D1 - 90% and mid LAD of 40%

3. Acute bronchitis

Tessalon perles prn

4. Hypertensive urgency

Stable on metoprolol

5. Tobacco use

6. Non-STEMI (non-ST elevated myocardial infarction)

s/p cath with stent. Elevated troponin this AM. Will continue to monitor of downtrend of troponin today.

Disposition: discharge today or tomorrow as troponin trend down

TRH 207.

- 91. By 18:34, Ms. Doggett’s Troponin-I level had dropped to 27.81—still a critical value far exceeding the normal range. TRH 335.

Cardiac Markers

	Collected Date	2/23/2020	2/22/2020	2/22/2020		
	Collected Time	07:06 EST	18:34 EST	05:47 EST		
	Procedure				Units	Reference Range
Troponin-I		20.90 ^{C 12 11}	27.81 ^{C 13 11}	43.27 ^{C 14 11}	ng/mL	[0.01-0.03]

TRH 335.

- 92. There is no record that this Troponin-I level was reported as a critical value.

Despite blocked RCA, Dr. Harris discharges Ms. Doggett, with elevated Troponin

Sunday, February 23

- 93. At 07:06, Ms. Doggett’s Troponin-I level was 20.90. TRH 335.
- 94. At 08:15, LPN Holly Taylor reported the Troponin-I level as a “critical value” to Dr. Harris at bedside. TRH 412.

Recorded Date	2/23/2020	2/22/2020
Recorded Time	08:15 EST	07:14 EST
Recorded By	Taylor,LPN,Holly	Taylor,LPN,Holly
Procedure		
Provider Notification Reason	Critical value reporting	Critical value reporting
Provider Notification Details	Troponin 20.90	Troponin 43.27
Provider Contacted	Yes	Yes
Provider at Bedside	Harris, MD, Erinn	Harris, MD, Erinn

TRH 412.

95. At 12:40, Ms. Doggett had “improved” and was “pain free,” with “troponin trending down.” TRH 172.
96. At that time, Dr. Harris entered Ms. Doggett’s discharge summary. TRH 172.
97. Dr. Harris discharged Ms. Doggett even though:
- a. her RCA remained “occluded from prox to mid RCA,” and
 - b. the “distal occlusion of RCA was not treated.”

TRH 172.

98. Dr. Harris based her discharge order on the same two erroneous beliefs: (a) that a “stent was placed” in an occlusion from the proximal to mid RCA, and (b) that the untreated occlusion was a “Distal occlusion of RCA.” TRH 207.

Discharge Diagnoses

1. Chest pain

Improved. Currently chest pain free and troponin trending down. S/p LHC with NSTEMI. RCA was occluded from prox to mid RCA and stent was placed. Distal occlusion of RCA was not treated. Continue Plavix, metoprolol and ASA on discharge.

TRH 172.

6. Non-STEMI (non-ST elevated myocardial infarction)

S/p cath with stent. Bump of troponin into 40s post cath. Improved troponin to 20s on discharge. Follow up with Cardiology on discharge.

TRH 172.

Ms. Doggett leaves Tift unaware of her blocked RCA

99. At 14:12, Ms. Doggett was discharged from Tift. TRH 167.

100. At the time of her discharge, hospital staff informed Ms. Doggett for the first time that she had had a heart attack. Doggett Affidavit (“Doggett Aff.”).
101. Neither Dr. Murray, nor Dr. Harris, nor anyone else informed Ms. Doggett or her family about the complete occlusion in her mid-RCA. Doggett Aff.
102. Ms. Doggett thus went home unaware of the blocked artery. Doggett Aff.
103. That night, because she was not “feeling right” and was “afraid to be alone,” Ms. Doggett slept at her son’s home, instead of her own house. Doggett Aff.

Second Tift Hospitalization – February 24, 2020

Ms. Doggett returns to Tift ED at daybreak

Monday, February 24

104. At about 02:00, Ms. Doggett’s chest pain returned. She described the pain as a 10 and “like an elephant sitting on my chest.” TRH 37.

She returns to the ER today with complains of acute onset precordial chest pain at 2:00 am - was pain free at discharge and continued to be until 2:00 am, "like an elephant sitting on my chest," 10/10, no radiation, earlier diaphoresis, none now, + dyspnea and no nausea or vomiting. Troponin is elevated at 7.40, however, the day prior was 20.90, EKG shows sinus rhythm, rate 71bpm millimeter when compared to an EKG from February 20, 2020, she has ST elevation in lead III and aVF with Q waves, ST depression in I, aVL, V5 and V1 now has less than 1 mm of ST elevation in V1 where previously V1 had an inverted T wave. On arrival to the ER she had normal blood pressure 119/88, was treated with nitroglycerin, blood pressure dropped, she is received IV fluids and morphine and blood pressures improved to 103/70. ER has consulted Dr. Murray who recommends medical management. I've talked with him and he's coming to see the patient.

TRH 37.

Pain Assessment Adult
 Pain Location : Chest
 Numeric Pain Scale : 10 = Worst possible pain
 Numeric Pain Score : 10

Tapp, RN, Kimberly - 2/24/2020 8:31 AM EST

TRH 15.

105. At daybreak, Ms. Doggett woke up Jason Doggett (her son) and Carrie Doggett (his wife). Doggett Aff.

106. Carrie immediately drove Ms. Doggett to the Tift ED. Doggett Aff. During the drive, Ms. Doggett repeatedly gripped her chest, rocked back and forth with distress, and begged Carrie to hurry. Doggett Aff.
107. From this point forward, Ms. Doggett's chest pain was constant, relentless, and obvious. She continually hunched over, gripping her chest and rocking. Each time a medical provider asked about her pain, she said that medications were "not helping." Doggett Aff.
108. Upon arriving at Tift, hospital staff transported Ms. Doggett to the ER on a wheelchair, while Carrie went to park the car. Doggett Aff.

*ED immediately recognizes acute inferior STEMI,
confirmed by EKG*

109. When Carrie walked into the ER, a nurse immediately told her that an EKG showed Ms. Doggett was having "an acute heart attack." The nurse praised Carrie for doing a "great job getting her here in time." Doggett Aff.
110. At 08:30, Ms. Doggett checked into the Tift ED. TRH 30.

Check In Time: 02/24/20 08:30:10 Check Out Time: 02/24/20 15:25:51

TRH 25.

111. Upon Ms. Doggett's arrival, the ED mobilized to diagnose and treat an acute STEMI.
112. At 08:30, Dr. Justin Harrell, a family-medicine specialist, ordered stat cardiac biomarkers. TRH 27, TRH 82-85.

Laboratory Orders:

Automated Diff Blood, Stat, Collected, 02/24/20 8:35:00 EST, Once, *, 281781953.000000
BNP Blood, Stat, 02/24/20 8:30:00 EST, Once, *
CBC w/ Differential Blood, Stat, 02/24/20 8:30:00 EST, Once, *
CK Blood, Stat, 02/24/20 8:30:00 EST, Once, *
CKMB Blood, Stat, 02/24/20 8:30:00 EST, Once, *
Coag Panel Blood, Stat, 02/24/20 8:30:00 EST, Once, *
Comprehensive Metabolic Panel Blood, Stat, 02/24/20 8:30:00 EST, Once, *
Estimated Glomerular Filtration Rate Blood, Stat, Collected, 02/24/20 8:35:00 EST, Once, *, 281781955.000000
Magnesium Level Blood, Add On, 02/24/20 9:30:00 EST, Once
PTT Blood, Routine, 02/24/20 16:55:00 EST, every 6 hr, for 1, days, *
Troponin-I Blood, Stat, 02/24/20 8:30:00 EST, Once, *
Troponin-I Blood, Routine, 02/24/20 15:00:00 EST, every 6 hr, for 24, hr, *

TRH 27.

113. At 08:31, Nurse Kimberly Tapp triaged Ms. Doggett. Nurse Tapp assigned Ms. Doggett's condition an acuity level of "2 - Emergent." TRH 13, TRH 161.

DCP GENERIC CODE

Tracking Acuity : 2 - Emergent
Tracking Group : Tift ED Tracking Group

Tapp, RN, Kimberly - 2/24/2020 8:31 AM EST

TRH 13.

114. At 08:31, Dr. Harrell ordered a stat EKG and a stat x-ray, for chest pain. TRH 73, TRH 108.

Order: CV Electrocardiogram 12 Lead

Order Date/Time: 2/24/2020 08:31 EST

Order Status: Completed Department Status: Signed Activity Type: Cardiovascular

End-state Date/Time: 2/25/2020 06:38 EST End-state Reason:

Ordering Physician: Harrell,MD,Justin Consulting Physician:

Entered By: Tapp,RN,Kimberly on 2/24/2020 08:31 EST

Order Details: 2/24/20 8:30:00 AM EST, Stat, Chest Pain, Wheelchair, 2/25/20 6:38:12 AM EST, Cardiovascular Type

TRH 73.

Order: XR CHEST PORTABLE		
Order Date/Time: 2/24/2020 08:31 EST		
Order Status: Completed	Department Status: Completed	Activity Type: Radiology
End-state Date/Time: 2/24/2020 11:15 EST	End-state Reason:	
Ordering Physician: Harrell,MD,Justin	Consulting Physician:	
Entered By: Tapp,RN,Kimberly on 2/24/2020 08:31 EST		
Order Details: 2/24/20 8:30:00 AM EST, Stat, Reason: Chest Pain, Transport Mode: Wheelchair		

TRH 108.

115. Nurse Tapp immediately notified Dr. Harrell of the EKG results. TRH 142.

Echocardiogram nformation				
Recorded Date	2/24/2020	2/24/2020		
Recorded Time	11:10 EST	08:30 EST		
Recorded By	Dasher,RN,Julia Delaney	Tapp,RN,Kimberly		
Procedure			Units	Reference Range
EKG Notified	Murray, MD, Paul	Harrell, MD, Justin		
EKG Performed By	Emergency Department/Lab staff	Emergency Department/Lab staff		

TRH 142.

116. At 8:31, an EKG showed that Ms. Doggett was having an “ACUTE MI”—acute myocardial infarction. TRH 114.

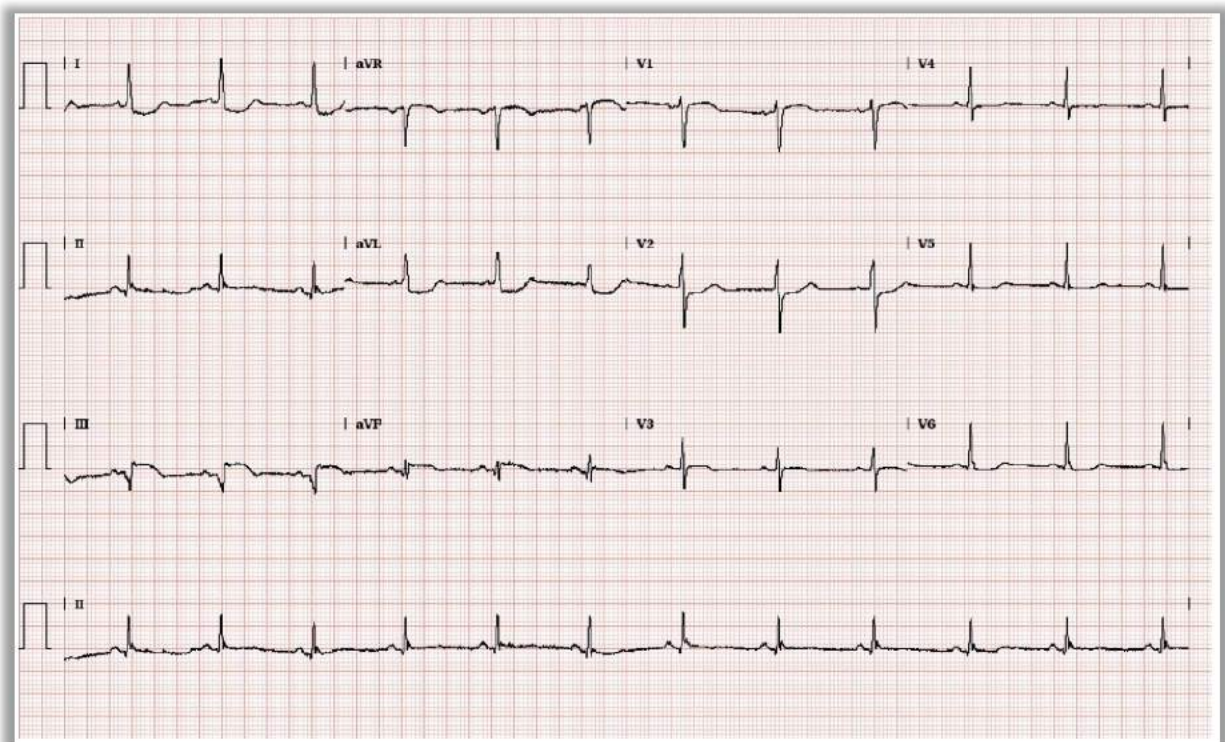
Feb 24, 2020 8:31:14 AM SINUS RHYTHM
 ST ELEVATION, CONSIDER INFERIOR INJURY [MARKED ST ELEVATION W/O NORMALLY
 INFLECTED T-WAVE IN II/aVF]
 LATERAL WALL ST DEPRESSION
 ACUTE MI
 Confirmed By: Murray, MD, Paul 2/25/2020 6:38:11 AM

TRH 114.

117. The EKG detected a marked ST-segment elevation without a normally inflected T-wave in leads II and aVF. TRH 114.

118. The EKG also detected a lateral wall ST-segment depression.³ TRH 114.

³ As explained below, Dr. Murray confirmed this and two other EKGs the next morning, after Ms. Doggett had died. TRH 114.



TRH 114.

ED activates catheterization team

- 119. At 08:33, EMT Samuel Haag reported to Dr. Harrell that the EKG was “critical” and indicated an “inferior STEMI.” TRH 34.
- 120. Dr. Harrell confirmed the STEMI and activated the catheterization team. TRH 34.

Document Type:	ED Note Nursing
Service Date/Time:	2/24/2020 08:33 EST
Result Status:	Auth (Verified)
Document Subject:	
Sign Information:	Haag,EMT,Samuel (2/24/2020 09:09 EST)
reported critical ekg, inferior stemi, to justin harrell, md. confirmed stemi, advised to activate cath team	
Electronically Signed on 02/24/20 09:09 AM	

TRH 34.

- 121. At 08:34, the catheterization team was “activated,” and started to prepare Ms. Doggett for the procedure. TRH 33.

Document Type:	ED Note Nursing
Service Date/Time:	2/24/2020 08:34 EST
Result Status:	Auth (Verified)
Document Subject:	cath lab
Sign Information:	Tapp,RN,Kimberly (2/24/2020 08:45 EST)

Cath team activated. patient prep with radiographic zoll pads, groin shaved.

Electronically Signed on 02/24/20 08:45 AM

TRH 33.

122. At 08:40, Ms. Doggett’s pain remained a 10. TRH 135.

	Recorded Date Recorded Time Recorded By	2/24/2020 15:00 EST Carver,RN,Holly	2/24/2020 08:40 EST Tapp,RN,Kimberly
Procedure			
Pain Present		No actual or suspected pain	Yes actual or suspected pain
Pain,Unable to Self Report		-	No
Numeric Pain Score (0-10)		-	10
Numeric Pain Score with Activity		-	10
Pt Under 7 or Unable to Communicate		-	No

TRH 135.

123. By 08:43, Dr. Harrell reviewed the EKG. It showed “sinus rhythm at 71 bpm with ST elevation in anterior leads,” indicating “an inferior MI.” TRH 17.

Medical Decision Making:

8:43 AM EKG shows sinus rhythm at 71 bpm with ST elevation in anterior leads. EKG indicates an inferior MI. EKG reviewed by my attending physician, Dr. Harrell. The case was discussed with Dr. Murray who is familiar with this patient. He does not think this is a STEMI and has canceled the cath team at this time. He wants her to be worked up and then call him after her labs are back. her BP is currently 100/60 therefore NTG was not given at this time. Morphine, Zofran, O2 and aspirin ordered.

TRH 17.

*Dr. Murray overrules STEMI diagnosis, and cancels
catherization pending lab results*

124. At about 08:43, without examining Ms. Doggett, Dr. Murray disagreed with the diagnosis of an acute inferior STEMI. TRH 17.

125. As a result, Dr. Murray “canceled the cath team at this time,” pending the results of Ms. Doggett’s laboratory tests. TRH 17.

Medical Decision Making:

8:43 AM EKG shows sinus rhythm at 71 bpm with ST elevation in anterior leads. EKG indicates an inferior MI. EKG reviewed by my attending physician, Dr. Harrell. The case was discussed with Dr. Murray who is familiar with this patient. He does not think this is a STEMI and has canceled the cath team at this time. He wants her to be worked up and then call him after her labs are back. her BP is currently 100/60 therefore NTG was not given at this time. Morphine, Zofran, O2 and aspirin ordered.

TRH 17.

126. Shortly after that, Hospitalist Cynthia Phillips arrived and directed the team to stop preparing Ms. Doggett for the catheterization. Doggett Aff.
127. Dr. Phillips looked puzzled and unsettled. Doggett Aff. She explained that she had just spoken to Dr. Murray by telephone and that he did not want to perform another catheterization because the last one was unsuccessful. Doggett Aff.
128. Dr. Phillips also informed Ms. Doggett and Carrie that the catheterization revealed a complete blockage in Ms. Doggett’s RCA that Dr. Murray “was unable to fix.” Doggett Aff.
129. That was the first time Ms. Doggett or her family learned of the occlusion. Doggett Aff.

Upon Dr. Murray’s recommendation, Dr. Harrell and Dr. Phillips order management in SDU

130. At 08:35, Ms. Doggett’s cardiac biomarkers all remained far above the reference range:

Troponin-I: 7.40

CK: 193

CK-MB: 18.1.

B-Type Natriuretic Peptide (BNP): 391

TRH 118.

Cardiac Markers

	Collected Date Collected Time	2/24/2020 15:03 EST	2/24/2020 14:14 EST	2/24/2020 08:35 EST		
Procedure					Units	Reference Range
Troponin-I		6.06 ^{C12} †	5.93 ^{C13} †	7.40 ^{C14} †	ng/mL	[0.01-0.03]
CK		-	-	193 ^{H11}	IntUnit/mL	[30-135]
CKMB		-	-	18.1 ^{H11}	ng/mL	[0.5-5.0]
B-Type Natriuretic Peptide		-	-	391 ^{H11}	pg/mL	[0-100]

TRH 118.

131. At 09:12, Nurse Julia Delaney Dasher reported the Troponin-I level as a “critical value” to Family Nurse Practitioner Dawn Glisson. TRH 162.

	Recorded Date Recorded Time Recorded By	2/24/2020 10:39 EST Dasher,RN,Julia Delaney	2/24/2020 09:12 EST Dasher,RN,Julia Delaney
Procedure			
Provider Notification Reason		-	Critical value reporting
Provider Notification Details		-	Trop 7.09
Provider Contacted		-	Yes
Provider at Bedside		Phillips, DO, Cynthia	Glisson, FNP-C, Dawn
Provider Response Time		-	2/24/2020 09:12 EST
Physician Requested Interventions		-	Results Read Back and Verified

TRH 162.

132. Between 08:43 and 09:18, FNP-C Glisson reviewed Ms. Doggett’s biomarkers, as well as her chest x-ray, which revealed “no acute findings.” TRH 17.
133. By 09:18, FNP-C Glisson discussed “these results with Dr. Murray.” TRH 17.
134. Although he had cancelled the catheterization pending the lab results, and although Ms. Doggett’s biomarkers remained “elevated” and were “critical values,” Dr. Murray recommended “medical management.” TRH 17.
135. In addition, although Ms. Doggett’s chest x-ray revealed “no acute chest findings,” Dr. Murray now cited Ms. Doggett’s “pleuritic type chest pain” of “last week” as the basis for his recommendation. TRH 119, TRH 17.
136. At 09:18, while recognizing that the chest CT scan of February 20 had ruled out pulmonary embolism, FNC-C Glisson and Dr. Harrell followed Dr.

Murray's recommendation and "presented" Ms. Doggett "to hospital medicine for admission, further evaluation, and management." TRH 17.

9:18 AM The patient's labs were reviewed and the CBC shows a leukocytosis of 14.2. Coagulation studies are normal. The CMP is benign. Cardiac enzymes are elevated with a troponin of 7.4, CK of 193, CK-MB of 18.1, as well as a BNP of 391. CXR was viewed by me with no acute findings noted. I discussed these results with Dr. Murray who recommends medical management. He states that she had pleuritic type chest pain last week. She had a CT a of the chest to rule out pulmonary embolism on February 20 which was negative for PE. She will be presented to hospital medicine for admission, further evaluation, and management.

TRH 17.

137. By 09:21, Ms. Doggett's chest x-ray demonstrated "no interval change," "no acute chest findings," and "continued normal heart size with clear lungs and pleural spaces." TRH 119.

FINDINGS

Continued normal heart size with clear lungs and pleural spaces.

IMPRESSION

No interval change; no acute chest findings.

TRH 119.

138. At 09:24, FNP-C Glisson entered a request to admit Ms. Doggett for medical observation. TRH 70.

Order: Request for Admit		
Order Date/Time: 2/24/2020 09:24 EST		
Order Status: Discontinued	Department Status: Discontinued	Activity Type: Admit/Transfer/Discharge
End-state Date/Time: 2/28/2020 01:01 EST	End-state Reason:	
Ordering Physician: Glisson, FNP-C, Dawn	Consulting Physician:	
Entered By: Glisson, FNP-C, Dawn on 2/24/2020 09:24 EST		
Order Details: 2/24/20 9:24:00 AM EST, Medical, Observation, Medical Unit		

TRH 70.

139. At 09:26, Dr. Phillips ordered Ms. Doggett's admission to the step-down unit (SDU). TRH 70.

Order: PSO Admit to Inpatient		
Order Date/Time: 2/24/2020 09:26 EST		
Order Status: Discontinued	Department Status: Discontinued	Activity Type: Admit/Transfer/Discharge
End-state Date/Time: 2/28/2020 01:01 EST	End-state Reason:	
Ordering Physician: Phillips,DO,Cynthia	Consulting Physician:	
Entered By: Phillips,DO,Cynthia on 2/24/2020 09:26 EST		
Order Details: Medical 02/24/20 9:26:00 EST, Private, Step-Down, Phillips, DO, Cynthia, 2/24/20 9:26:00 AM EST, CM PSO IP		

TRH 70.

ED waits for Dr. Murray to see patient; Dr. Phillips keeps catheterization order active

140. At 09:27 and 09:31, Nurse Dasher attempted unspecified telephone consults.
TRH 35-36.

Phone Call for Consults
Phone Call Attempt One : 2/24/2020 09:27 EST

Electronically Signed on 02/24/20 09:27 AM

Dasher, RN, Julia Delaney

TRH 36.

Phone Call for Consults
Phone Call Attempt One : 2/24/2020 09:31 EST

Electronically Signed on 02/24/20 09:31 AM

Dasher, RN, Julia Delaney

TRH 35.

141. At 09:30, Dr. Phillips requested a consult with Dr. Murray about “NSTEMI.”
TRH 74.

Consults

Order: **Consult to Physician**

Order Date/Time: 2/24/2020 09:30 EST

Order Status: Discontinued

Department Status: Discontinued

Activity Type: Provider Consults

End-state Date/Time: 2/28/2020 01:01 EST

End-state Reason:

Ordering Physician: Phillips,DO,Cynthia

Consulting Physician: Murray,MD,Paul

Entered By: Phillips,DO,Cynthia on 2/24/2020 09:30 EST

Order Details: Routine, Consult Reason: nstemi, Murray, MD, Paul

TRH 74.

142. At 09:33, FNP-C Glisson also recognized that the EKG showed “sinus rhythm at 71 bpm with ST elevation in anterior leads,” indicating “an inferior MI.”

TRH 18. At 18:39, Dr. Harrell confirmed that reading. TRH 19.

Diagnostic Results

No qualifying data available.

EKG

EKG shows sinus rhythm at 71 bpm with ST elevation in anterior leads. EKG indicates an inferior MI. EKG reviewed by my attending physician, Dr. Harrell. Dr. Murray, cardiologist, was consulted.

TRH 18.

Electronically Signed on 02/24/20 09:33 AM

Glisson, FNP-C, Dawn

Electronically Signed on 02/24/20 06:39 PM

Harrell, MD, Justin

TRH 19.

143. At 09:33, Ms. Doggett’s pain was “a pressure” and “constant.” TRH 16.

Chief Complaint

patient c/o chest pain that began last night. denies nausea and vomiting. denies radiation or movemetrn of pain. describes pain as a pressure.

History of Present Illness

This is a 63-year-old female patient presenting to the emergency department with complaints of substernal chest pressure which began last night. She denies shortness of breath, nausea, vomiting, or diaphoresis. She states the pain is constant. She was just recently discharged from the hospital and underwent a cardiac catheterization on February 21 per Dr. Murray with "unsuccessful attempt at opening occluded mid RCA. Able to get a run-through wire through the lesion with several balloon inflations using a 2.0 x 20 mm balloon. Vessel remains occluded. Decision made to stop to prevent coronary artery perforation." Recommendations were end STEMI presentation with recent return of chest pain. Unsuccessful PCI attempt. Was assigned medical therapy at that time. She also had a CT of the chest to assess for PE on 2/20/20

TRH 16.

144. At 09:35, Dr. Phillips updated Dr. Harrell’s catheterization order, which therefore remained “active.” TRH 57.

Procedure: Cardiac catheterization		
Last Updated: 2/24/2020 11:08 EST; Phillips,DO,Cynthia	Status: Active	Procedure Date:
Code: 70051019 (SNOMED CT)	Location:	Ranking:
Provider:	Last Reviewed: 2/24/2020 11:08 EST; Phillips,DO,Cynthia	Related Diagnosis:

TRH 57.

145. At 10:23, on an order from Dr. Phillips, Ms. Doggett underwent another stat EKG, expressly for “Chest Pain” and “STEMI (ST elevation myocardial infarction).” TRH 72, TRH 24-26.

Order: CV Electrocardiogram 12 Lead		
Order Date/Time: 2/24/2020 10:23 EST		
Order Status: Completed	Department Status: Signed	Activity Type: Cardiovascular
End-state Date/Time: 2/25/2020 06:38 EST	End-state Reason:	
Ordering Physician: Phillips,DO,Cynthia	Consulting Physician:	
Entered By: Phillips,DO,Cynthia on 2/24/2020 10:23 EST		
Order Details: 2/24/20 10:23:00 AM EST, Stat, Chest Pain, STEMI (ST elevation myocardial infarction), Wheelchair, 2/25/20 6:38:59 AM EST, Cardiovascular Type		

TRH 72.

146. At 11:08, Dr. Phillips again updated Dr. Harrell’s catheterization order, which therefore remained “active.” TRH 57.

Procedure: Cardiac catheterization		
Last Updated: 2/24/2020 11:08 EST; Phillips,DO,Cynthia	Status: Active	Procedure Date:
Code: 70051019 (SNOMED CT)	Location:	Ranking:
Provider:	Last Reviewed: 2/24/2020 11:08 EST; Phillips,DO,Cynthia	Related Diagnosis:

TRH 57.

Dr. Phillips diagnosis STEMI, yet orders hospital care in SDU

147. At 11:08, the latest EKG confirmed that Ms. Doggett’s heart was suffering an ongoing, evolving inferior STEMI. TRH 113.
148. The EKG revealed a “nonspecific ST & T-wave abnormality,” “evolving changes of inferior myocardial infarction,” and “lateral wall ST depression.” TRH 113.

**Feb 24, 2020 11:08:37 AM SINUS RHYTHM
 NONSPECIFIC ST & T-WAVE ABNORMALITY
 EVOLVING CHANGES OF INFERIOR MYOCARDIAL INFARCTION
 LATERAL WALL ST DEPRESSION
 BORDERLINE ECG
 Confirmed By: Murray, MD, Paul 2/25/2020 6:38:59 AM**

TRH 113.

149. At 11:10, Nurse Dasher notified Dr. Murray of the latest EKG. TRH 142.

Recorded Date	2/24/2020	2/24/2020
Recorded Time	11:10 EST	08:30 EST
Recorded By	Dasher,RN,Julia Delaney	Tapp,RN,Kimberly
Procedure		
EKG Notified	Murray, MD, Paul	Harrell, MD, Justin
EKG Performed By	Emergency Department/Lab staff	Emergency Department/Lab staff

TRH 142.

150. At 11:10, Dr. Phillips also diagnosed Ms. Doggett with “STEMI (ST elevation myocardial infarction) – based on EKG.” TRH 36, TRH 38.

151. Nevertheless, Dr. Phillips planned to “admit [Ms. Doggett] to SDU,” not the ICU, noting that Dr. Murray was “coming to see patient.” TRH 38.

Assessment/Plan
1. STEMI (ST elevation myocardial infarction)
--based on EKG - troponin already elevated from previous NSTEMI
--admit to SDU
-- IVF continued
--holding BB as this is inferior
--continue ASA, Plavix, Clopidogrel
--Dr. Murray coming to see patient - no NTG as it will likely drop pressure as well

TRH 38.

152. At 11:12, Dr. Phillips ordered initial hospital care incident to “STEMI (ST elevation myocardial infarction).” TRH 75.

Order: HM Initial Hospital Care/Day 70 Minutes 99223		
Order Date/Time: 2/24/2020 11:12 EST		
Order Status: Completed	Department Status: Completed	Activity Type: Evaluation and Management
End-state Date/Time: 2/24/2020 11:12 EST	End-state Reason:	
Ordering Physician: Phillips,DO,Cynthia	Consulting Physician:	
Entered By: Phillips,DO,Cynthia on 2/24/2020 11:12 EST		
Order Details: 2/24/20 11:12:00 AM EST, Incident To, Tobacco use Coronary artery disease STEMI (ST elevation myocardial infarction)		

TRH 75.

Despite recognizing EKG and biomarkers are “consistent with STEMI,” Dr. Murray insists she is not having one

153. At about 12:38, Dr. Murray “reviewed the EKG” and finally “examined the patient,” in consultation with Nurse Practitioner Radha Patel. TRH 44-47.

154. During the consult, Dr. Murray acknowledged that the EKG had “inferior leads ST elevation” and that the “findings on cardiac enzymes and EKG were consistent with STEMI.” TRH 45.

155. Nevertheless, Dr. Murray insisted that Ms. Doggett was “not having acute heart attack.” TRH 45.

156. The basis for his conclusion now shifted from the “pleuritic type pain” of “last week” to “the recent cath.” TRH 45.
157. Accordingly, Dr. Murray informed NPC Patel that there was “no plan for repeating any ischemic evaluation at this time.” TRH 45.
158. Based on the consult with Dr. Murray, NPC Patel decided to “continue to monitor patient,” “trend cardiac enzymes,” and “repeat EKG x4 every 6 hours.” TRH 45.

Assessment/Plan

1. STEMI (ST elevation myocardial infarction)

Patient is not having acute heart attack. Findings on cardiac enzymes and EKG consistent with STEMI however, LHC was done on 02/21/2020. Patient denies any radiating pain. patient does complain of chest pain that began last night. EKG with inferior leads ST elevation. Dr. Murray has reviewed EKG he thinks that it can be due to recent heart cath. Cardiac enzymes initial troponin with 7.40. Will trend cardiac enzymes. There is no plan for repeating any ischemic evaluation at this time per Dr. Murray. We will continue to monitor patient will trend cardiac enzymes. Will repeat EKG x4 every 6 hours. Will add Ranexa 500 mg twice daily.

3. Tobacco use

Plan: Dr. Murray has seen and examined the patient. Plan of care has been discussed with patient and family. Will update hospitalist on board as well. There is no plan for any ischemic evaluation at this time. We will add Ranexa 500 mg twice daily for microvascular changes. We will continue to monitor cardiac enzymes and EKGs. Every 6 hrs x 4 . Continue to follow. Thank you for this consultation.

TRH 45.

Dr. Murray tells family pain is carryover, blood-flow will bypass occlusion, and she just has to “push through” pain

159. At the time of his consult, Dr. Murray told Jason and Carrie Doggett that Ms. Doggett’s chest pain was a “carryover” from the recent NSTEMI. Doggett Aff.
160. When Carrie asked if the occlusion could cause further damage to Ms. Doggett, Dr. Murray said “no.” Doggett Aff.
161. Then, implying that collateral circulation would somehow form overnight, Dr. Murray explained that blood-flow would bypass the blockage on its own. Doggett Aff.

162. Dr. Murray added that nothing else could be done for Ms. Doggett and that she was “just going to have to push through the pain.” Doggett Aff.
163. A few hours later, a nurse reiterated that statement to Ms. Doggett and her family as she was writhing in pain on the brink of death. Doggett Aff.
164. When Carrie explained to Dr. Murray that the pain seemed to be from a new heart attack, Dr. Murray stared blankly at her without response. Doggett Aff.
165. Dr. Murray’s meeting with Ms. Doggett’s family lasted less than 10 minutes and was his only contact with her or her family on this, the day of her death. Doggett Aff.

Ms. Doggett is discharged to SDU, with instructions to seek immediate medical attention for chest discomfort, because “MINUTES DO MATTER”

166. At 14:14, Ms. Doggett’s Troponin-I was still high, at 5.93. At 15:03, it rose to 6.06. TRH 118.

Collected Date	2/24/2020	2/24/2020	2/24/2020		
Collected Time	15:03 EST	14:14 EST	08:35 EST		
Procedure				Units	Reference Range
Troponin-I	6.06 ^{C12**}	5.93 ^{C13**}	7.40 ^{C14**}	ng/mL	[0.01-0.03]
CK	-	-	193 ^{H**}	IntlUnit/mL	[30-135]
CKMB	-	-	18.1 ^{H**}	ng/mL	[0.5-5.0]
B-Type Natriuretic Peptide	-	-	391 ^{H**}	pg/mL	[0-100]

TRH 118.

167. At 15:25, Ms. Doggett was discharged from the ED and admitted to the SDU in serious condition on a stretcher. TRH 128, TRH 30.
168. At 15:25, in the ED Clinical Summary, Nurse Dasher identified “STEMI (ST elevation myocardial infarction)” as the acute diagnosis. TRH 26.

Diagnosis:

1:STEMI (ST elevation myocardial infarction); 2:Coronary artery disease; 3:Tobacco use

TRH 26.

169. Ms. Doggett’s ED-discharge papers instructed her to seek immediate medical attention if she experienced “warning signs” of a heart attack, such as chest discomfort lasting “more than a few minutes.” TRH 22.
170. “MINUTES DO MATTER,” the instructions warned. TRH 22.

Heart Attack Signs

Chest discomfort: Most heart attacks involve discomfort in the center of the chest and lasts more than a few minutes, or goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.

Discomfort in upper body: Symptoms can include pain or discomfort in one or both arms, back, neck, jaw or stomach.

Shortness of breath: With or without discomfort.

Other signs: Breaking out in a cold sweat, nausea, or lightheaded.

Remember, **MINUTES DO MATTER.** If you experience any of these heart attack warning signs, call **9-1-1** to get immediate medical attention!

TRH 22.

171. At 15:37, in the SDU, Nurse Candice Smith reported the most-recent Troponin-I level as a “critical value” to Dr. Phillips at bedside. TRH 162.
172. Dr. Phillips ordered continued monitoring, not any intervention. TRH 162.

	Recorded Date Recorded Time Recorded By	2/24/2020 23:33 EST Powell,RN,Lacey	2/24/2020 19:42 EST Powell,RN,Lacey	2/24/2020 15:37 EST Smith,RN,Candice
Procedure				
Provider Notification Reason	Other: patient expired	Pain (site)	Critical value reporting	
Provider Notification Details	-	chest pain	troponin 6.06	
Provider Contacted	Yes	Yes	Yes	
Provider at Bedside	Murray, MD, Paul	Pitts, NP-C, Billy Joe	Phillips, DO, Cynthia	
Provider Response Time	2/24/2020 23:34 EST	2/24/2020 19:46 EST	2/24/2020 15:37 EST	
Physician Requested Interventions	-	Orders received	See Below ^{T56}	
Textual Results				
T56:	2/24/2020 15:37 EST (Physician Requested Interventions) No orders received, Continue to monitor, Results Read Back and Verified			

TRH 162.

EKGs show STEMI in progress

173. At 19:38, an EKG was “abnormal.” TRH 112.

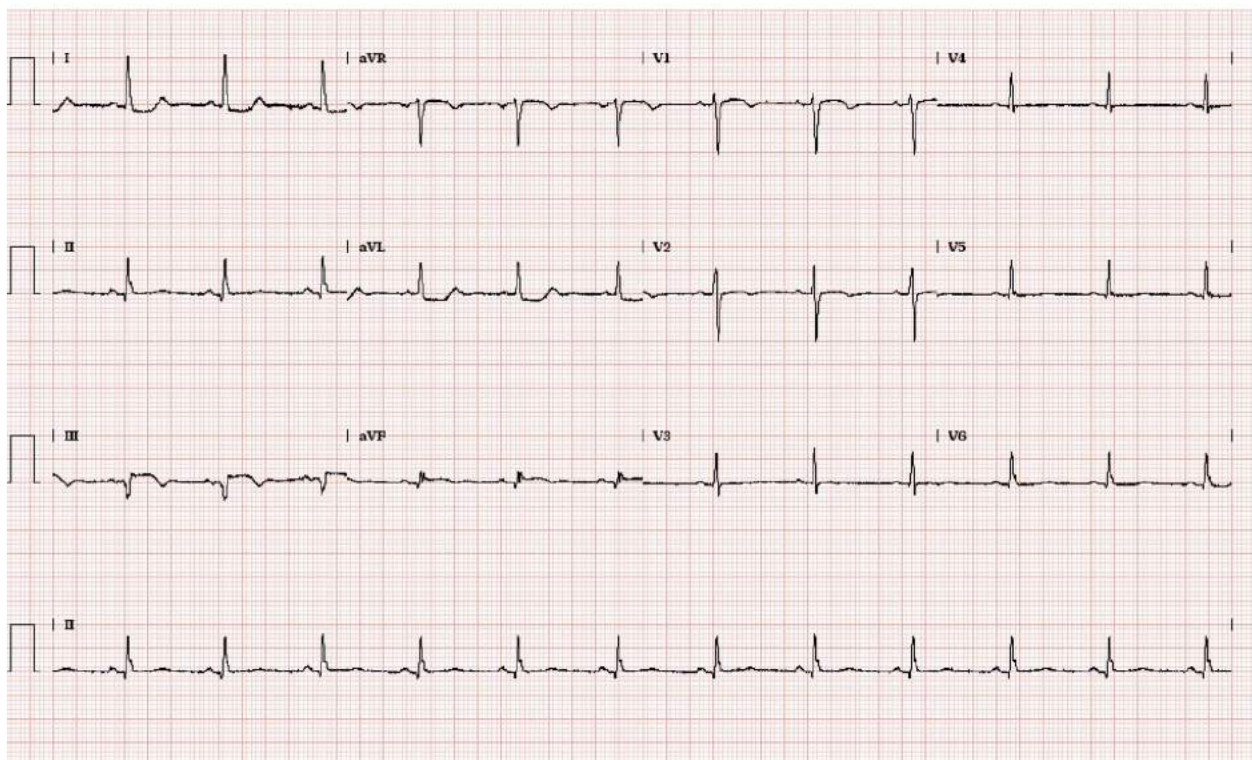
RR Interval: 831 ms
PP Interval: 0 ms
PR Interval: 136 ms
QRS Duration: 103 ms
QT Interval: 399 ms
QTc Interval: 423 ms
P Axis: 34 deg
QRS Axis: 9 deg
T Axis: -2 deg
QTc Bazett: 437 ms
QTc Frederica: 424 ms
Ventricular Heart Rate: 72 BPM

Feb 24, 2020 7:38:47 PM

SINUS RHYTHM
ST ELEVATION, CONSIDER INFERIOR INJURY [MARKED ST ELEVATION W/O NORMALLY INFLECTED T-WAVE IN II/aVF]
EVOLVING CHANGES OF INFERIOR INFARCTION
ABNORMAL ECG
Confirmed By: Murray, MD, Paul 2/25/2020 6:37:32 AM

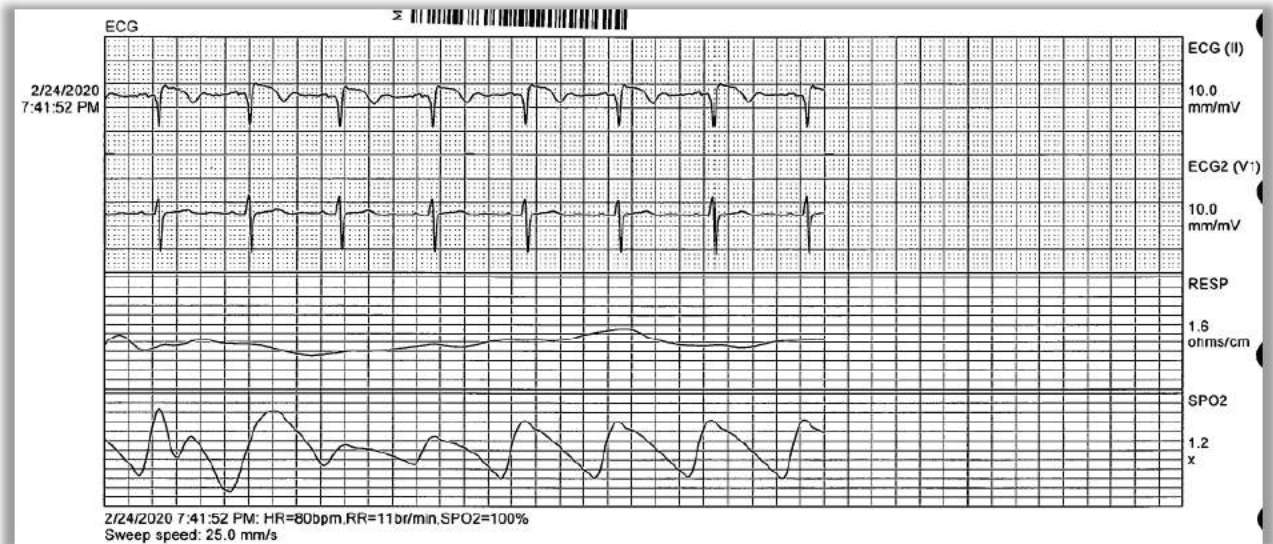
TRH 112.

174. This EKG confirmed yet again that Ms. Doggett was having an ongoing acute inferior STEMI. TRH 112.
175. The EKG showed “ST elevation” without a normally inflected T-wave in leads II and aVF, and “evolving changes of inferior infarction,” indicative of “inferior injury.” TRH 112.



TRH 112.

176. At 19:41, telemetry reported to Dr. Phillips continued to demonstrate a STEMI in progress. TRH 50.



TRH 50.

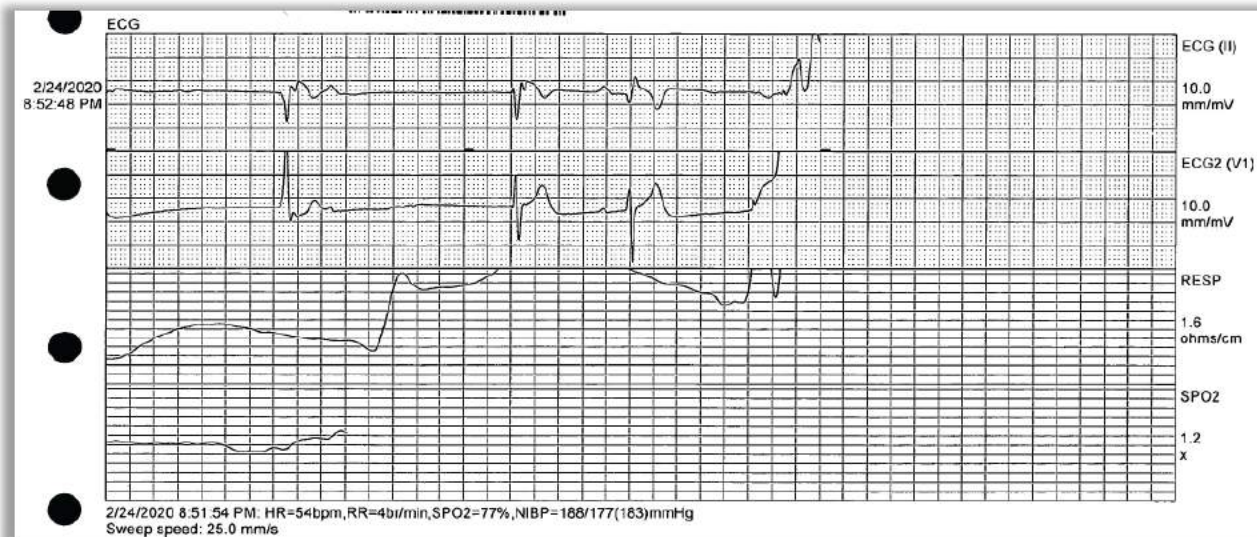
177. At 19:42, Nurse Practitioner Billie Joe Pitts notified an unnamed provider of Ms. Doggett's chest pain. TRH 162.

178. At 19:46, the provider responded with unspecified orders. TRH 162.

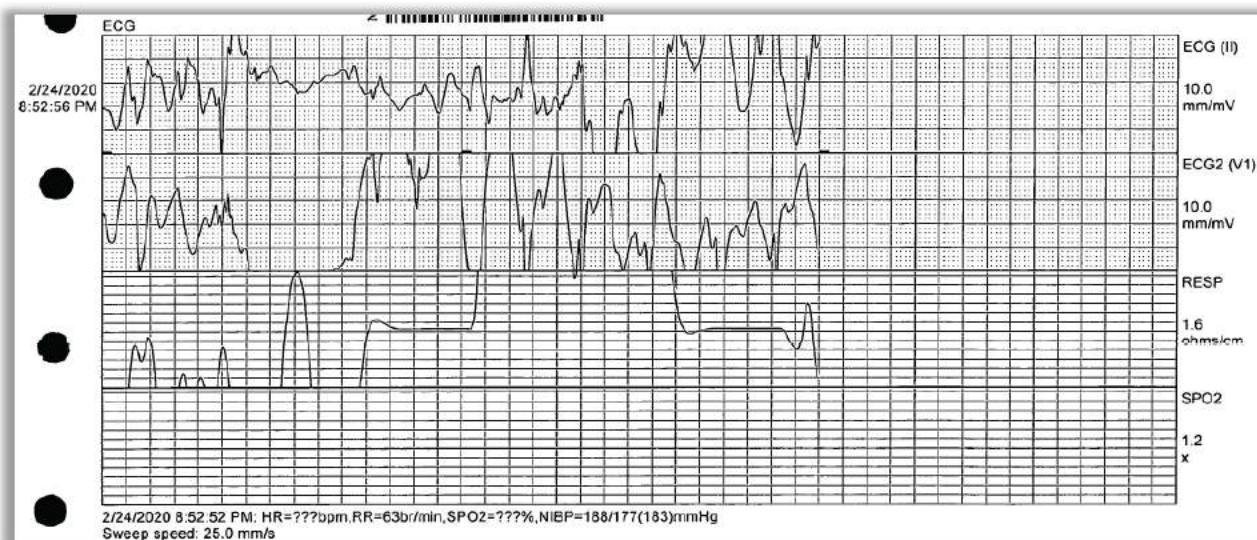
	Recorded Date Recorded Time Recorded By	2/24/2020 23:33 EST Powell,RN,Lacey	2/24/2020 19:42 EST Powell,RN,Lacey	2/24/2020 15:37 EST Smith,RN,Candice
Procedure				
Provider Notification Reason	Other: patient expired		Pain (site)	Critical value reporting
Provider Notification Details	-		chest pain	troponin 6.06
Provider Contacted	Yes		Yes	Yes
Provider at Bedside	Murray, MD, Paul		Pitts, NP-C, Billy Joe	Phillips, DO, Cynthia
Provider Response Time	2/24/2020 23:34 EST		2/24/2020 19:46 EST	2/24/2020 15:37 EST
Physician Requested Interventions	-		Orders received	See Below T56

TRH 162.

179. At 20:52, telemetry, also reported to Dr. Phillips, confirmed cardiac arrest. TRH 51-52.



TRH 51.



TRH 52.

Charlene Doggett dies

180. At about 20:45, Jason Doggett left his mother's room for a few minutes to get a snack at a hospital vending machine. Doggett Aff. Since Carrie had gone home to clean up after a long day at Tift, Ms. Doggett was left alone in her room. Doggett Aff.

- 181. At 20:53, Ms. Doggett suffered cardiopulmonary arrest. TRH 42. Code blue was called. TRH 42.
- 182. The response team initiated Advanced Cardiovascular Life Support (ACLS) protocols. TRH 42.
- 183. When Jason heard the code, he sprinted back to his mother's room, to find her dead. Doggett Aff.
- 184. Despite "aggressive measures" to revive her, "including chest compressions," the response team was "unable to obtain a sustainable pulse." TRH 42.

She returns to the ER today with complains of acute onset precordial chest pain at 2:00 am - was pain free at discharge and continued to be until 2:00 am, "like an elephant sitting on my chest," 10/10, no radiation, earlier diaphoresis, none now, + dyspnea and no nausea or vomiting. Troponin is elevated at 7.40, however, the day prior was 20.90, EKG shows sinus rhythm, rate 71bpm millimeter when compared to an EKG from February 20, 2020, she has ST elevation in lead III and aVF with Q waves, ST depression in 1, aVL, V5 and V1 now has less than 1 mm of ST elevation in V1 where previously V1 had an inverted T wave. On arrival to the ER she had normal blood pressure 119/88, was treated with nitroglycerin, blood pressure dropped, she is received IV fluids and morphine and blood pressures improved to 103/70. ER has consulted Dr. Murray who recommends medical management. I've talked with him and he's coming to see the patient. [1] Please see remainder of H&P and EMR patient's hospital course. CODE BLUE called at 2053 secondary to cardiopulmonary failure. Prior to code, patient had been having ongoing complaints of chest pain. ACLS protocols were initiated. See ACLS chart for details. Patient treated appropriately, but despite aggressive measures including chest compressions we were unable to obtain a sustainable pulse. Family notified of patient's condition. Patient has been hospitalized for less than 24 hours and is currently a coroner's case.

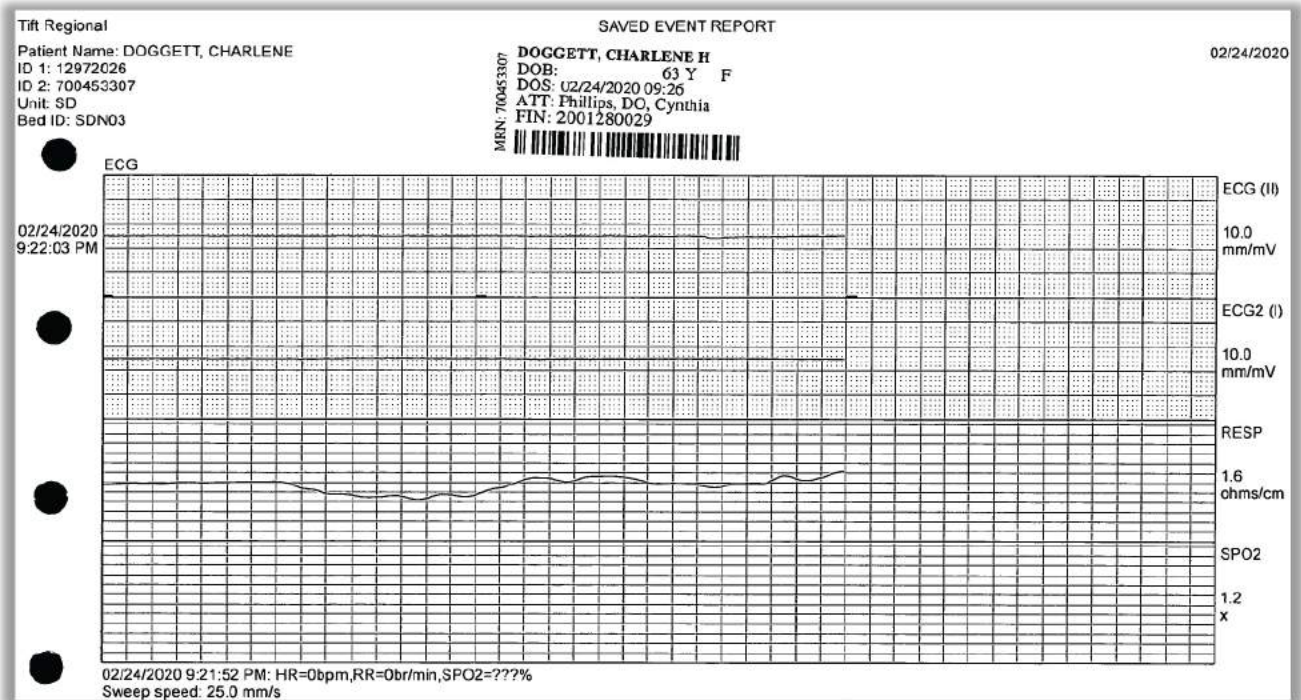
TRH 42.

- 185. At 21:07, Hospitalist Craig Smith pronounced Ms. Doggett officially dead, referring the case to the medical examiner. TRH 2, TRH 42.

29a. PRONOUNCER'S NAME CRAIG SMITH	29b. LICENSE NUMBER 058588	29c. DATE SIGNED 02/24/2020
30. TIME OF DEATH 21:07 MILITARY	31. WAS CASE REFERRED TO MEDICAL EXAMINER YES	

TRH 2.

- 186. At 21:22, telemetry confirmed asystole—flatlining. TRH 53.



187. At 21:45, Dr. Smith identified “cardiopulmonary failure” as the preliminary cause of death. TRH 42.
188. Among the additional diagnoses pertinent to Ms. Doggett’s death, Dr. Smith identified “atherosclerotic heart disease of native coronary artery without angina pectoris” and “ST elevation (STEMI) myocardial infarction.” TRH 42.

Preliminary Cause of Death
 Cardiopulmonary failure

Additional Pertinent Diagnoses
 Atherosclerotic heart disease of native coronary artery without angina pectoris

ST elevation (STEMI) myocardial infarction of unspecified site

Tobacco use

TRH 42.

189. At 23:33, Nurse Lacey Powell notified Dr. Murray that “patient expired.” TRH 162.

Recorded Date	2/24/2020	2/24/2020	2/24/2020
Recorded Time	23:33 EST	19:42 EST	15:37 EST
Recorded By	Powell,RN,Lacey	Powell,RN,Lacey	Smith,RN,Candice
Procedure			
Provider Notification Reason	Other: patient expired	Pain (site)	Critical value reporting
Provider Notification Details	-	chest pain	troponin 6.06
Provider Contacted	Yes	Yes	Yes
Provider at Bedside	Murray, MD, Paul	Pitts, NP-C, Billy Joe	Phillips, DO, Cynthia
Provider Response Time	2/24/2020 23:34 EST	2/24/2020 19:46 EST	2/24/2020 15:37 EST
Physician Requested Interventions	-	Orders received	See Below ^{T56}

TRH 162.

190. On Ms. Doggett’s death certificate, the official cause of death was listed as acute myocardial infarction and/or arrhythmia. TRH 2.

32. Part I. Enter the chain of events-diseases, injuries, or complications that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE.		Approximate interval between onset and death
IMMEDIATE CAUSE (Final disease or condition resulting in death)	A. ACUTE MI AND OR ARRHYTHMIA Due to, or as a consequence of	SUDDEN
	B. CORONARY ARTERY DISEASE Due to, or as a consequence of	YEARS
	C.	

TRH 2.

191. After Ms. Doggett died, Ms. Doggett’s family asked to see Dr. Murray, hoping he could explain her death, but he never came to see them. Doggett Aff.

192. Instead, Dr. Smith stuck his head in the room briefly, and told Ms. Doggett’s siblings that Tift “does not crack the chest open for just one blockage” and that “sometimes your loved ones just die.” Andrews Aff.

Tuesday, February 25

193. At 00:15, Nurse Powell entered “cardiac arrest” as the preliminary cause of death. TRH 123.

Preliminary Cause of Death Preliminary Cause of Death : Cardiac arrest Date/Time of Death : 2/24/2020 21:07 EST	Powell, RN, Lacey - 2/25/2020 12:15 AM EST
--	--

TRH 123.

Dr. Murray relabels Ms. Doggett's chest pain as "clearly pleuritic," yet confirms EKGs showing STEMI

194. At 06:34, Dr. Murray accessed the Tift records system and entered an "Addendum" to the cardiology-consultation note of 12:38 the previous day. TRH 47.

195. Dr. Murray now relabeled Ms. Doggett's pain as "clearly pleuritic." TRH 47.

Addendum by Murray, MD, Paul on February 25, 2020 6:34:05 AM EST

PMM: Seen and examined. Lungs: clear, CV: RRR. Agree with above. Patient seen in the emergency room with family in the room. Patient continues to have similar pain as prior admission. Pain is clearly pleuritic with a deep breath and palpable along her left sternal chest. Previous cath reviewed. Agree with admission for observation.

Electronically Signed on 02/25/20 06:35 AM

Murray, MD, Paul

TRH 47.

196. Even though Ms. Doggett's pain during her first visit to Tift four days earlier was angina from the NSTEMI, TRH 172, TRH 36, Dr. Murray now explained that this "pleuritic pain" was "similar pain as prior admission." TRH 47.

197. At 06:37 and 06:38, after entering that addendum, Dr. Murray confirmed three of Ms. Doggett's EKGs of the prior day. TRH 112-14.

RR Interval: 835 ms Feb 24, 2020 8:31:14 AM SINUS RHYTHM
PP Interval: 0 ms ST ELEVATION, CONSIDER INFERIOR INJURY [MARKED ST ELEVATION W/O NORMALLY
PR Interval: 133 ms INFLECTED T-WAVE IN II(aVF)]
QRS Duration: 98 ms LATERAL WALL ST DEPRESSION
QT Interval: 401 ms ***ACUTE MI***
QTc Interval: 424 ms Confirmed By: Murray, MD, Paul 2/25/2020 6:38:11 AM
P Axis: 49 deg
QRS Axis: 7 deg
T Axis: -1 deg
QTc Bazett: 438 ms
QTc Fredericia: 425 ms
Ventricular Heart Rate: 71 BPM

TRH 114.

RR Interval: 813 ms Feb 24, 2020 11:08:37 AM SINUS RHYTHM
PP Interval: 0 ms NONSPECIFIC ST & T-WAVE ABNORMALITY
PR Interval: 126 ms EVOLVING CHANGES OF INFERIOR MYOCARDIAL INFARCTION
QRS Duration: 101 ms LATERAL WALL ST DEPRESSION
QT Interval: 432 ms BORDERLINE ECG
QTc Interval: 458 ms Confirmed By: Murray, MD, Paul 2/25/2020 6:38:59 AM
P Axis: 38 deg
QRS Axis: 15 deg
T Axis: -18 deg
QTc Bazett: 479 ms
QTc Fredericia: 462 ms
Ventricular Heart Rate: 73 BPM

TRH 113.

RR Interval: 831 ms
PP Interval: 0 ms
PR Interval: 136 ms
QRS Duration: 103 ms
QT Interval: 399 ms
QTc Interval: 423 ms
P Axis: 34 deg
QRS Axis: 9 deg
T Axis: -2 deg
QTc Bazett: 437 ms
QTc Fredericia: 424 ms
Ventricular Heart Rate: 72 BPM

Feb 24, 2020 7:38:47 PM SINUS RHYTHM
ST ELEVATION, CONSIDER INFERIOR INJURY [MARKED ST ELEVATION W/O NORMALLY
INFLECTED T-WAVE IN II/aVF]
EVOLVING CHANGES OF INFERIOR INFARCTION
ABNORMAL ECG
Confirmed By: Murray, MD, Paul 2/25/2020 6:37:32 AM

TRH 112.