STEMI Case Study

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STEMI AND CHEST PAIN COORDINATOR
SANFORD HEALTH BISMARCK

Disclosures

None

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Case Study

47 year old male

Past medical history:

- Type II DM → takes PO medication
- BMI 29

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Presenting Symptoms

Chest Pain

- Sudden onset at 08:30 while at work
- Patient rated 10/10
- Radiates to left shoulder
- Nausea

Called EMS at 08:34

EMS Dispatched at 08:36

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EMS Patient Contact at 08:43

VS:

- BP 143/106 | P 94| R 20 | SPO2 100%
- Skin temperature is pale, cool & diaphoretic

12 Lead EKG at 08:46

- 3 minutes (goal <10)

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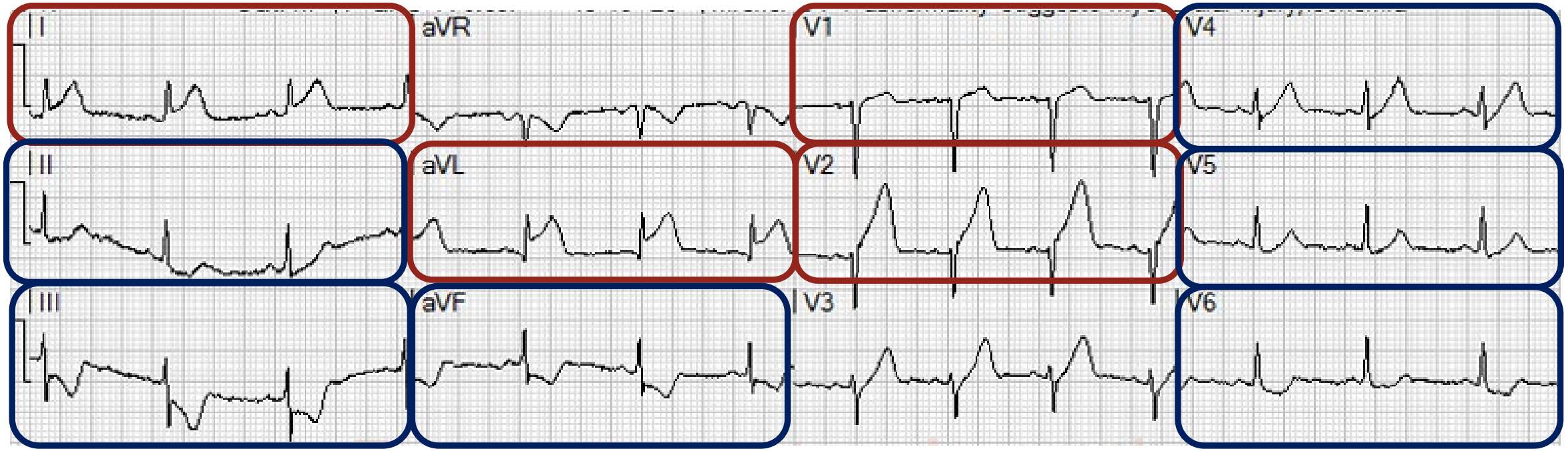
EMS EKG at 08:46

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral



ST Elevation
I, aVL, V1, V2

ST Depression
II, III, aVF, V4, V5, V6

Anterolateral STEMI

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Time on Scene = 7 minutes

EMS Interventions

Medications

- 1 spray (0.4 mg) sublingual nitro
- 324 mg aspirin

IV access (18 g left antecubital & 18 g right antecubital)

Glucose: 397

Left scene at 08:50

Lifenet EKG Transmission & STEMI Code paged at 08:51

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ED treatment

Internal STEMI code paged at 08:56

Hospital Arrival at 09:00

180 mg ticagrelor given

ED Bypassed

Cath Lab Arrival at 09:06

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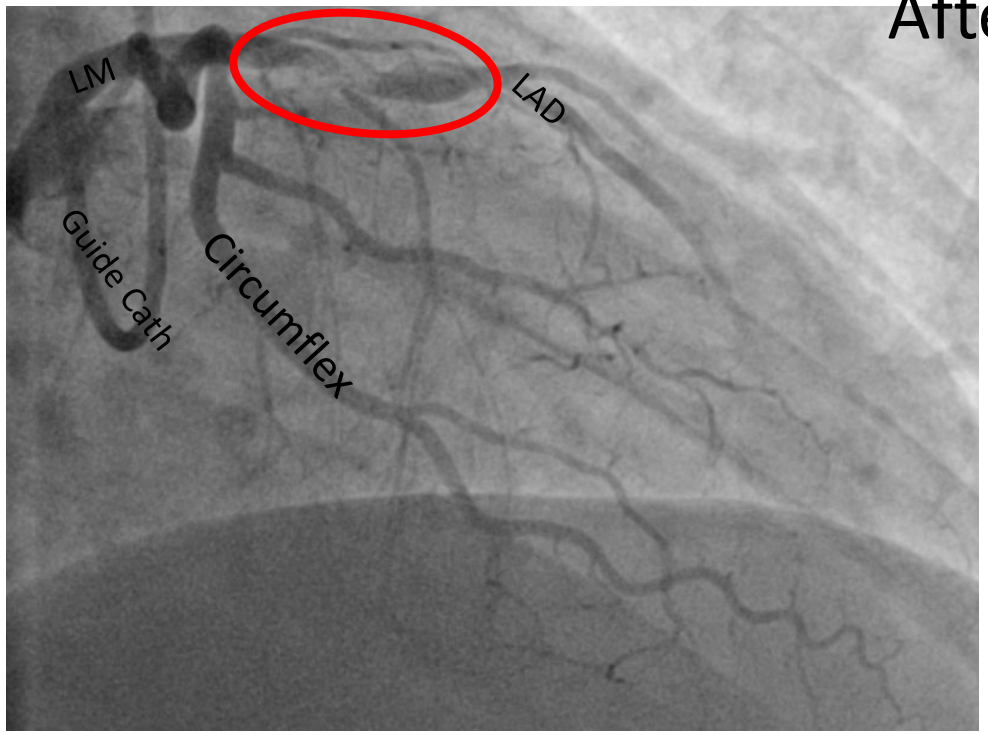
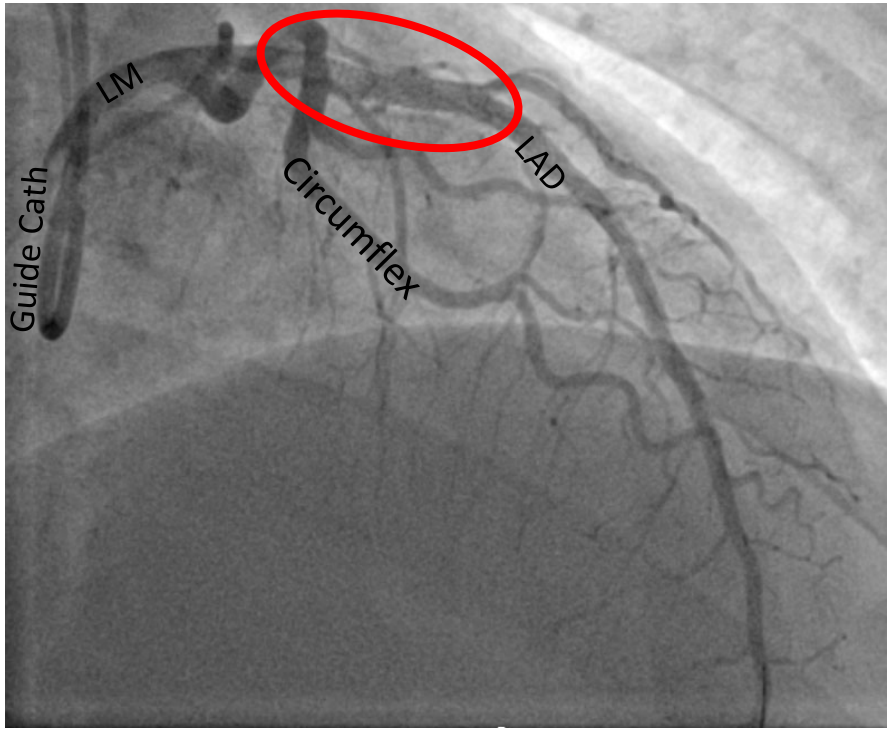
Cardiac Cath Lab Start Time at 09:12

Before



After



Findings: 99% occlusion of the prox to mid LAD (culprit lesion)

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Cardiac Cath Lab Interventions

5000 units heparin plus 3000 additional units after ACT (Activated Clotting Time) check

eptifibatide (Integrilin) bolus & drip

Inflation of first balloon at 09:19

Drug-eluting stent to the prox LAD to mid LAD

Total Cath Lab Time = 13 minutes

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Results

Door to Balloon Time = 19 minutes

First Medical Contact to Balloon = 36 minutes (goal <90)

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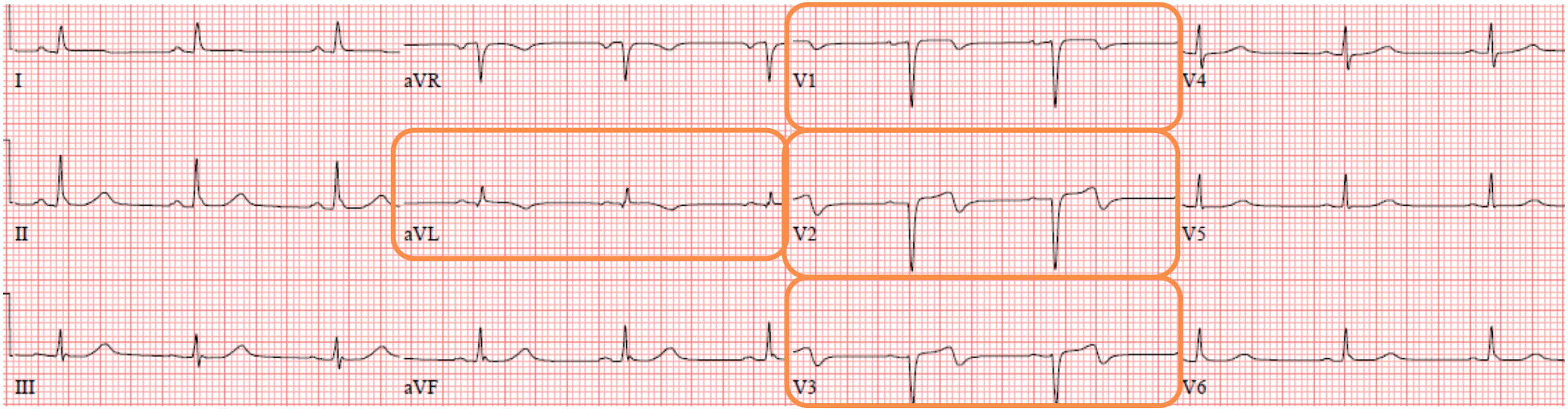
1 Day Post PCI EKG



T-Wave Inversion

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Discharge Medications (new)

81 mg aspirin daily

20 mg rosuvastatin daily (hyperlipidemia found)

13.5 mg metoprolol succinate daily

5 mg lisinopril daily

75 mg clopidogrel daily

Sublingual nitro as needed

Cardiac Rehab referral

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Outcome

EF 40-45%

Hyperlipidemia treated

Discharged home the next day

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Closing Thoughts

Patient

- Early recognition of heart attack symptoms
- Called 911

EMS

- Early EKG
- Utilization of resources → Lifenet EKG transmission & STEMI notification

Hospital

- Paged internal STEMI code
- Timely delivery of care → bypass Emergency Department

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Questions & Comments

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STEMI COORDINATOR CASE STUDY
CHI ST. ALEXIUS HEALTH, BISMARCK

SECOND MI AT AGE 47

Case Study

- Male- 47 years
- PMH: Hypertension

  Dyslipidemia

  N-STEMI in 2016 with DES in the LAD

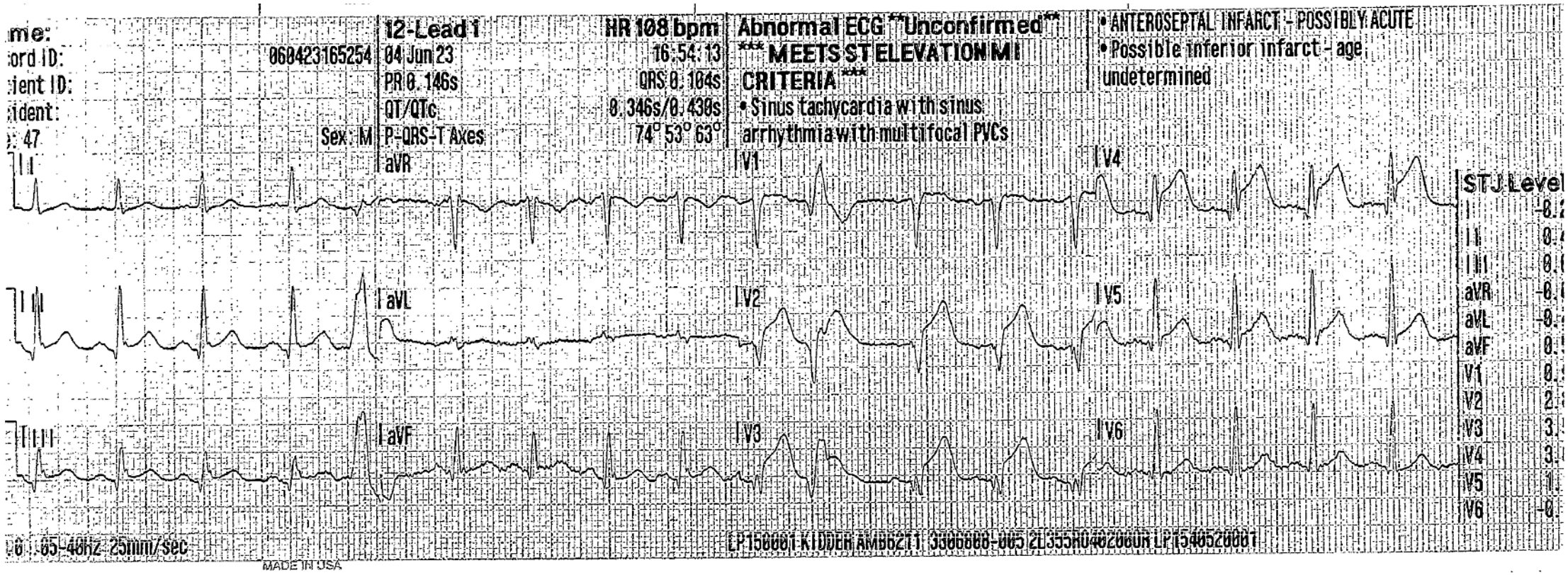
  Current smoker 1.5 packs/day

  Family hx: Uncles x 2 MI at ages 35 & 40
- Chest pain last couple of days worse today. Today severe crushing chest pain 10/10 with bilateral upper extremity discomfort.

First Medical Contact

- 1636: EMS called and dispatched
- 1651: EMS on scene, at patient
- 1653: VS- BP 150/105, Pulse 110
- 1653: 12 Lead EKG STEMI Anterior Ischemia, Premature Ventricular Contractions
- 1653: ASA 325mg given
- 1654: Nitro spray 0.4 milligrams sl with additional doses throughout transport
- 1656: EMS departs scene
- Additional medications: Zofran, Fenatnyl, Morphine, Nitro spray

First EKG per EMS



1st EKG obtained

Arrival in ER

- 1715: Activation of Code STEMI

  1731: Arrival in ER

  1736: EKG completed. ST elevation continued

  1739: Cath Lab Staff arrived

  1745: Patient transferred to Cath Lab

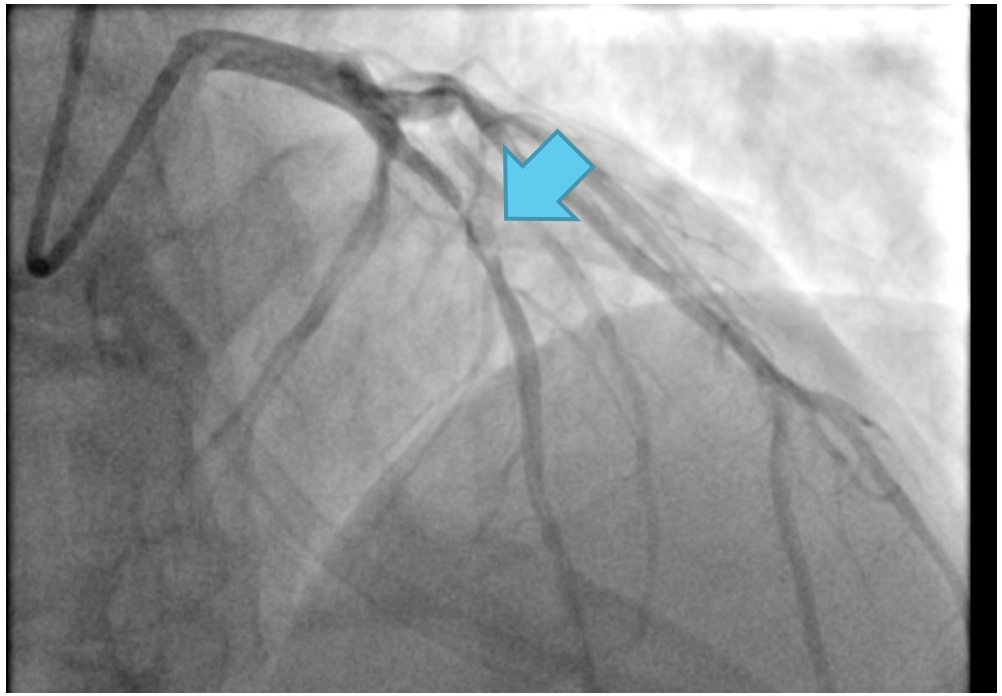
Arrival to Cath Lab

- 1745- Arrived in Cath Lab
- NS infusing, O2 2L/NC, alert orientated x 4, chest pain 5/10, AP pads intact
- Monitors applied
- 1802- Access achieved
- Coronary arteriograms:
    - Left main no significant stenosis
    - Left Anterior Descending- Mid stent. 99% mid to distal thrombosis.

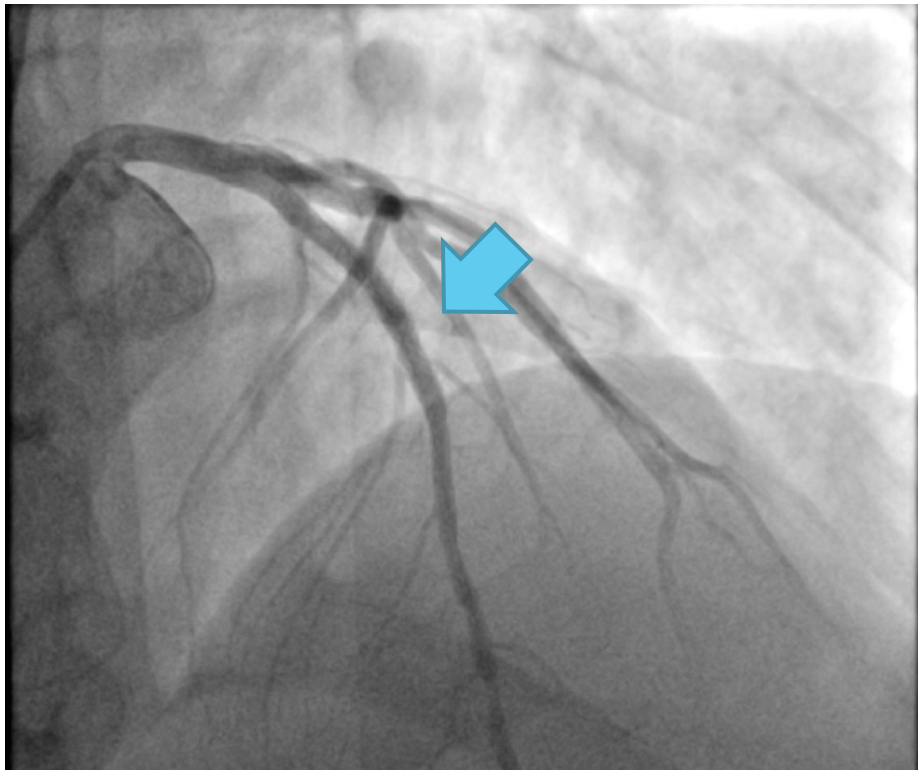
      TIMI 1 flow distally. Distal LAD 50% stenosis
    - Ramus Intermedias no significant stenosis
    - Left Circumflex- no significant stenosis
    - Right coronary artery- no significant stenosis

Intervention

- 1810- First device inflated
- 1815- Scoring balloon utilized
- 1817- Additional balloon inflations
- 1827- Stent deployed
- 1841- TR band applied
- 1842- Patient transferred to ICU



Angiogram LAD– Pre PCI



Angiogram LAD – Post PCI

Progression to Discharge

- 6/5 LV 25% per echo
- 6/5 Cardiac Rehab visit

  Care Manager visit
- 6/6 Smoking Cessation visit
- 6/7 Patient discharged home on the following meds:
  - Amiodarone, ASA, Carvedilol, Crestor, Entresto, Jardiance, Nicotine, Ticagrelor

  Patient discharged with a lifevest due to his low EF

  Phase II Cardiac Rehab post discharge

We are called to make a healthy difference in people's lives.

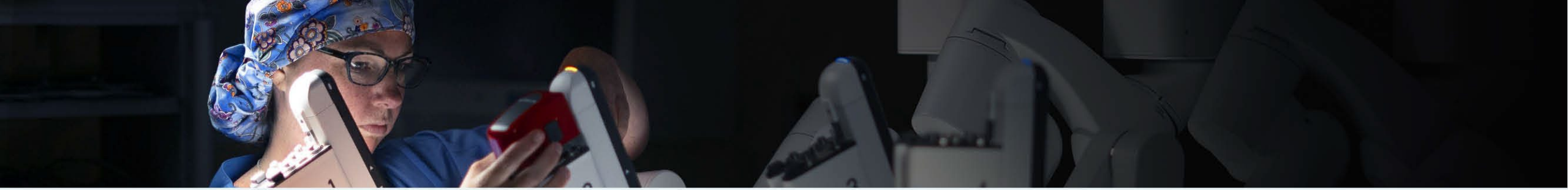
Knowledge is good but compliance is vital

Ryan Telford BSN, RN

Essentia Health – Fargo

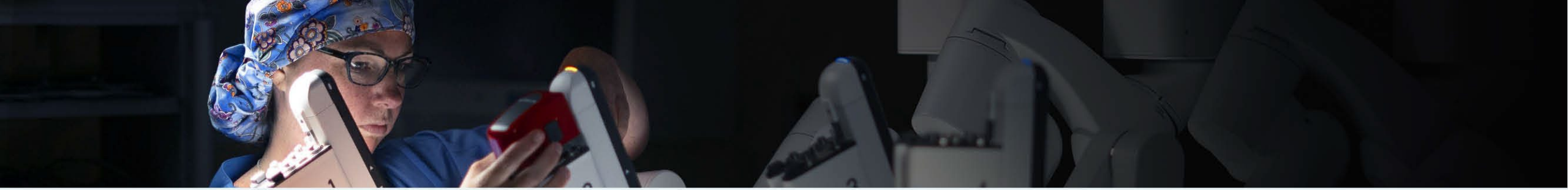
Chest Pain Center and STEMI Program Manager

Essentia Health



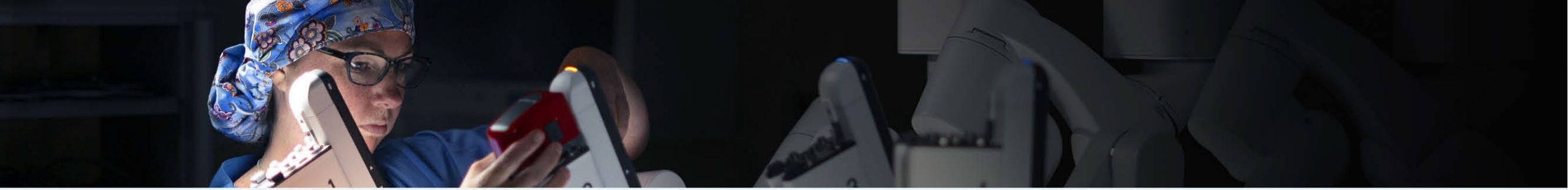
Disclosure

I have no actual or potential conflict of interest in relation to this presentation.



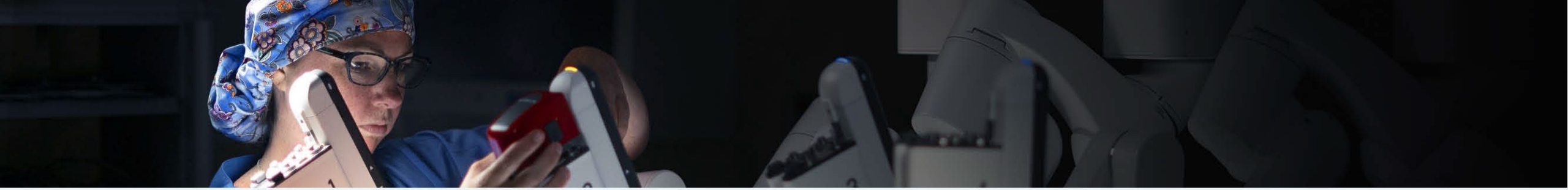
Case Review

70yo male presented to the St Mary's Detroit Lakes Emergency Department in the late morning hours with c/o chest heaviness since the previous evening, shortness of breath, fatigue, and pain radiating into both arms. Stated was getting worse through the night.



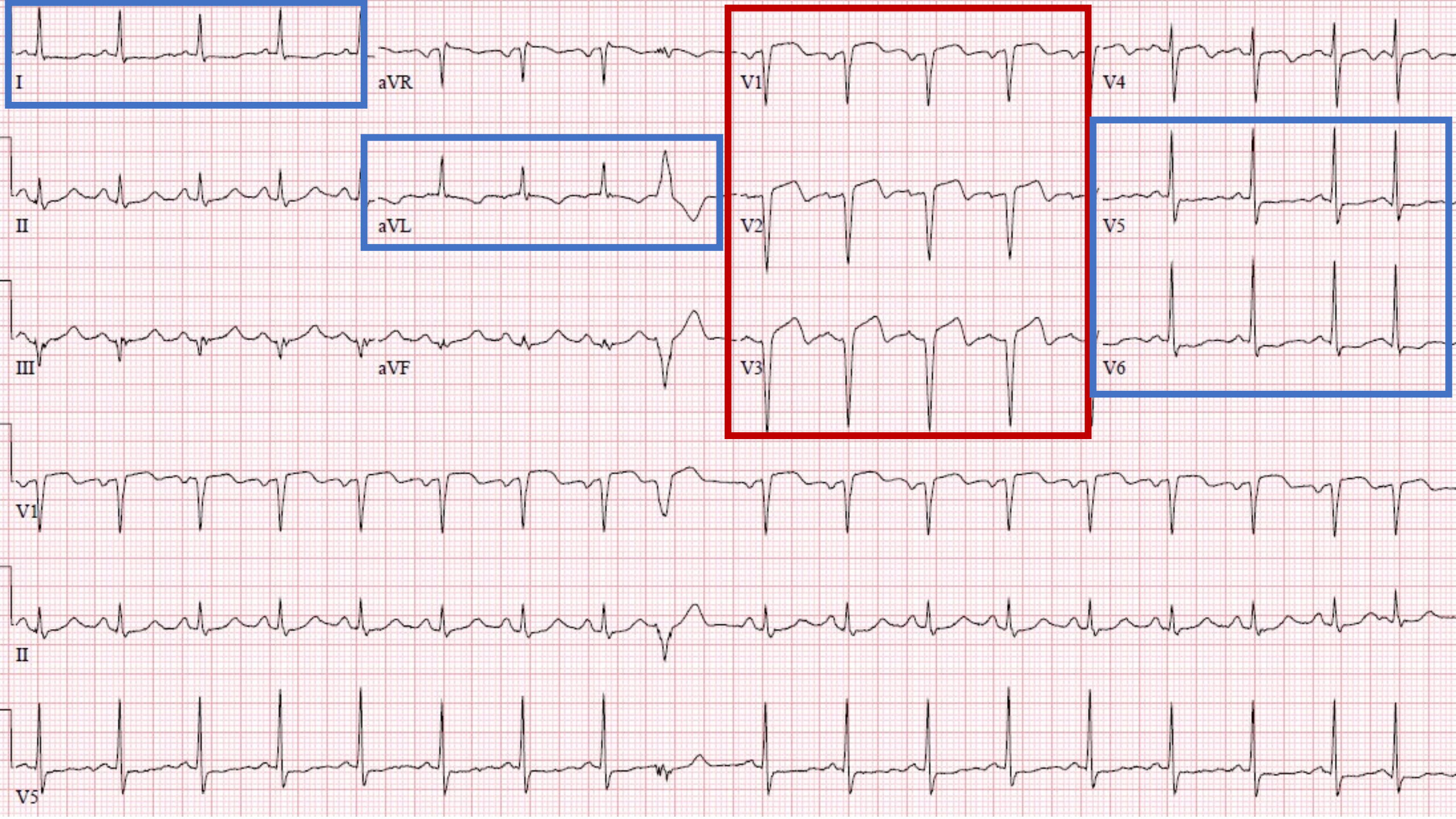
Case Review

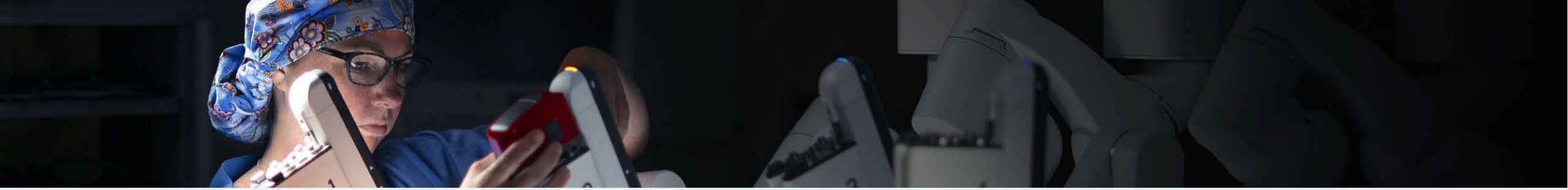
Pt has a history of Atrial fibrillation and HTN. He admitted he quit taking his Eliquis and HTN medication about a month prior on his own without clearance from his medical team. Initial VS showed BP 176/122.



Case Review

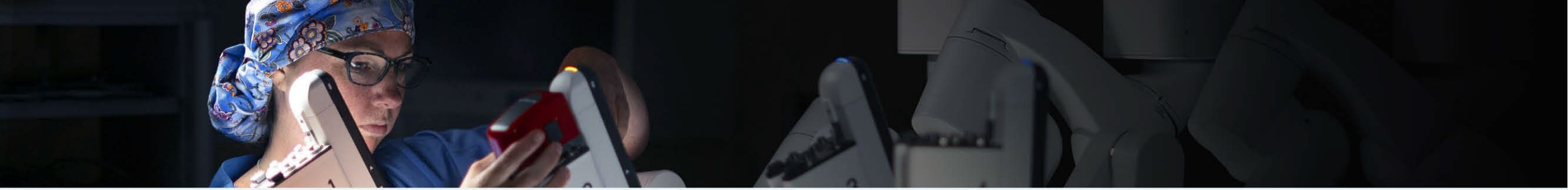
RN performed an ECG that showed sinus tach at 109 with ST elevation in V1-V3 with depression in V5-V6, I and T-wave inversion in I and aVL. Provider called One Call in Fargo and spoke with Dr Grondahl in Cardiology. STEMI Alert was activated.


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
V1
II
V5



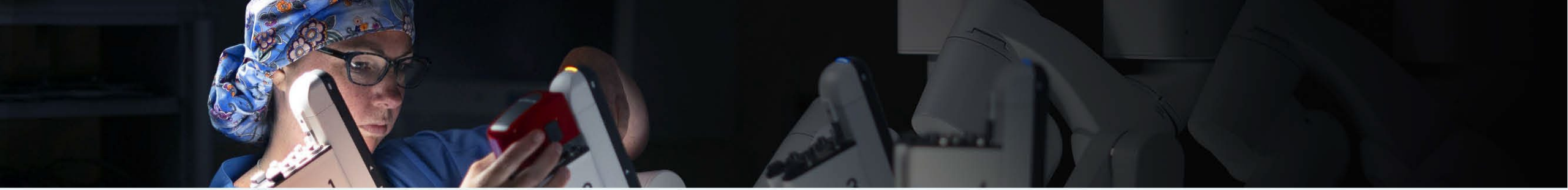
Case Review

St Mary's EMS was called and available for transfer to Fargo. NTG SL, Heparin, and Aspirin were given, IV started, and labs drawn. EMS arrived and transported to Fargo. Pt was stable and blood pressure decreased en route.



Case Review

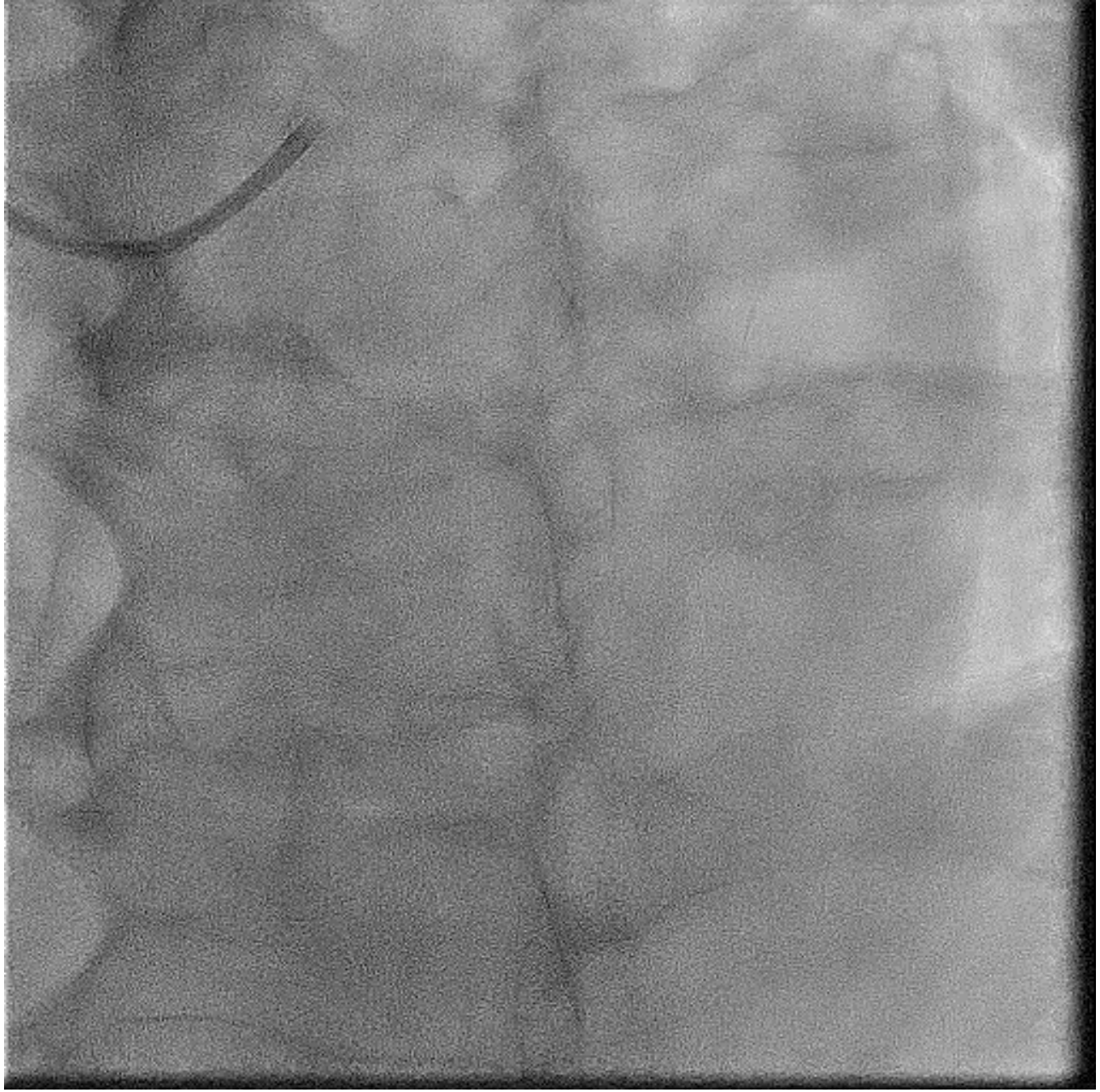
At arrival, pt was taken directly to Cath Lab with Dr Farnan. Pt was pain free at arrival. Right radial artery was accessed for procedure.

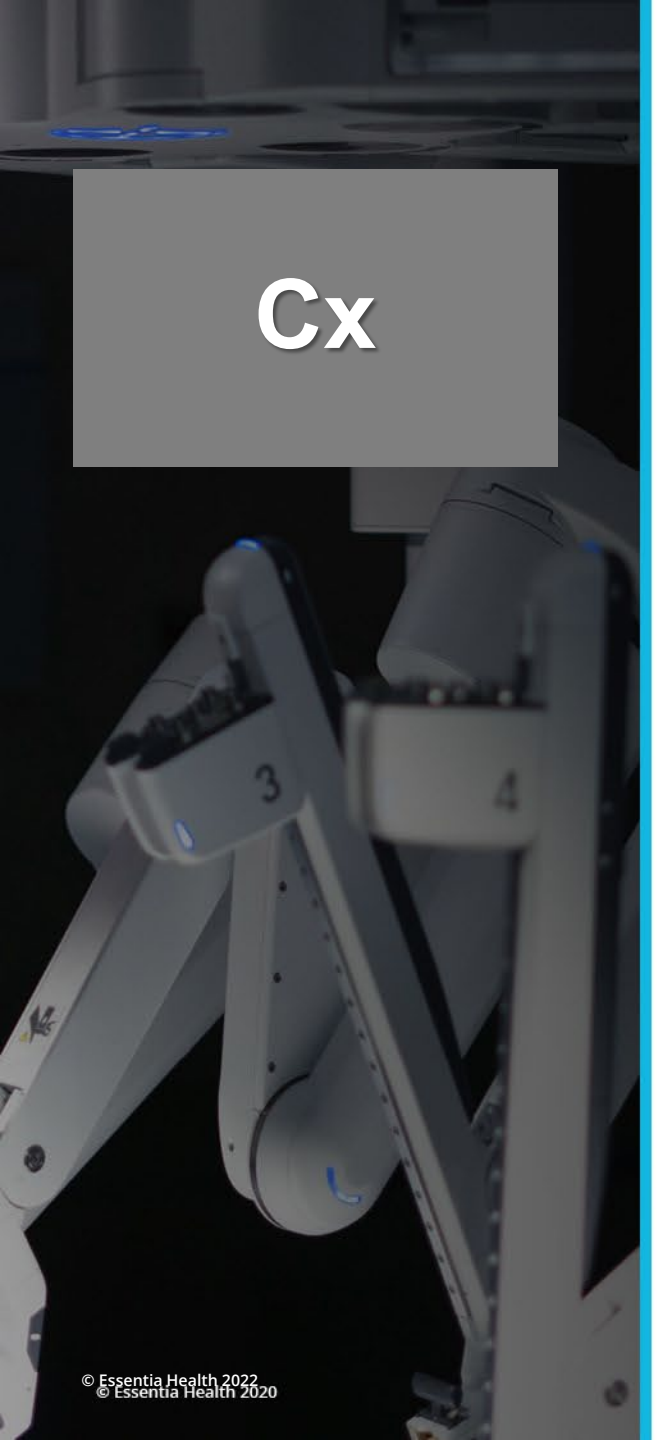


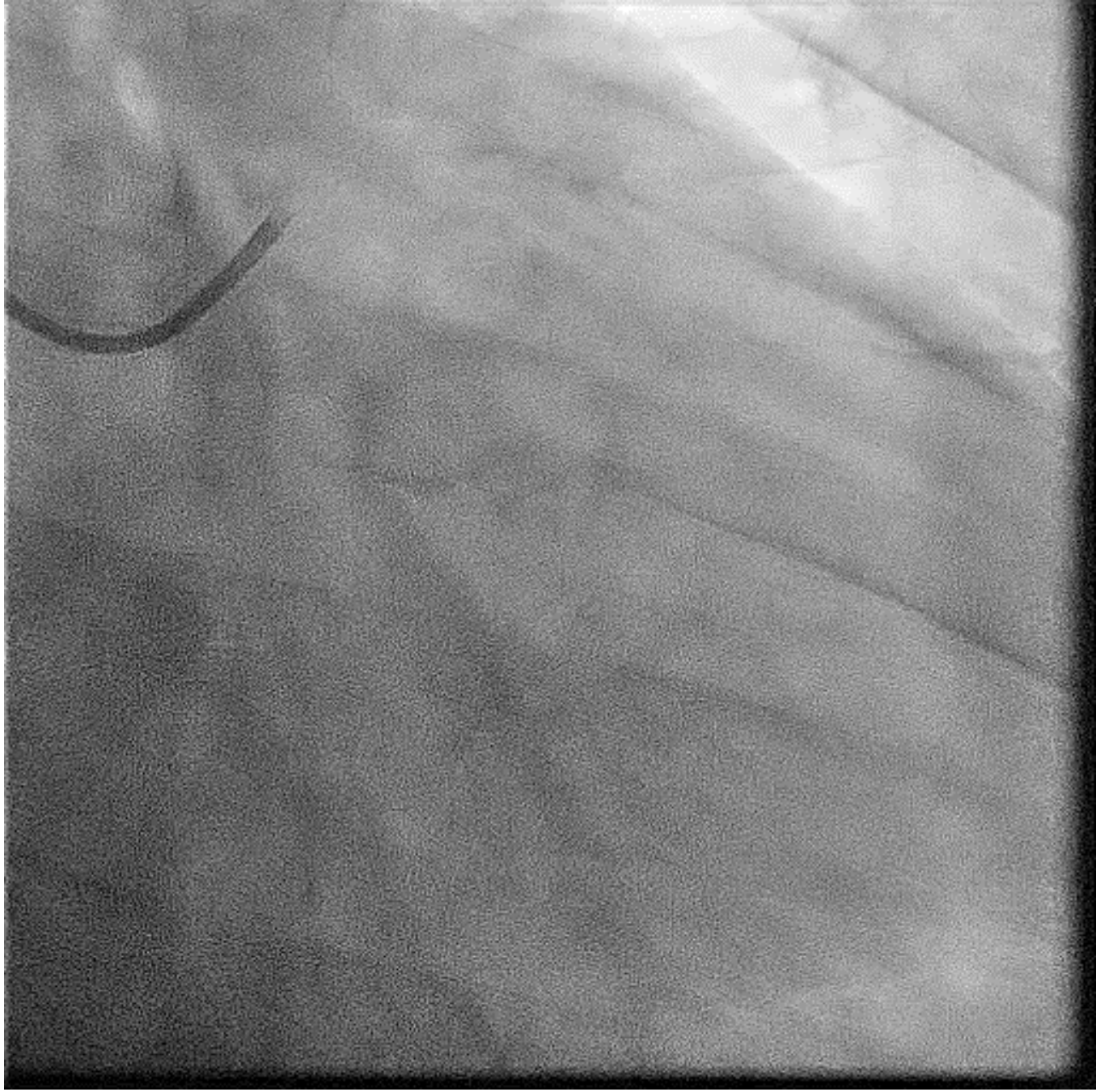
Case Review

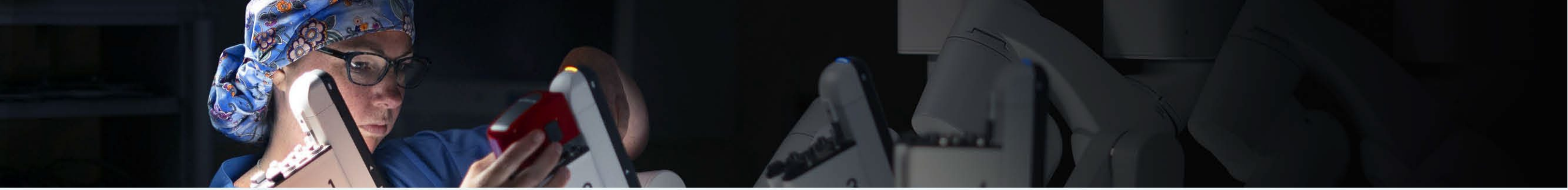
Angiogram showed 50% ostial LAD occlusion, chronic total occlusion (CTO) to prox LAD (culprit), 70% mid LAD occlusion, 70% ramus stenosis, 100% prox Cx stenosis with marginals providing collaterals to RPAV and ramus, and 85% prox RCA stenosis.

LAD



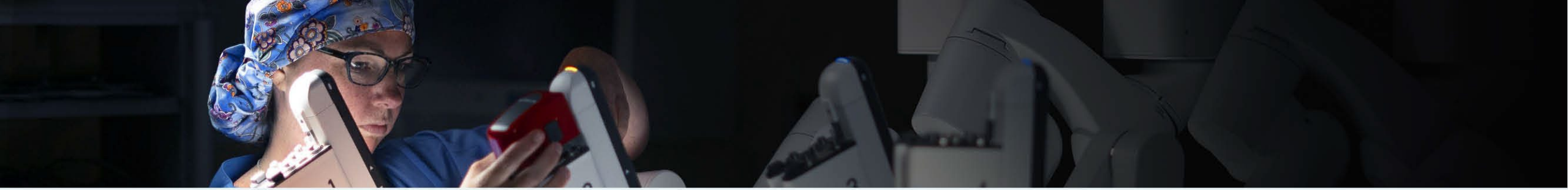






Case Review

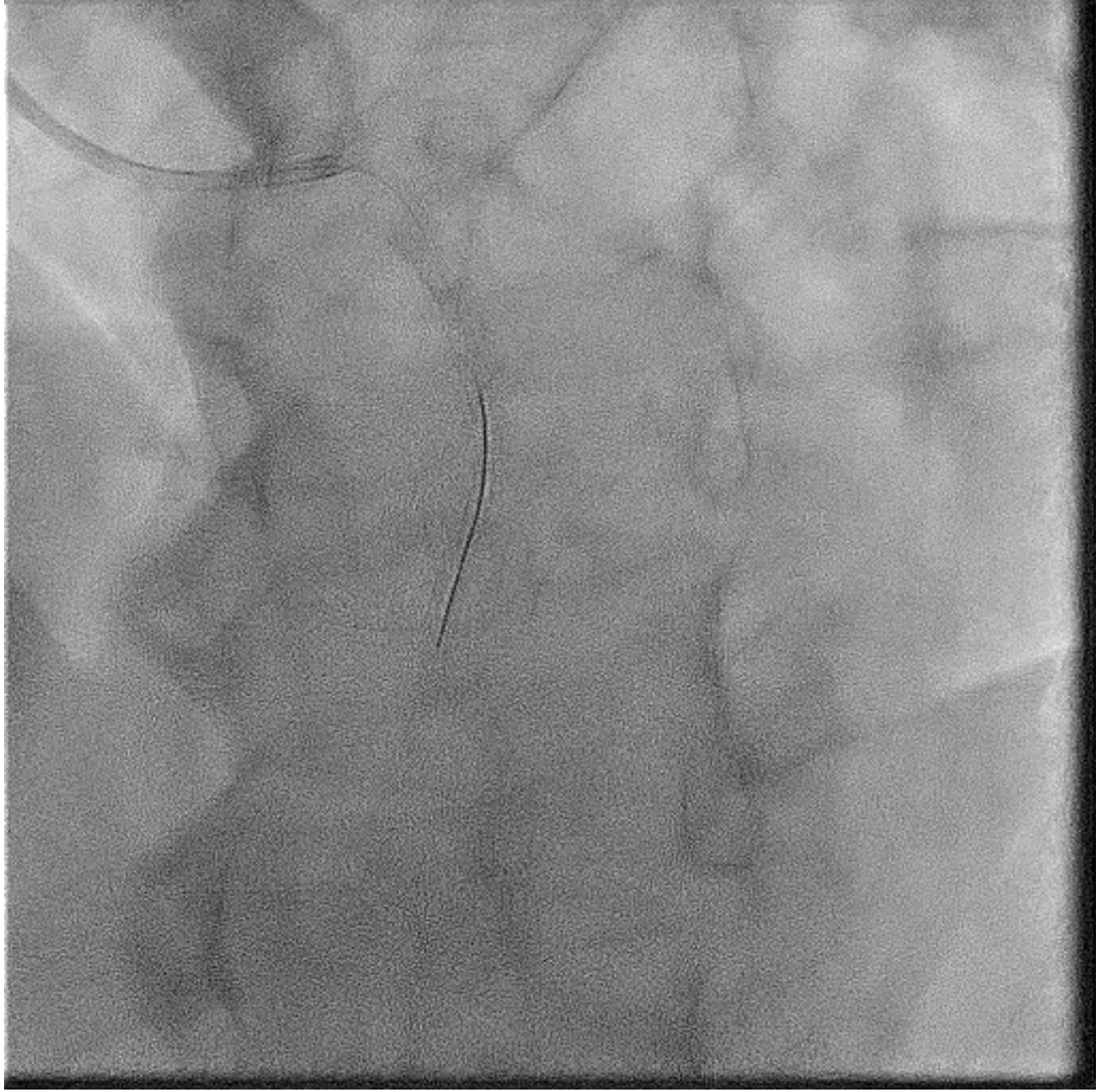
Due to multiple areas of concern, CV Surgery was consulted and came to speak with Dr Farnan about how to proceed. After discussing options, they decided to attempt stenting first.

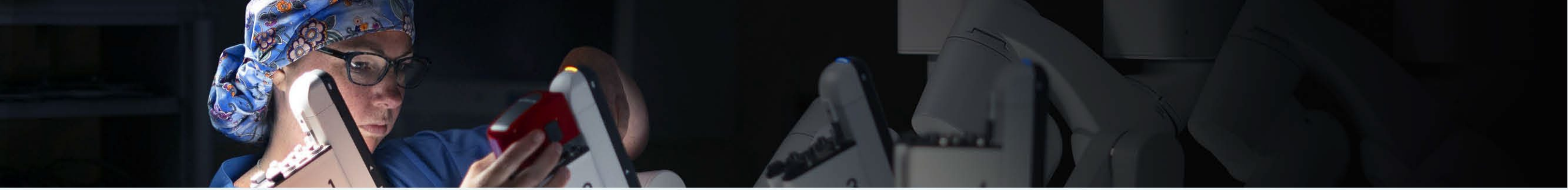


Case Review

Dr Farnan was able to pass a wire through the prox LAD occlusion. He used a small balloon to open the artery and successfully place a stent to prox LAD. After opening up the LAD, he was also able to successfully place a second stent in the mid LAD. Both stents attained TIMI 3 flow to LAD.

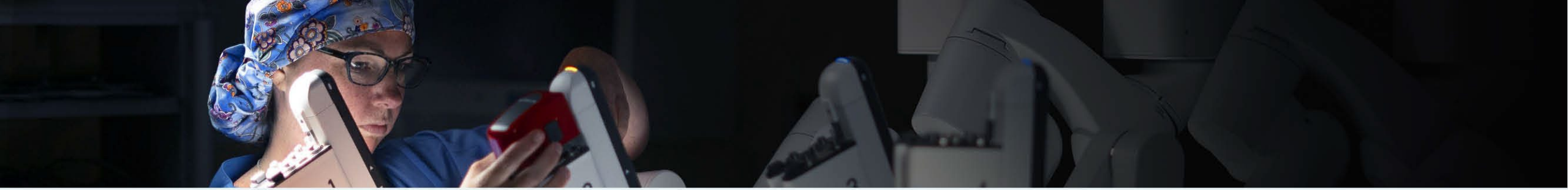
LAD





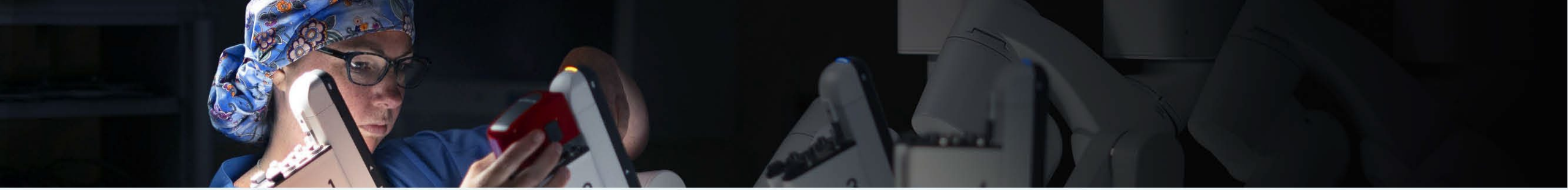
Case Review

Integrilin was started during the procedure. Pt tolerated the procedure well and was restarted on Heparin gtt. Post procedure, pt went to CCU with a CV Surgery consult about further treatment. CV Surgeon spoke with the pt and they decided to have pt follow up with his cardiologist in Minneapolis after discharge from hospital.



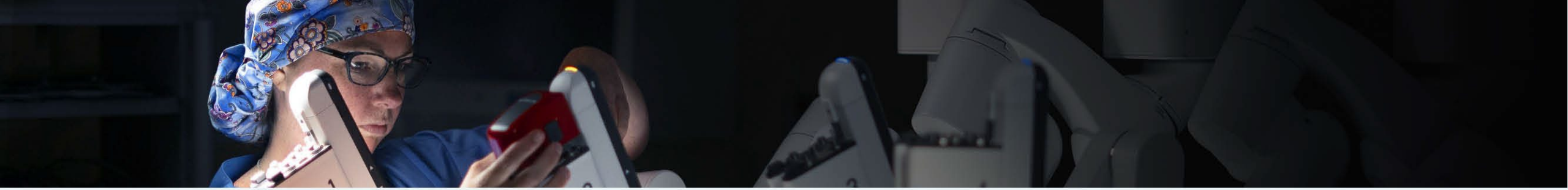
Case Review

In CCU, pt had an Echo completed that showed EF 40%-45% with apical akinesis. The next day his troponin peaked at 208 and started to trend down. Pt stated his symptoms improved and was waiting disposition and/or discharge. Later that day he converted to rapid Afib. He was given Digoxin and Apixaban.



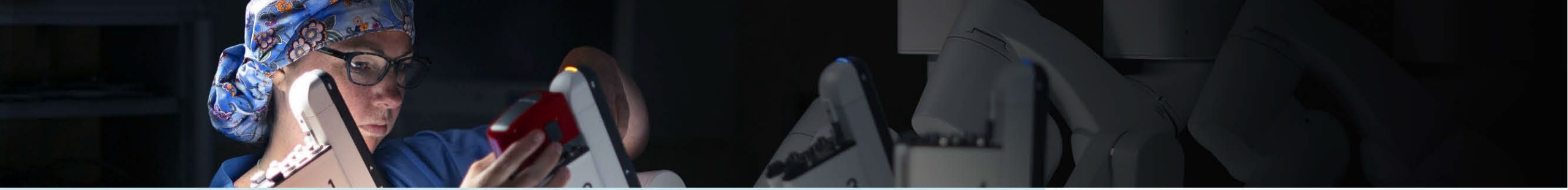
Case Review

The next morning, he was still in Afib with RVR. He was taken for a TEE/Cardioversion. When the probe was inserted into the esophagus, he converted into a sinus rhythm. No TEE/Cardioversion was done. Pt was taken back to his room.



Case Review

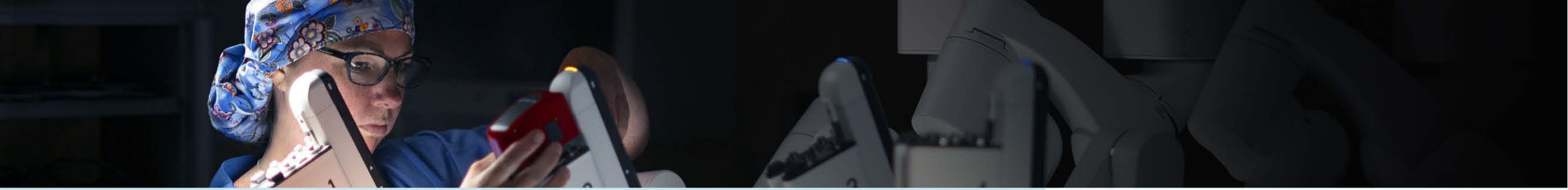
He was cleared that same morning and discharged home with wife. Plan was to have him follow up with Minnesota Heart Institute for further care. I was not able to review his follow up in EPIC Care Everywhere.



Takeaways

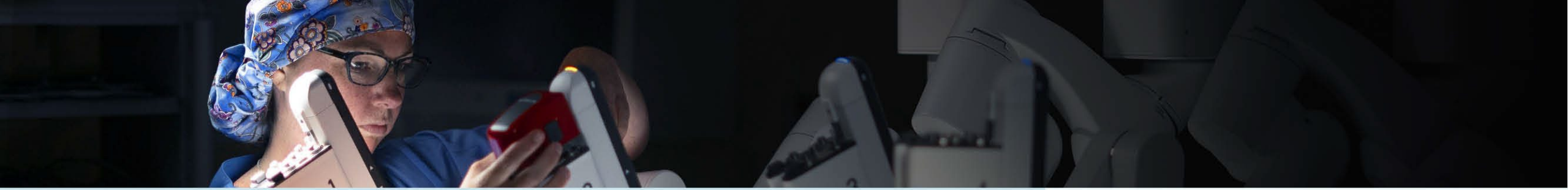
- Do not ignore symptoms, especially if you have a history of vascular disease.
- Medication compliance is of utmost importance. Medication nonadherence contributes approximately $100 to $300 billion in unnecessary healthcare costs annually.

https://www.elsevier.com/__data/assets/pdf_file/0005/991724/5A_4127_EL_Medi_Adherence_Whitepaper_FINAL_DIGI-112119.pdf

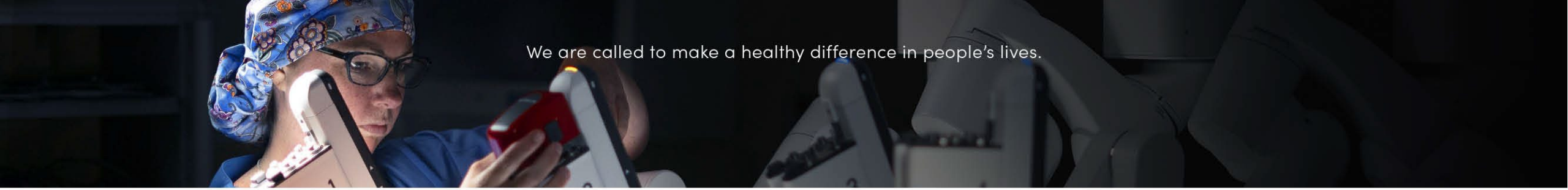


Takeaways

- We need to use our Social Workers, Social Services, and other resources to ensure patients have what they need to prevent readmissions
- We as nurses also need to provide education and information, ie return demonstration, to ensure understanding



What questions do you have?



Thank you for what you do. Your communities and patients appreciate the services you provide!

Thank you for attending the ND Stroke/STEMI Conference

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