5.4: Emergency Room

Day: 0

Time: 11h15

Place: Emergency Triage

Nurse Jackie thinks to herself, *Wow, I finally get to sit for a minute. This flu season has been brutal. Fifteen patients before 10:30 in the morning.* She completes a number of stats forms behind the triage desk and adds some names to the whiteboard to keep track of where patients and staff are located.

Turning back to the desk, Jackie looks up to see two well-dressed, middle-aged women approaching, one in a wheelchair.

“I bet this is another flu case,” Jackie says to herself.

“Good morning, can I help you?”

Dorothy pulls the wheelchair up to the triage desk. “That is why we are here, for you to help us or more specifically help Meryl!!”

Jackie looks at both women and attempts a smile. *Ok, this could be challenging*, she thinks.
“What seems to be the problem or what can I help with?”

“My name is Dorothy and this is my wife, Meryl, who happened to pass out at Safeway this morning while we were shopping.”

“My name is Jackie and I am the triage nurse or the nurse that looks at you first to consider how serious your problem is. Ok, so you passed out? Did you lose conscious or did you become dizzy and just sink to the floor?”

Meryl looks over at both of them. “I think a little of both. I just remember coming to, sitting cross legged on the floor.”

“Ok, seems you are a bit short of breath?”

Meryl tries to take a deep breath that only results in a weak cough. “Yes, getting over the flu. Thought I was over it.”

Jackie steps out from behind the triage desk and brings the vital sign machine with her.

Hooking Meryl up to the blood pressure cuff and the pulse and temperature, she presses a button to initiate the machine to take Meryl’s vital signs.

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Nurse Jackie looks over the results and sees the temperature is not elevated, but the blood pressure (BP) is down and the heart rate (HR) is up. “Doesn’t look like it’s the flu for you, but maybe something else. Ok, let’s get you to wait over there and I will see if we can get someone to see you shortly. It’s not too busy so it should not be long.”

Dorothy shakes her head. “Wonderful — our health system at work. Ok Meryl, we get to sit and wait.”

Meryl looks up at Dorothy. “I am ok to wait.”

“You might be but I am not.” Dorothy directs the chair over to where Jackie indicated.

**Time: 11h30**

Nurse Jackie approaches Meryl and Dorothy. “I need to take some more information and then we can get you seen by the doctor.”

Jackie takes a full health history from Meryl asking her about past history, medication, allergies, and contact information.

“So you have a heart murmur that didn’t go away after your last pregnancy?”

“Yes, they told me not to worry too much about it.”

“Did they tell you anything more?”

“No, I haven’t worried about it till now. Today my chest just feels different and I am short of breath.”
“Ok, thank you. I am going to talk with Dr. Smythe and we will move you to another area here so we can explore more fully what is going on.”

Jackie walks away to find Dr. Smythe.

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**Time: 12h15**

Just as Jackie is finishing recording her findings, Dr. Smythe approaches the bedside.

“Hello, my name is Dr. Edward Smythe. I am one of the Emergency physicians and Jackie asked me to take a look at you.”

Both Meryl and Dorothy look up and smile at Dr. Smythe and nod their heads together.

Dr. Smythe begins to assess Meryl, turning her head back and forth looking at her neck. He then checks her fingers and then looks at her ankles and gives them a bit of a squeeze. “I need to listen to your heart and lungs.”

Meryl adjusts her blouse to allow Dr. Smythe to access her chest. Dr. Smythe listens carefully to heart and breath sounds.

After completing his assessment, he steps back and looks at both Meryl and Dorothy. “I don’t think it’s the flu. Your heart murmur is quite loud, much louder than I expected, and you have quite coarse breath sounds. I believe I am also hearing an extra heart sound. Now this could be nothing or it could be serious so I would like to do some blood work, and a chest X-ray. I am also going to ask for a pregnancy test since the heart murmur appeared with your last pregnancy.”

Dorothy laughs. “Doctor Smythe, I don’t think she is pregnant!”

“Still it did happen and we need to rule it out.”

Dr. Smythe turns to Jill. “Please place her on the monitor and take vital signs q 15 minutes for the next hour then q1h. I will order a CBC, lytes, BUN, creatinine, trops, 12 Lead, and a portable chest X-ray.” Also, glucose, urinalysis, and a pregnancy screen. For the time being you’re on bed rest, and I will ask Cardiology to come see you.”

Jill records all this to make sure nothing gets missed.

Dr. Smythe turns back to the two women. “Meryl, you are going to be spending the better part of the day with us, so I am going to admit you to the Emergency and after we have all the tests results back, I will come and discuss these with you and what our next steps are.”

“Thank you, Dr. Smythe.”

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**Time: 12h45**

The phone rings beside Jill as she is charting another episode of atrial fibrillation, “Hello, this is Jill.”
“Hi Jill. This is Gurpreet in Radiology. I have a requisition for a chest X-ray on a Mrs. Meryl Smith. Can she come to the department?”

“I am thinking not as I have her on the monitor, and she was admitted with a complaint of loss of consciousness. I am a bit concerned that if she goes out, something may happen. I or another nurse will need to go with her.”

“Ok Jill, I thought that might be the case but I thought I would ask. I’ll be down in a couple of minutes and will do her X-ray with the portable in Emergency.”

“Thanks.” Jill hangs up the phone, finishes scotch taping the rhythm change to the patient’s chart and moves to Meryl’s bedside.

“Hi, Mrs. Smith. They’re coming down to do a chest X-ray so I would like to help get you setup so you’re ready for it when Gurpreet arrives with the machine.”

Jill then helps Meryl sit up straight, moves the ECG leads off her chest, and explains the X-ray to both Dorothy and Meryl.

Just as she is finishing, Gurpreet comes around the corner pushing the portable x-ray.

“Man, these things never get any lighter! Even with the power drive they’re a challenge to move around without running on toes. Is this Mrs. Meryl Smith?”

Jill smiles and looks at Gurpreet, “Yes it is, and that was quick. Do I need to check the wheels for any toes?”

“No, heard a couple of screams but nothing else as I drove here. Thank you for getting everything setup for me.”

“No problem.”

Gurpreet moves to the bedside, and checks Meryl’s position. “My name is Gurpreet. I just need to double check who you are and then I’m going to place a very hard board behind your back and take a picture of your chest.”

Meryl nods her consent.

Gurpreet looks at the requisition, and compares the information to the ID band on Meryl’s left wrist. “Can you tell me your birth date?”

“Yes it is June 6, 19xx.”

“Ok, we are good to go.”

Gurpreet returns to the portable X-ray and withdraws from the rear hidden compartment, a large board. Slipping the board into a special plastic bag, she returns to the bedside. With Jill’s assistance they both lean Meryl forward and place the X-ray board behind her back.

“Oh, that is so uncomfortable.”
“It’s only for a couple of minutes. Relax against the board and try not to move.”

Gurpreet maneuvers the X-ray machine into position at the end of the stretcher. She turns on a light on the camera head and adjusts the aperture for Meryl’s chest size. Using the built-in tape measure, Gurpreet checks to make sure the X-ray is the proper distance away. Satisfied that everything is correct, Gurpreet nods to Jill and grabs a lead apron from the stanchion of the X-ray machine.


“Stand clear, X-ray exposing Bed 4!” Gurpreet then presses a button which starts a whirring sound, ending with a dull click.

“Ok, all done Mrs. Smith.” Gurpreet hangs up the lead apron on the stanchion and moves to the bedside to help Jill remove the board and reposition Meryl into a more comfortable position.

Gurpreet backs the portable X-ray machine out.

Dorothy returns at the same time from grabbing coffees for her and Meryl. “Hey, what did I miss?”

Jill turns and says “First of many tests we have to complete. That was the X-ray and I’m hoping the lab person will be by shortly as well for the other tests.”

**Time: 12h59**

Alexa looks at the list of requisitions that have come into the lab. “Alright, there is a bunch from Emergency and two from the Family Birthing Unit. I can do the Emergency ones quickly. I should see if someone can do the FBU ones.”

Looking up, she sees Harry at the desk. “Hey Harry, can you do me a favour? I am a bit swamped with reqs from Emergency and there are two from the FBU that I can’t do as quickly as they would like. Do you mind?”

Harry smiles, “For you Alexa, anything, but it will cost you a coffee.”

“A coffee I can handle, thank you.”

Alexa grabs her lab cart and heads out the door to the Emergency Department. While waiting in the elevator she, looks over the reqs for Emergency. Ok, she thinks. *Nothing special. Appears to be more routine with no stats. Let’s start with the oldest time stamp and work my way to the recents.*

**Time: 13h14**

Alexa: “Good day, are you Mrs. Meryl Smith?”

“Yes, why do you ask?”

“My name is Alexa and the Emergency physician ordered some lab work for you.”
“Ok.”

Alexa looks at the requisition, compares this to the labels and then attaches the labels to the appropriate tubes. That done, she approaches Meryl’s bedside. “I need to ask you some questions to ensure that I have the right patient and the right lab work ordered.” Alexa sees Meryl nod. “Ok, can you tell me your full legal name?”

“Meryl May Smith. My birth date is June 6, 19xx.”

“Oh, you have been practicing.”

“Not really, everyone seems to ask me the same questions.”

“True, we need to make sure we have the right patient and the right tests. We try to avoid making an error as much as possible.”

Alexa, prepares for the venipuncture by gathering all the correct equipment. She then wraps a tourniquet around Meryl’s left arm. Carefully examining her ACF she finds a large prominent vein. “You may feel a bit of a pinch.”

Alexa then slips the vacu-container needle quickly into the vein and seeing a flashback of blood pushes the first tube down into the vacu-container. She repeats this three more times to fill all four collection tubes.

“Ok, Mrs. Smith, please hold here.” Meryl does as requested. Alexa rechecks the labels against the requisition and then places the tubes in their racks for processing.

“Now, lets put a bit of a band-aid on that and then I will leave you be. I hope everything turns out ok for you, Mrs. Smith.” Alexa then pushes her cart out into the main part of the Emergency Department. Ok, that’s all the patients, she notes. I’ll take these samples back for processing and then see if anyone needs help.

Time: 13h20

Jill approaches Meryl’s bedside just as the ECG technician arrives. “Is this Mrs. Meryl Smith?”

Jill looks up and sees the 12 lead cart. “Yes it is.”

“Ok, thanks, it has been a bit hectic. Sorry, I’m running a bit late.”

Jill shrugs and checks the monitor and writes down the vital signs.

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“Hi Mrs. Smith, I’m Denis and I am going to place some wires on your chest, legs and arms. This will then give us a better view of your heart electrical function.”

“Ok, I guess.”
Denis pulls the curtains closed to give Meryl some privacy and then requests she lift her shirt up a bit so that he can place the wires on the left side of her chest. Efficiently he quickly places the leads on Meryl’s chest, legs, and arms. About a minute later the machines is printing out a 12 lead ECG.

“Now that you have all those squiggly lines on pink paper, who looks at it and what does it all mean?” asks Meryl.

Denis smiles, “Well I give one copy here to Jill for your chart and another copy goes with me for the heart doctor to look at. Whoever the heart doctor is, will then dictate a report that goes on your chart.”

“When will I know what it says?”

“I would guess pretty soon, but that is up to Jill and the Emergency doctor.”

Meryl sighs and lays back.

Denis pulls the curtains back and passes the 12 lead to Jill.

“Ok, Jill, here you go. I’ll let you discuss it with the Emergency doctors. I need to get up to the fifth floor for a stat.”

“Thanks Denis.”

**Time: 14h30**

Jill finds Dr. Smythe reviewing the chest X-ray, labs, and 12 lead of Meryl.

“What do you think, Dr. Smythe?”

“Well, it’s not great. Mrs. Smith has some congestion in her lungs, but has no fever, a little rise in WBC, and no signs of infection so I think the congestion is cardiac in nature. When I look at her 12 lead, I see some left ventricle enlargement. Her lab work is interesting as she has decreased kidney function according to her GFR and creatinine, plus, she has an elevated BNP. All other cardiac markers are normal. So, it appears she has exacerbation of heart failure.”

“Wow, she is very young to have HF.”

“Yes, but the valve issues she had when she was pregnant have not gotten better and it appears may have worsened over time. Is her wife here? I would like both of them to hear this.”

“Yes, Dorothy is with Meryl now.”

Jill leads Dr. Smythe to Meryl’s bedside.

Dr. Smythe looks at both women. *It just never gets easy to give bad news; I so wish there was another way,* he thinks.

“Ok, Mrs. Smith, I believe I know what is wrong with you and why you are not feeling well. I have reviewed all your lab tests and it points to a diagnosis of heart failure.”

“What, what is that, am I going to die?”
“Heart failure is a broad diagnosis indicating that your heart is not pumping as well as it should. For you, it is related to the valve issues you had when you were pregnant. The valve is not closing as well as it should and this is putting strain on your heart to meet your body’s need. No, you are not going to die right now. This is a serious diagnosis and needs to be managed well by you and a cardiologist.”

Dorothy begins to cry quietly at the bedside. Meryl reaches over and holds her hand. “Ok, Doctor, what happens now?”

“I am going to contact the cardiology team. I would like to admit you under their care so that they can get you on the right meds, provide some teaching for you and your spouse, and get you involved with some support groups to help you cope with this. I know it’s a lot to take in, but with proper management you should be ok.”

Meryl, looking overwhelmed, looks back at Dorothy then at Dr. Smythe and Jill. “I’ll do what ever you ask.”

Dr. Smythe backs away from the bedside and walks toward the main nursing station to call the cardiology team. Jill approaches both Meryl and Dorothy. “Do you have any questions?”

“No. Can you leaves us alone for a little bit?”

“I certainly can. I’ll draw the curtains to give you a bit of privacy. I’ll come back in 15 minutes and get you ready to go upstairs to the fifth floor.”

**Time: 15h30**

Jill looks up at Meryl’s monitor and sees that her oxygen saturation is decreasing, now reading 88% on room air.

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“Hi Meryl, are you feeling ok?” she asks.

“No, I feel short of breath, can’t catch my breath. Feels like I have been running.”

Jill notes that Meryl’s heart rate is also increasing but still sinus.

“Oh, I think I am going to have to put some oxygen on you.” Jill frees a set of nasal prongs from their plastic bag and plugs one end into the oxygen flowmeter. She wraps the other end around Meryl’s ears and places the prongs gently in her nose. Jill adjusts the oxygen flow to 4 LPM.

“Ok, Mrs. Smith. Take some deep breaths through your nose and blow out through your mouth.”

Meryl takes a half dozen breaths as instructed and Jill notes the sats improve to 93% and the heart rate beginning to decrease to 95 to 100 beats per minute.

“Thank you, I feel a bit better but not normal. Am I getting worse?”
“Maybe, but it is too early to tell. Let’s just say you need a bit of oxygen, but nothing else has changed.”

“All right.”

Jill leaves Meryl alone and goes to find Dr. Smythe

She finds Dr. Smythe coming out of the dictation room with a cup of tea in his hand.

“Dr. Smythe, Mrs Meryl Smith is now requiring oxygen and she is stating she is not feeling quite right and is short of breath.”

“I thought this might happen. Ok, I am going to order a transthoracic echo and I will call Cardiology to take her as soon as a bed is available. They said they are discharging eight patients today so there should be space for her.”

Jill watches Dr. Smythe fill out the stat requisition for a cardiac ultrasound.

**Time: 16h00**

Charlie reviews the requisitions on the computer screen. *What is this: stat echo in Emergency?* he wonders.

Reading the information on the echo requisition, he notes that a consult to Cardiology has also been requested.

Grabbing the phone, Charlie calls Emergency and asks for the nurse caring for Mrs. Meryl Smith.

“Hello this is Jill.”

“Hi Jill this is Charlie in Echo. I have a stat req for Mrs. Smith. Can she come to the department?”

“I am not comfortable sending her to you. She is on oxygen and is monitored. She is now experiencing shortness of breath and is not feeling quite right. This is her first experience with heart failure and we’re not sure how she is responding right now.”

“Ok, I will bring a portable machine down. It won’t be ideal, but I can help add to the information on the patient. Most likely she will need a second echo in the department to get better pictures, but I will leave that up to Cardiology. I will be there in about 10 minutes.”

“Thanks Charlie.”

**Time: 16h10**

Charlie, true to his word, arrives pushing a large ultrasound machine in front of him. Slightly out of breath from having to push the machine and avoid all the activity in the Emergency Department, he maneuvers the machine close to Meryl’s stretcher.

“Hi Mrs. Smith, my name is Charlie and I am an echo cardiology technician. I’m going to take some moving pictures of your heart. It won’t hurt, but may be a little cold as I have to use some gel.”
“I remember having one of these when I was pregnant.”

“Meryl, I’m going to step out and update the family while Charlie does his test thingy. There’s not much room for me and his machine. I will come back.” Dorothy moves around the echo machine and heads to the waiting area to make some phone calls.

Charlie pulls the curtains around Meryl’s bedside and turns off the lights by the bed so it’s a bit darker and easier to see the echo machine’s screen.

“Oh, Mrs. Smith. You are going to need to pull your gown up a bit so I can see the left side of your chest.”

Meryl exposes the left side of her chest and Charlie adjusts the gown to cover most of Meryl’s breast.

“The gel is warm, but not really warm so it may feel a bit cold to you. I’m going to squirt some on your chest and on the probe. This helps us get a better picture.”

Meryl shudders a bit as the gel is placed on her chest and then relaxes as Charlie places the probe over her tricuspid area.

“Oh, Mrs. Smith, I am done with the echo.”

Charlie takes a towel and carefully removes as much of the gel as possible and then helps Meryl readjust her gown.

“What did you see? It looks like it was all shadows to me.”

“I can tell that your heart is not pumping as well as it should and that you have a problem with one of your valves on the left side of your heart. Anything more will be up to the doctors as I cannot tell anymore than that.”

“Not sure I needed this test as you just said the same thing as Dr. Smythe.”

Charlie smiles, “Yeah? Well it confirms what he told you then.”

Pulling back the curtains, Charlie navigates the ultrasound machine out of the space and waves goodbye to both Jill and Meryl.

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**Time: 16h30**

Jill sees that Dr. Smythe is talking with Charlie and walks closer to hear what they are saying.

“Ok, Charlie tell me again what you saw on the ultrasound?”

“Right. The ejection fraction is estimated at about 30%. Her LV looks a bit dilated. The mitral valve is graded a moderate regurg. On the plus side, I did not see any vegetation.”

Dr. Smythe looks over at Jill. “This is much worse than I expected. I am quite surprised she was managing so well in the community and this is her first time admitted with HF.”
Jill nods, “There’s a bed available for her on the fifth floor. They told me I could move her after 4pm.”

“Well, given everything we know, that is the best place for her. Thanks Charlie. Say hello to your dad for me and tell him, when he wants another bowling lesson, I’m available.”

“Thanks Dr. Smythe. I’m pretty sure my dad is still recovering from that perfect game you threw the last time you were out together. He may not want a lesson for awhile.”

Charlie smiles at both Dr. Smythe and Jill and with a wave moves off to grab his ultrasound machine.

“Ok, Jill, I don’t think I need to speak to Mrs. Smith again. Let’s get her upstairs and let Cardiology manage her. That would be best. I’ll finish writing the progress note and her orders to date. Cardiology will need to add their specific treatment.”

“Right. I will phone up report to the fifth floor and then take her up after 4pm. Thanks, Dr. Smythe.”

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**Time: 17h15**

“Ok, Mrs. Smith,” Jill says, “They are ready for you on the fifth floor and they have a real bed in an actual room for you. Dorothy can come with us. I’m going to attach your leads to a portable system and have Glen the porter help me with your stretcher.”

Both Dorothy and Meryl look relieved that there is a real bed ready.

Jill grabs the portable monitor system and places it at the end of the bed. She then pulls out of the main monitor the cartridge with all of Meryl’s leads and information, and slides it into the portable system. Looking at the smaller screen, Jill makes some adjustments and nods satisfactorily that everything looks good.

Jill calls the front desk and asks for Glen the porter to help her with Mrs. Smith.

Glen arrives a few minutes later and together, with Dorothy’s help, they get Meryl up to her room on the fifth floor.