

# STEMI Case Review and Lessons Learned

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# STEMI CASE STUDIES

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HEALTH

# DISCLOSURES

- No personal or financial disclosures

# TIME SENSITIVE METRICS

Hospital



EMS



# TIME SENSITIVE METRICS



Early Activation

+

Early Recognition

+

Timely Transport

+

Timely Reperfusion

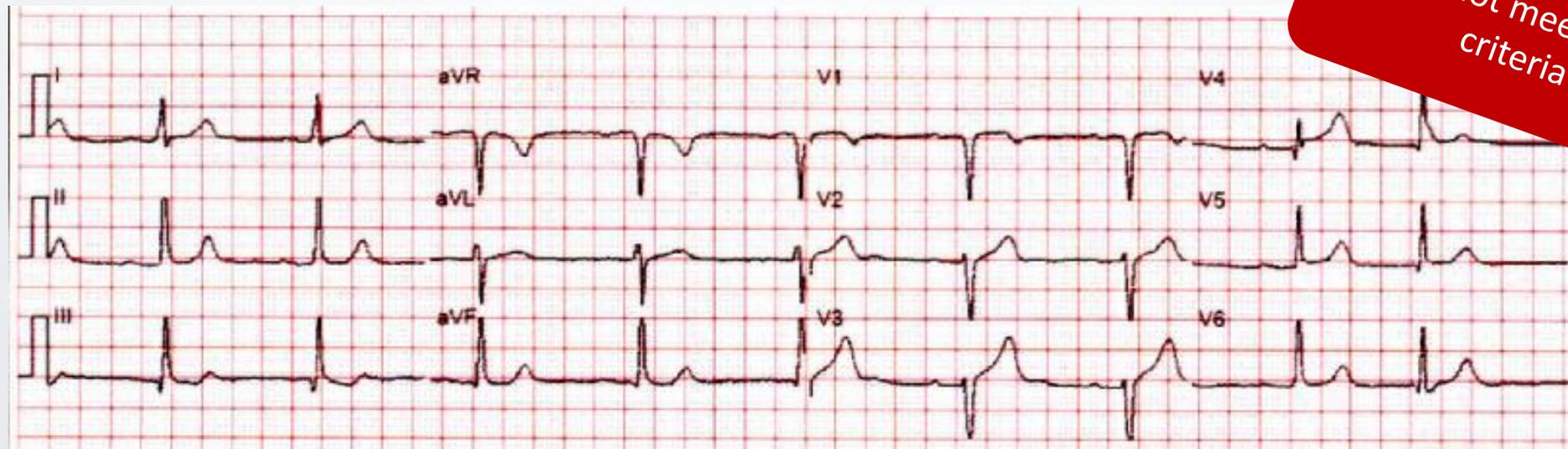
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Saved Heart Muscle/Quality of Life

## CASE STUDY #1

911 was called for an elderly male patient that awoke with CP radiating into his L arm and jaw

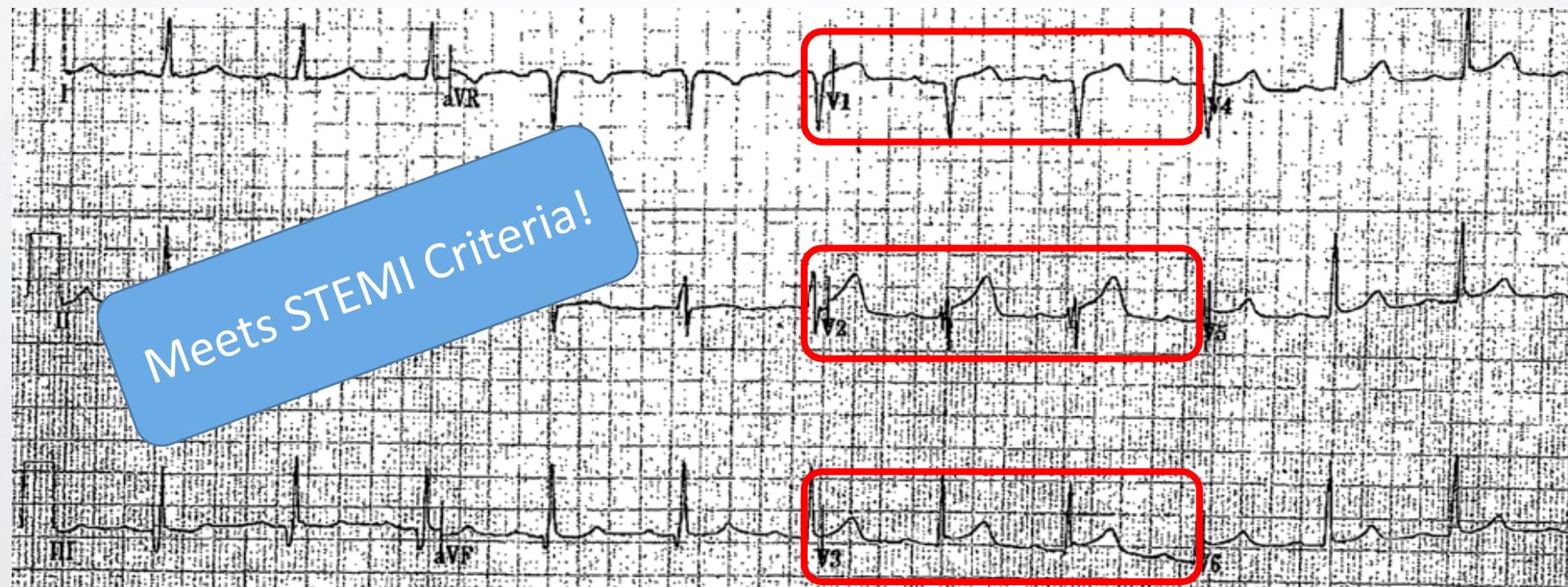
- **0526** – EMS arrived on scene to find this patient to be pale and diaphoretic
- **0528** – 12L EKG obtained



Does not meet STEMI  
criteria

# CASE STUDY #1

- **0549** – Pt in VT – defib x1
- **0551** – Pt cardioverted x1 for VT with a pulse
- **0601** – Pt arrived to Critical Access Hospital ED
- **0605** – 12L EKG obtained

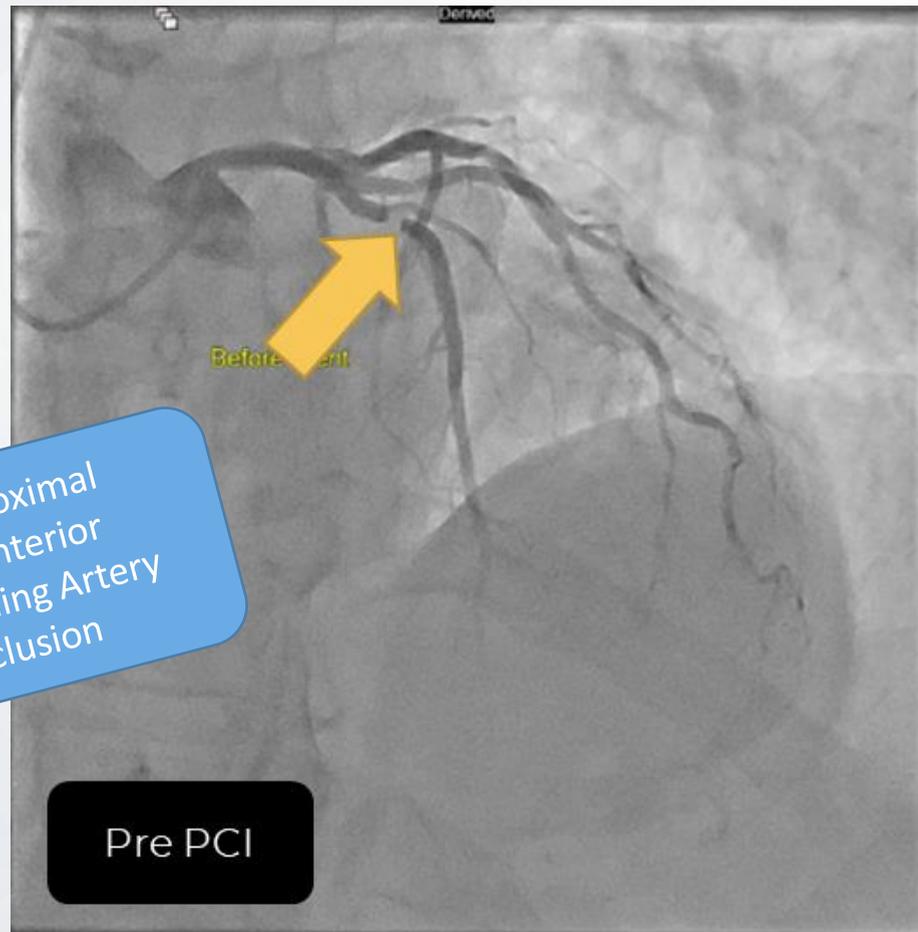


## CASE STUDY #1

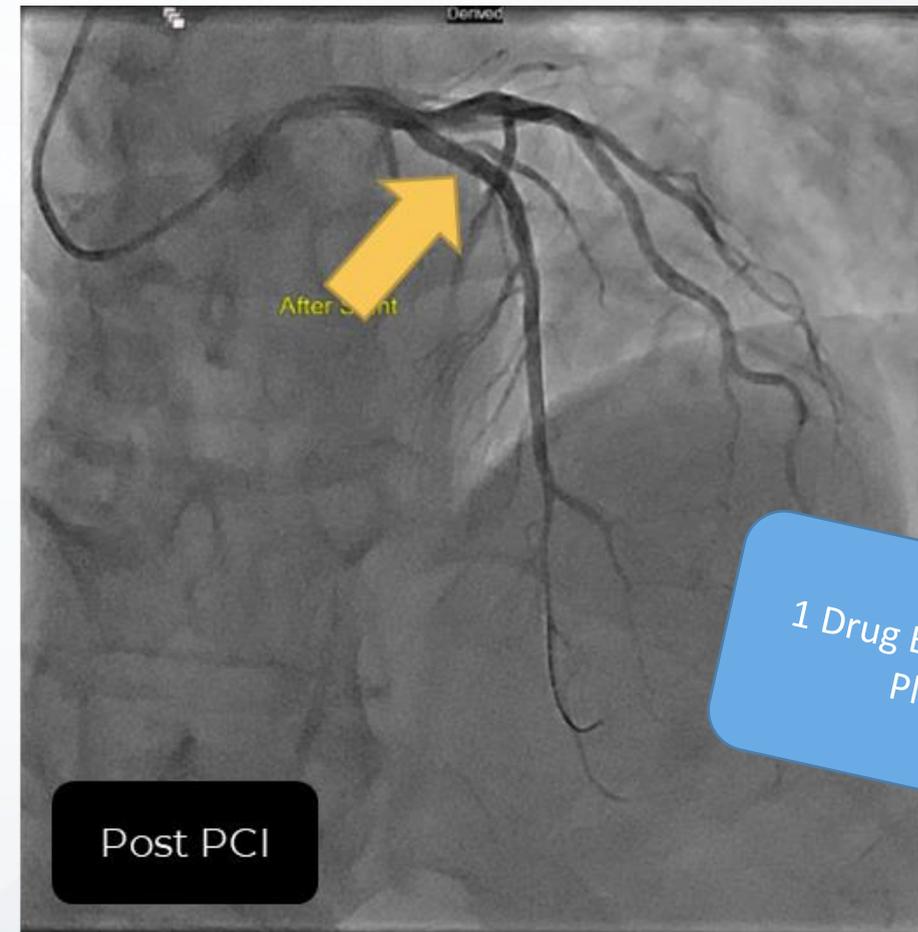
- **0611** – Sanford Fargo One Call notified of STEMI patient
- **0616** – EMS dispatch notified of the need for patient transfer to Fargo
- **0620** – EMS at patient bedside in the ED
- **0631** – EMS departed the ED with patient, on the way to Fargo

# CASE STUDY #1

- **0718** – Patient arrive to SMCF Cath Lab



95% Proximal  
Left Anterior  
Descending Artery  
Occlusion



1 Drug Eluting Stent  
Placed

# CASE STUDY #1

Early recognition of a STEMI is key for these patients

The clock to stent placement starts with the STEMI EKG

Patient discharged 2 days later!

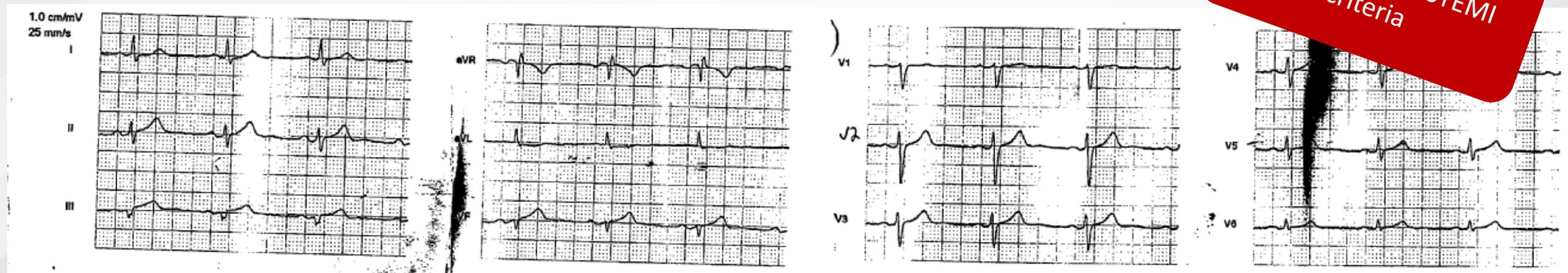
Measure	Actual Time	Goal Time
EMS FMC to EKG	2	≤10 minutes (National Goal)
STEMI EKG to One Call	6	≤10 minutes
STEMI EKG to Door Out	26	≤45 minutes (National Goal)
Transport Time	47	
CCL Door to PCI	16	≤30 minutes
STEMI EKG to PCI	89	≤120 minutes (National Goal)

Great Door in Door out Time for the Critical Access Hospital!

## CASE STUDY #2

911 was called for an 83 year old male with c/o jaw pain and chest pain

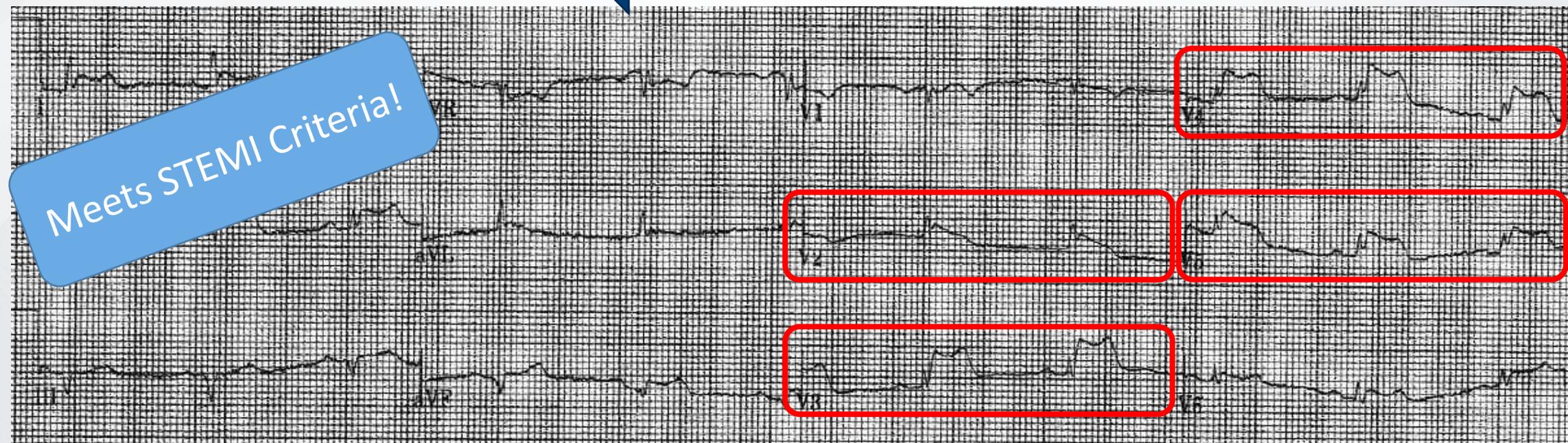
- **1040** - A local BLS EMS service arrived on scene
- **1046** – 12L EKG obtained



## CASE STUDY #2

- **1059** – EMS departed the scene to intercept with an ALS EMS service
- **1122** – ALS intercept
- **1156** – EMS arrived to the Critical Access Hospital ED with patient
- **1159** – 12L EKG obtained
- **1233** – 12L EKG obtained

Serial EKG's are VERY important!!!



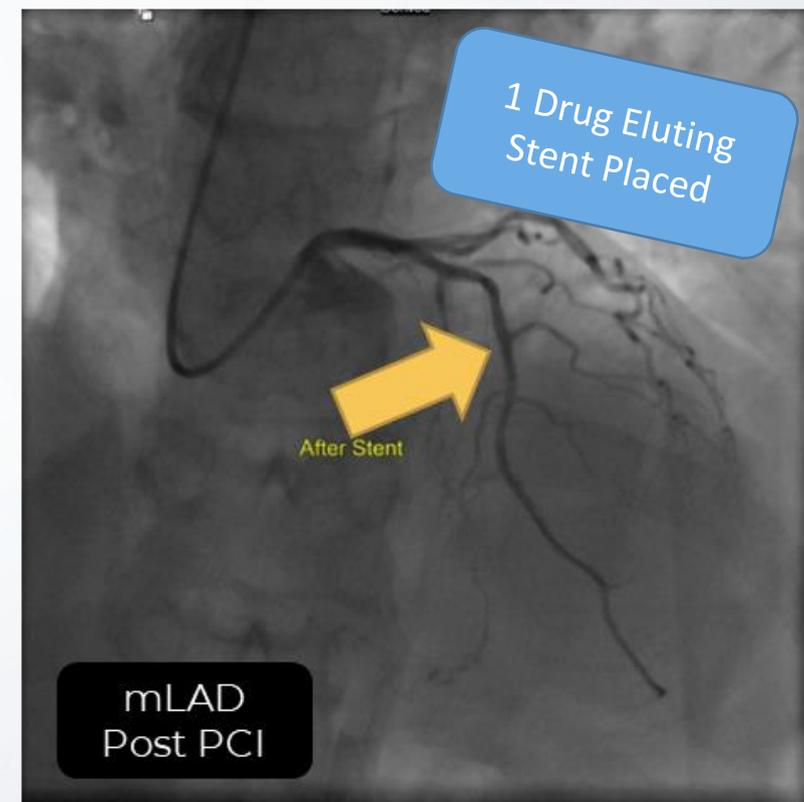
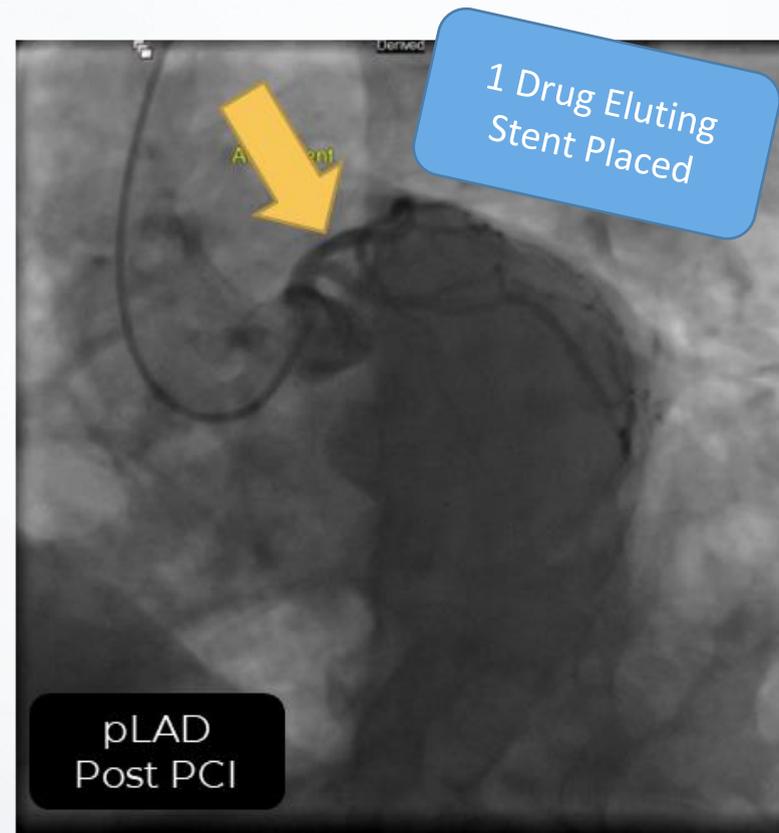
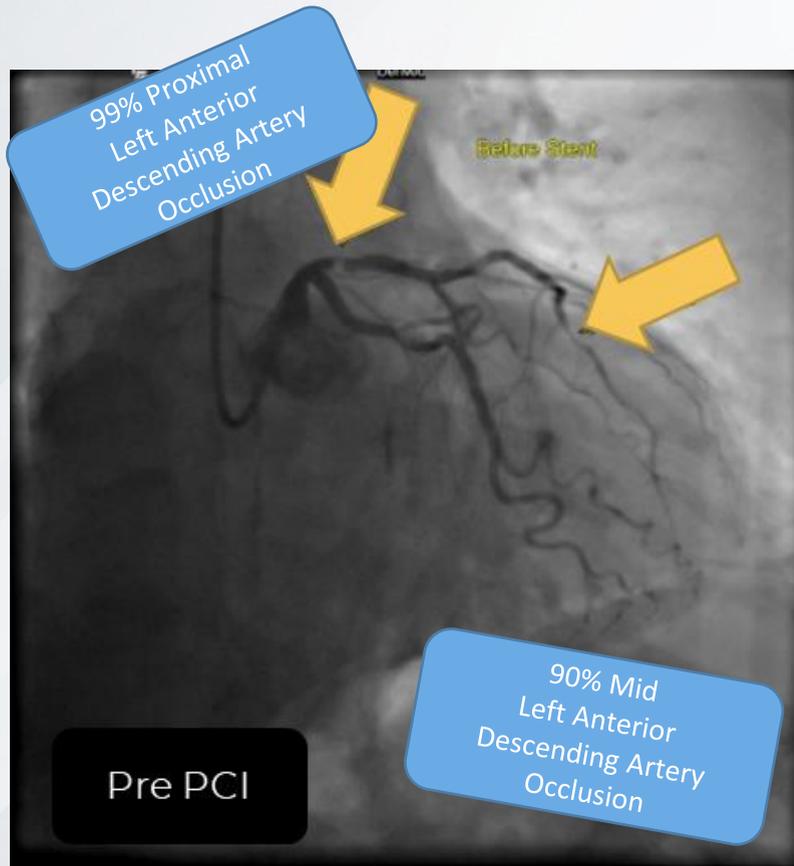
## CASE STUDY #2

- **1235** – Sanford Fargo One Call notified of STEMI patient. Sanford AirMed dispatch notified of the need for patient transfer
- **1246** – TNK administered to patient
  - **THIS STOPS THE CLOCK TO PCI**
- **1323** – Sanford AirMed staff at patient
- **1333** – AirMed departed the ED with the patient, on the way to SMCF Cath Lab



## CASE STUDY #2

- **1554** – Patient arrived to SMCF Cath Lab



# CASE STUDY #2

Patient discharged 2 days later!

Great initial EKG time from EMS = early recognition!

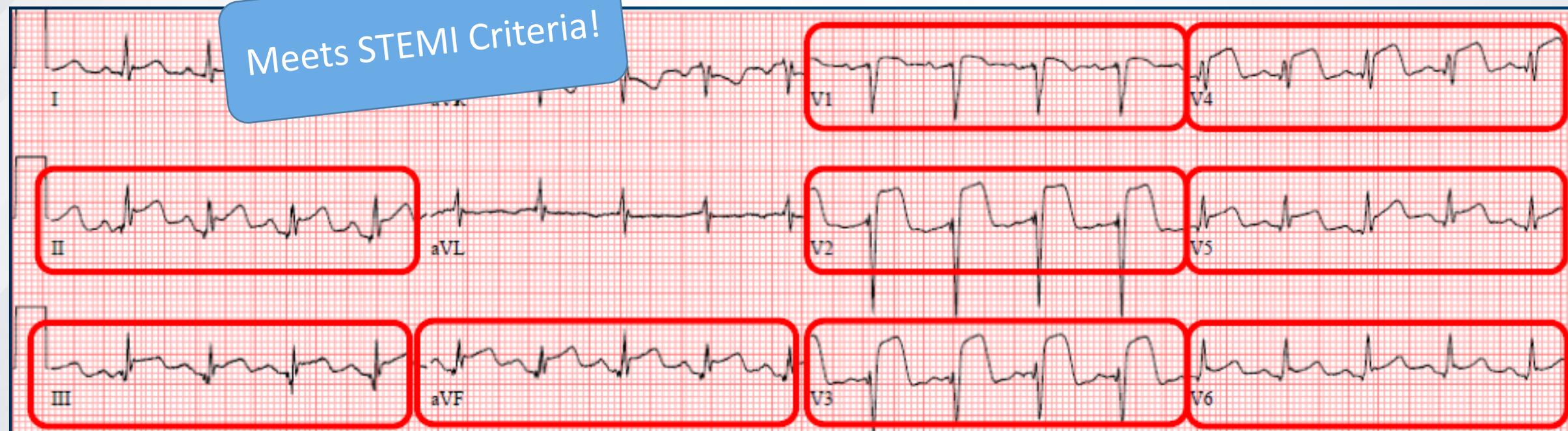
Early activation after early recognition is key for STEMI patients

Measure	Actual Time	Goal Time
FMC to EKG	6	≤10 minutes (National Goal)
STEMI EKG to One Call	2	≤10 minutes
STEMI EKG to Lytics	13	≤30 minutes
STEMI EKG to Door Out	60	≤45 minutes (National Goal)
Transport Time	N/A	
CCL Door to PCI	N/A	≤30 minutes
STEMI EKG to PCI	N/A	≤120 minutes (National Goal)

This hospital knew that due to their location, the patient needed Lytics

## CASE STUDY #3

- **2256** – 53 year old male presented to a Critical Access Hospital ED with c/o chest discomfort x3 days. About an hour PTA, the pain suddenly increased.
  - 12L EKG obtained



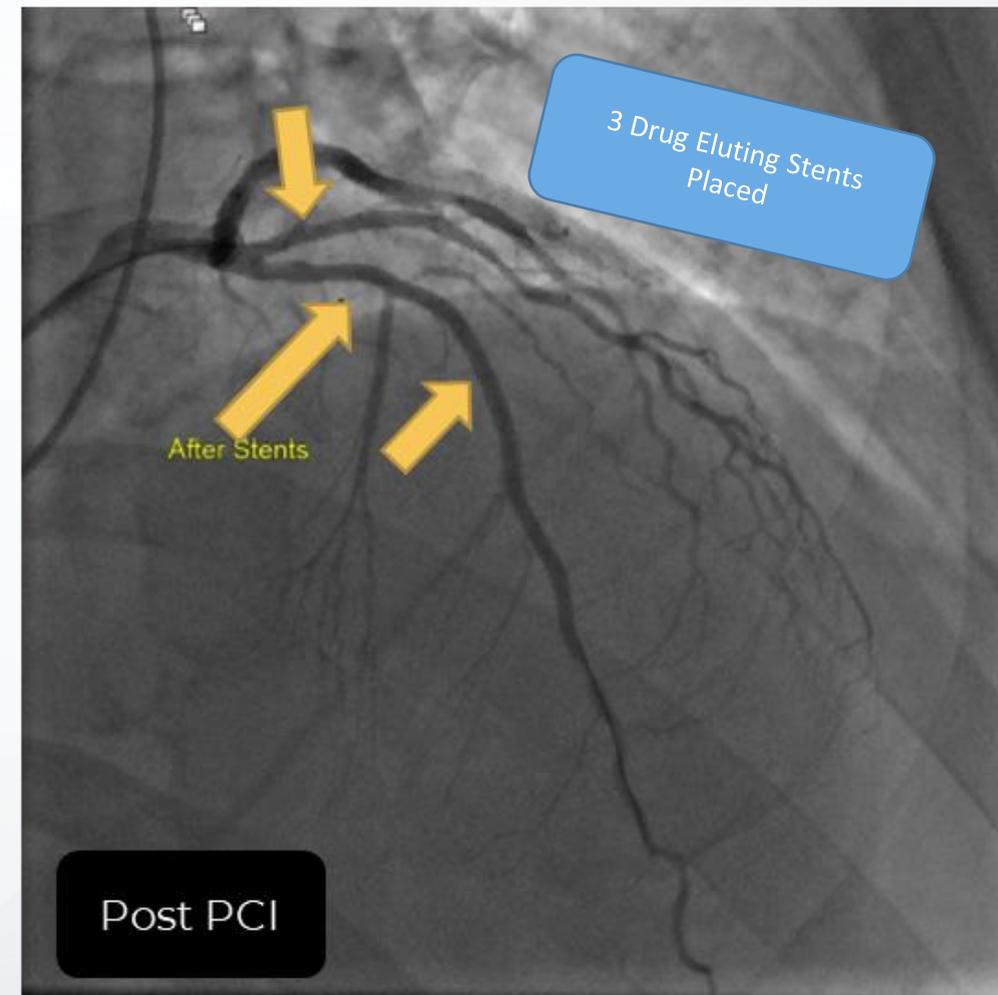
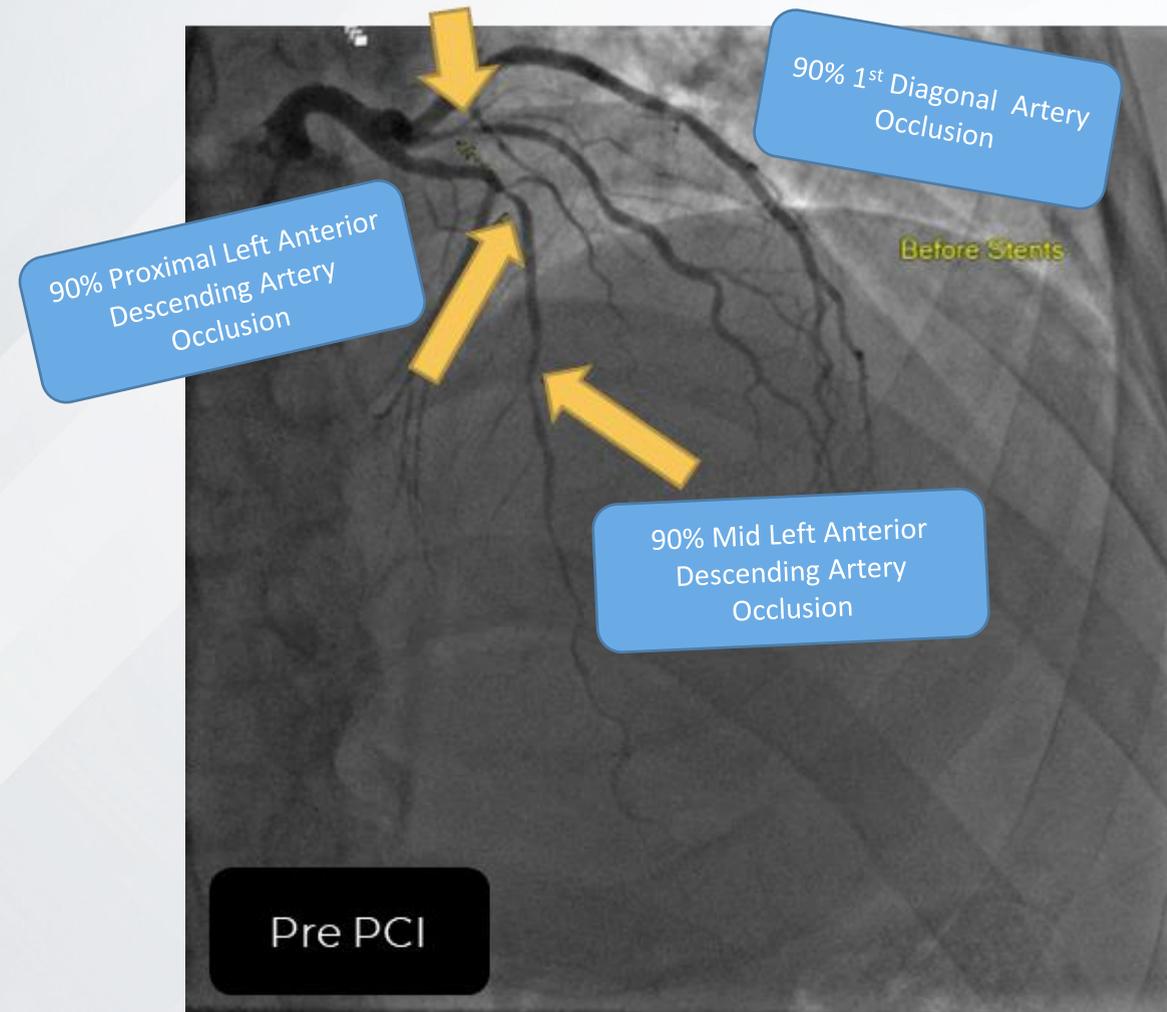
## CASE STUDY #3



- **2307** – Sanford Fargo One Call notified of STEMI patient
  - Due to the weather, air transport was not an option for this patient
    - End of October
- **2327** – Local ground EMS dispatch notified of the need for a transfer
- **2330** – TNK administered to patient
  - **THIS STOPS THE CLOCK TO PCI**
- **2338** – EMS at patient bedside
- **0007** – EMS departed the ED with patient, on the way to Fargo

## CASE STUDY #3

- **0132** – Patient arrived to the SMCF Cath Lab



# CASE STUDY #3

Patient discharged 3 days later!

Great door to EKG time!!

The goal for Door to Lytics is 30 minutes  
Make a plan with the Physician at the PCI center, have an RN ready to draw it up and administer

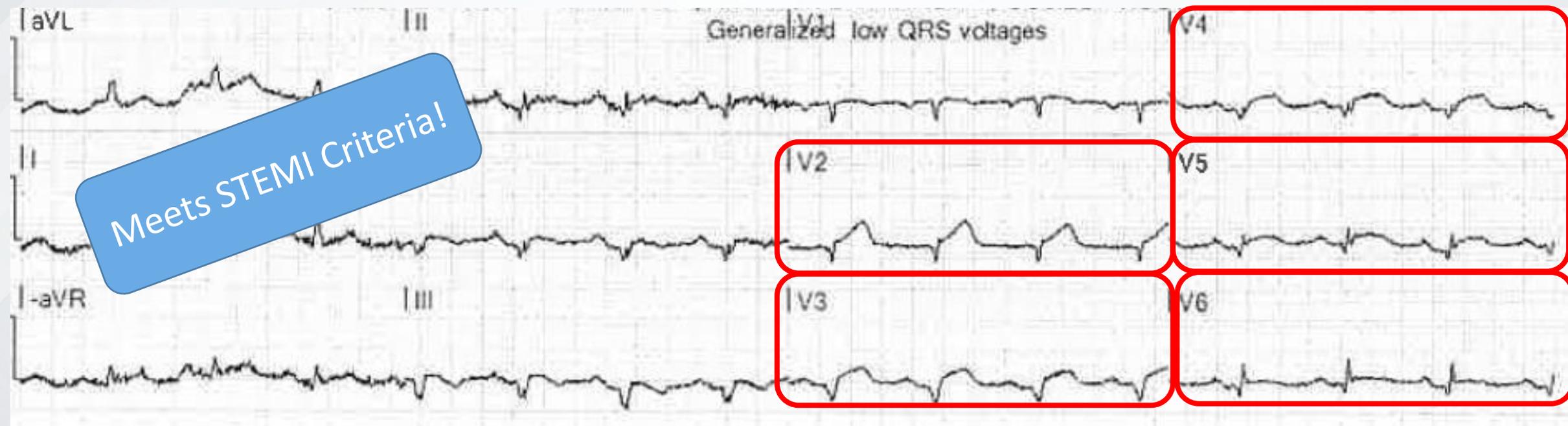
Measure	Actual Time	Goal Time
Door to EKG	0	≤10 minutes (National Goal)
Door to One Call	11	≤10 minutes
Door to Lytics	34	≤30 minutes
Door In Door Out	71	≤45 minutes (National Goal)
Transport Time	85	
CCL Door to PCI	25	≤30 minutes
Referral Door to PCI	181	≤120 minutes (National Goal)

Even after TNK is given, it's important to get the patient out the door as soon as possible

## CASE STUDY #4

911 was called for a 52 year old female with CP

- **0810** – EMS arrived to find pt with c/o CP starting around 0600. Pt stated she felt her body was on fire and she was dizzy
- **0821** – 12L EKG obtained



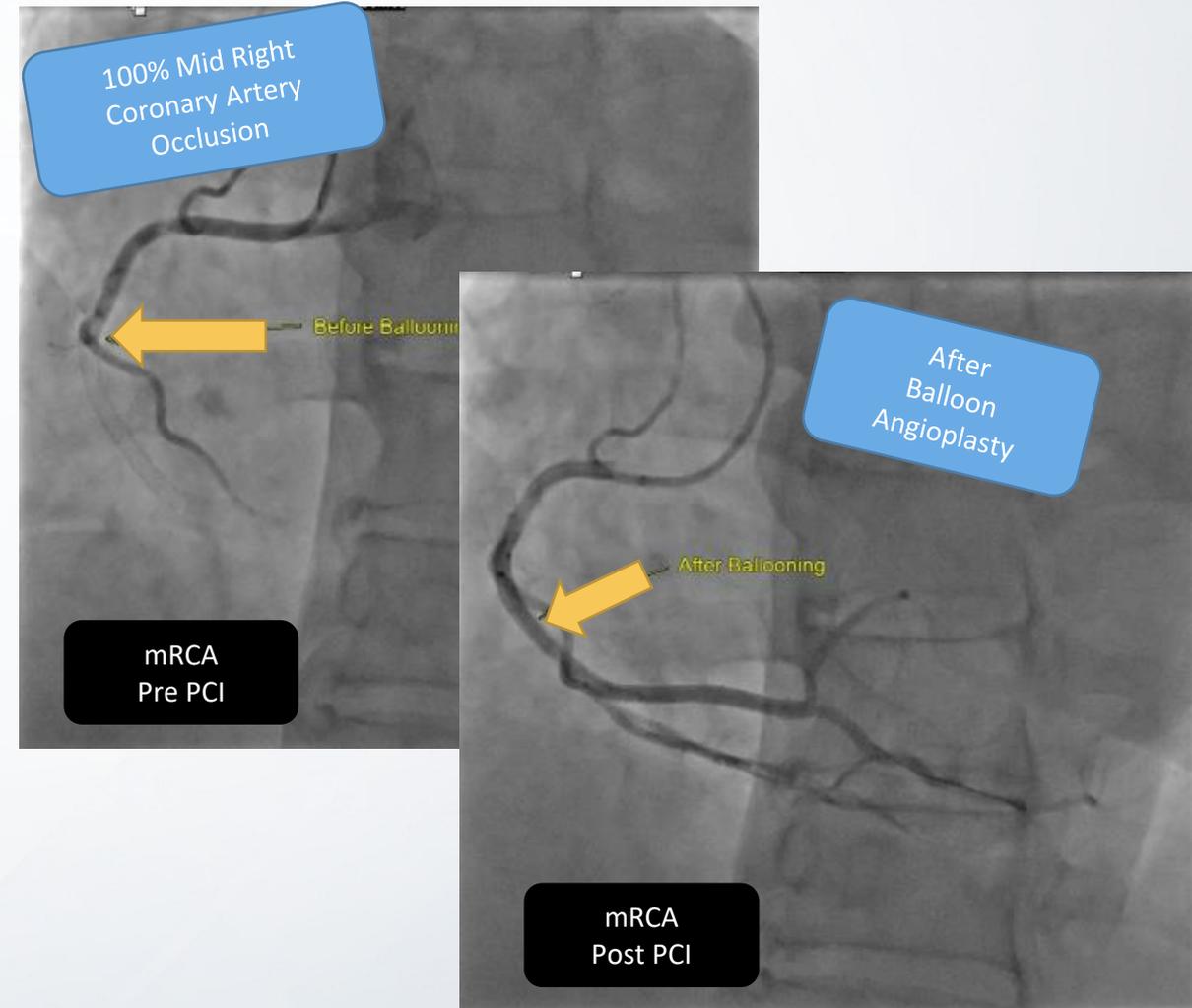
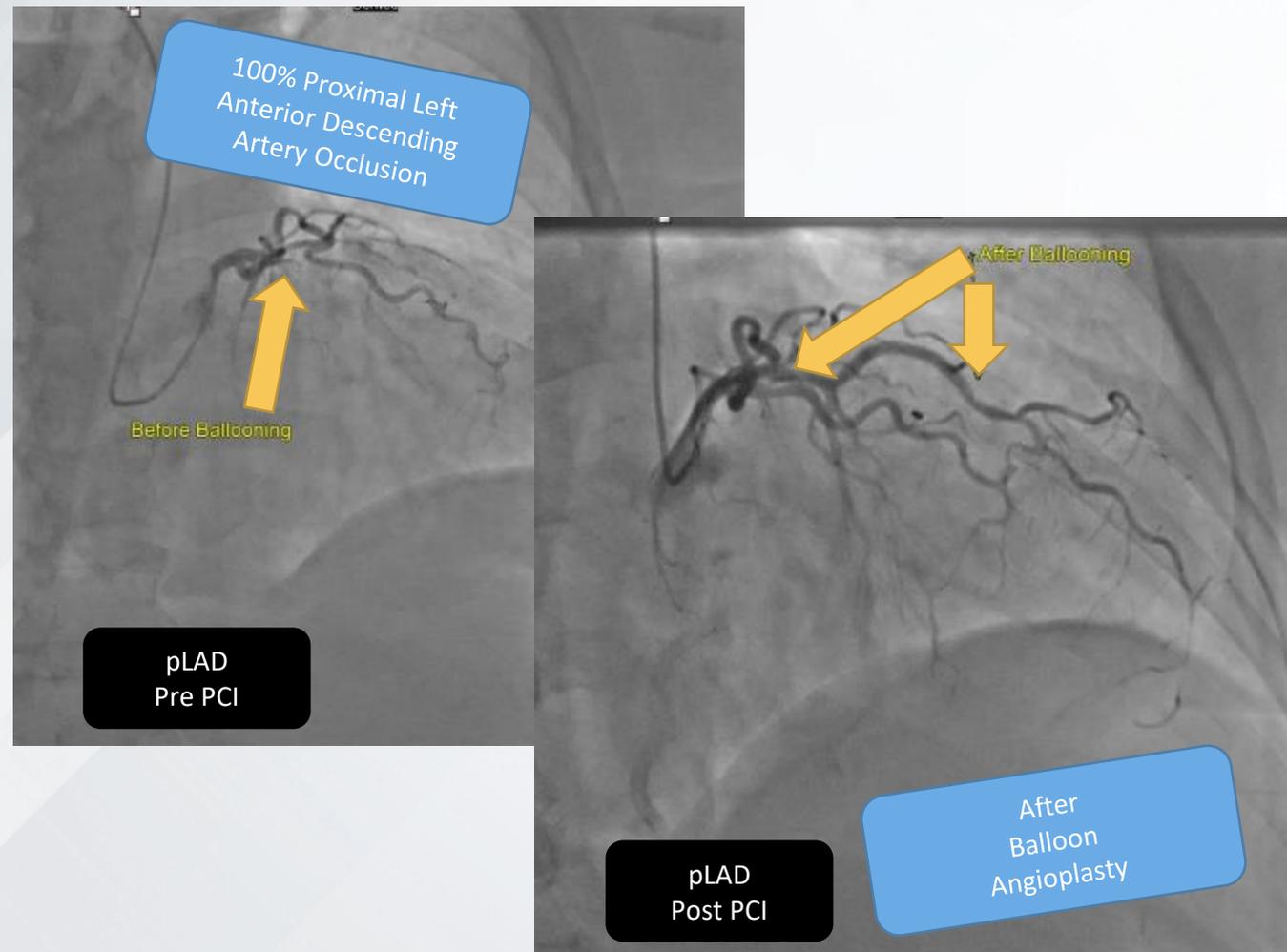
## CASE STUDY #4

- **0823** – EMS departed the scene
- **0826** – Sanford Fargo One Call notified of STEMI patient



# CASE STUDY #4

- 0917 – Patient arrived to Cath Lab

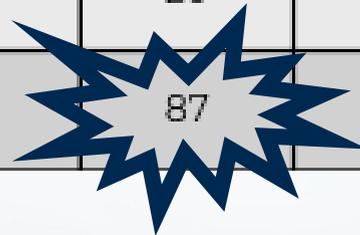


# CASE STUDY #4

Patient discharged 2 days later!

Sometimes in rural ND and MN cell phone reception isn't the greatest

Measure	Actual Time	Goal Time	Outcome
FMC to EKG	11	≤10 minutes (National Goal)	❤️
FMC to One Call	16	≤10 minutes	
Transport Time	54		
CCL Door to PCI	20	≤30 minutes	❤️
FMC to PCI	87	≤90 minutes (National Goal)	❤️



EMS bypassed the critical access hospital (to avoid backtracking) and came directly to the PCI Center

# TAKEAWAYS

- Minutes matter for these patients!
  - **Critical Access Hospital**
    - Early Recognition (EKG) and Early Activation (Calling the PCI Center are key for these patients, their recovery and quality of life after an MI)
    - Know which PCI center you typically send MI patients to
    - Know which transport you normally use (Ground vs. Air)
    - Know the importance of serial EKG's
    - Providers – have the discussion regarding Lytics with the accepting Provider
  - **EMS**
    - Early Recognition (EKG) and Early Activation (Calling the PCI Center are key for these patients, their recovery and quality of life after an MI)
    - Know how far you are from the Critical Access Hospital vs the PCI Center
    - Know the importance of serial EKG's while transporting a patient

THANK YOU!

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