



# Clinical Safety & Effectiveness Cohort # 13

## **Decreasing Door to Balloon Time**



**Educating for Quality Improvement & Patient Safety**



# The Team

- Division

- Salim R. Rezaie, MD
- Darrel Hughes, PharmD
- Matt Lozano, RN
- Stephanie Jones, RN
- Rocio Garcia, RN



- CS&E Consultant

- Iba Aburizik, MBA

- Sponsor Department

- Department of Emergency Medicine/Bruce Adams, MD

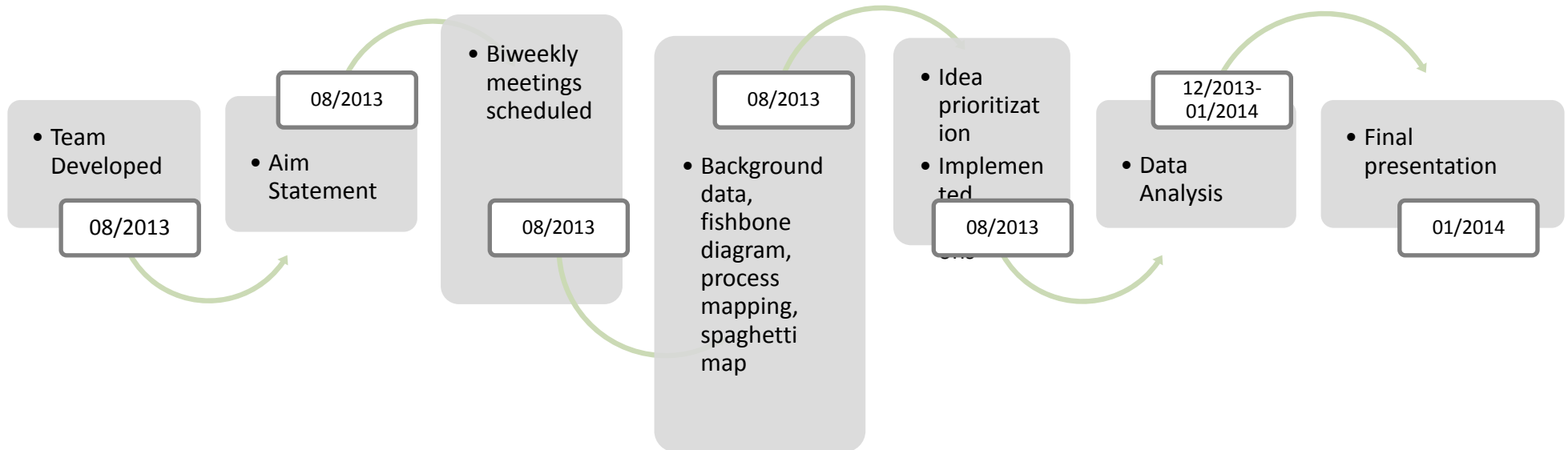
# What Are We Trying to Accomplish?

## OUR AIM STATEMENT

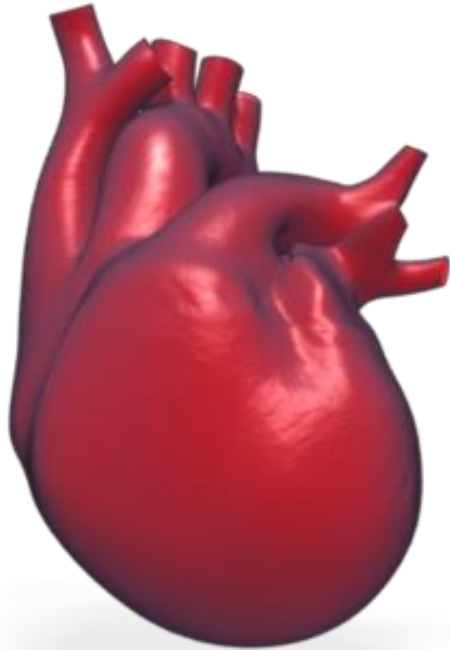
Decrease Total Door to Balloon Time by 10% by January 2014



# Project Milestones



# Background



- Currently it is a CMS core measure to minimize D2B time  $\leq 90$  min
- “Time is Muscle”

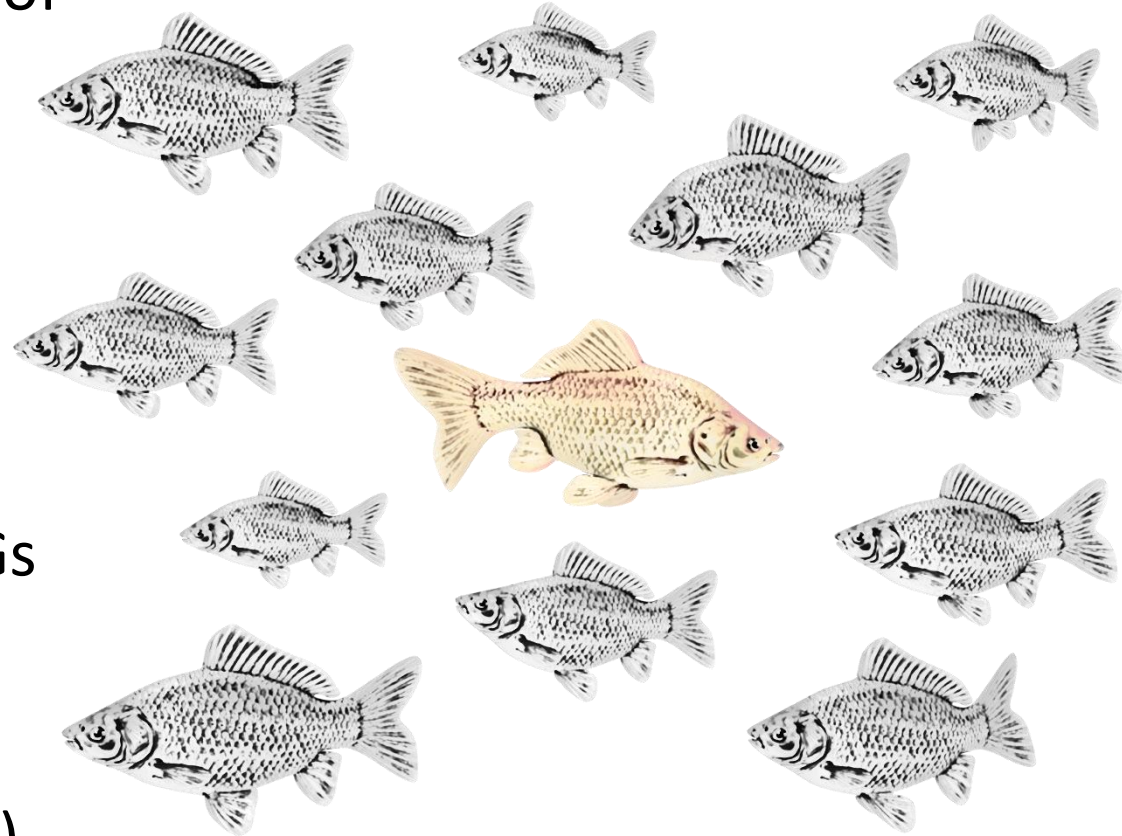
# PLAN: How Will We Know That a Change is an Improvement?

- Decrease in time to EKG and Door to EC departure
- Measure: Minutes
- Avg Door to EKG time:  $\leq 10$  min
- Decrease Door to EC departure by 10%



# What Changes Can We Make That Will Result in an Improvement?

- Registration/Triage Education of Flagging Patients
- ECG Process Video
- ECG Machines for Scanning Patient MRN
- Quarterly ECG Competency
- 24-7 MUSE Access for Old EKGs
- Tech in Triage 24-7
- Contingency Plan when Med Resus Beds are Full (Code Bed)
- Heart Alert Box



# **Selected Process Analysis Tools**

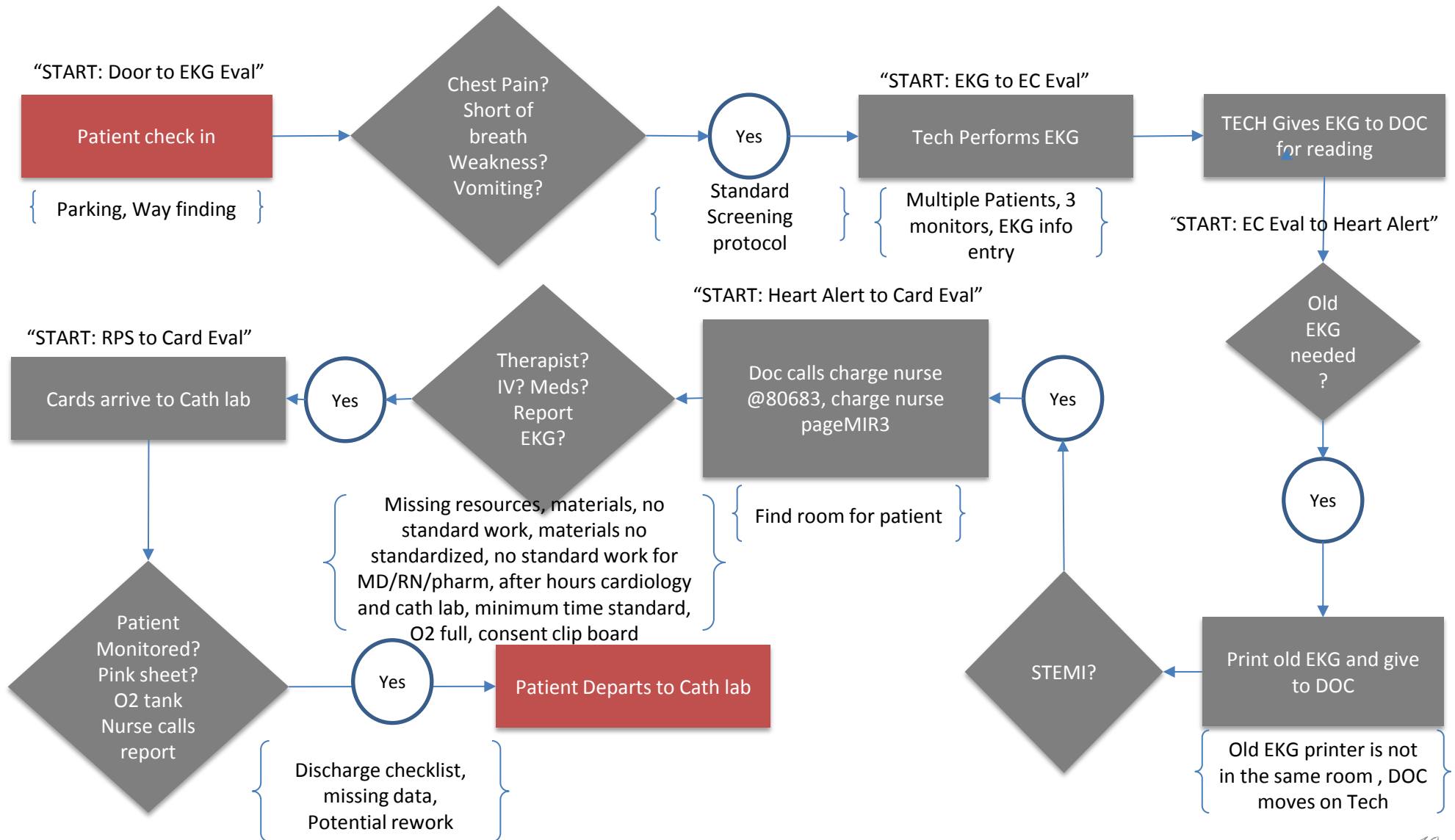
- Observations: Identifying Waste
- Spaghetti Diagram: Motion Study
- Fishbone: Cause and Effect
- Process Mapping: Value added-Vs. Non-Value
- Brainstorming: Solutions Session



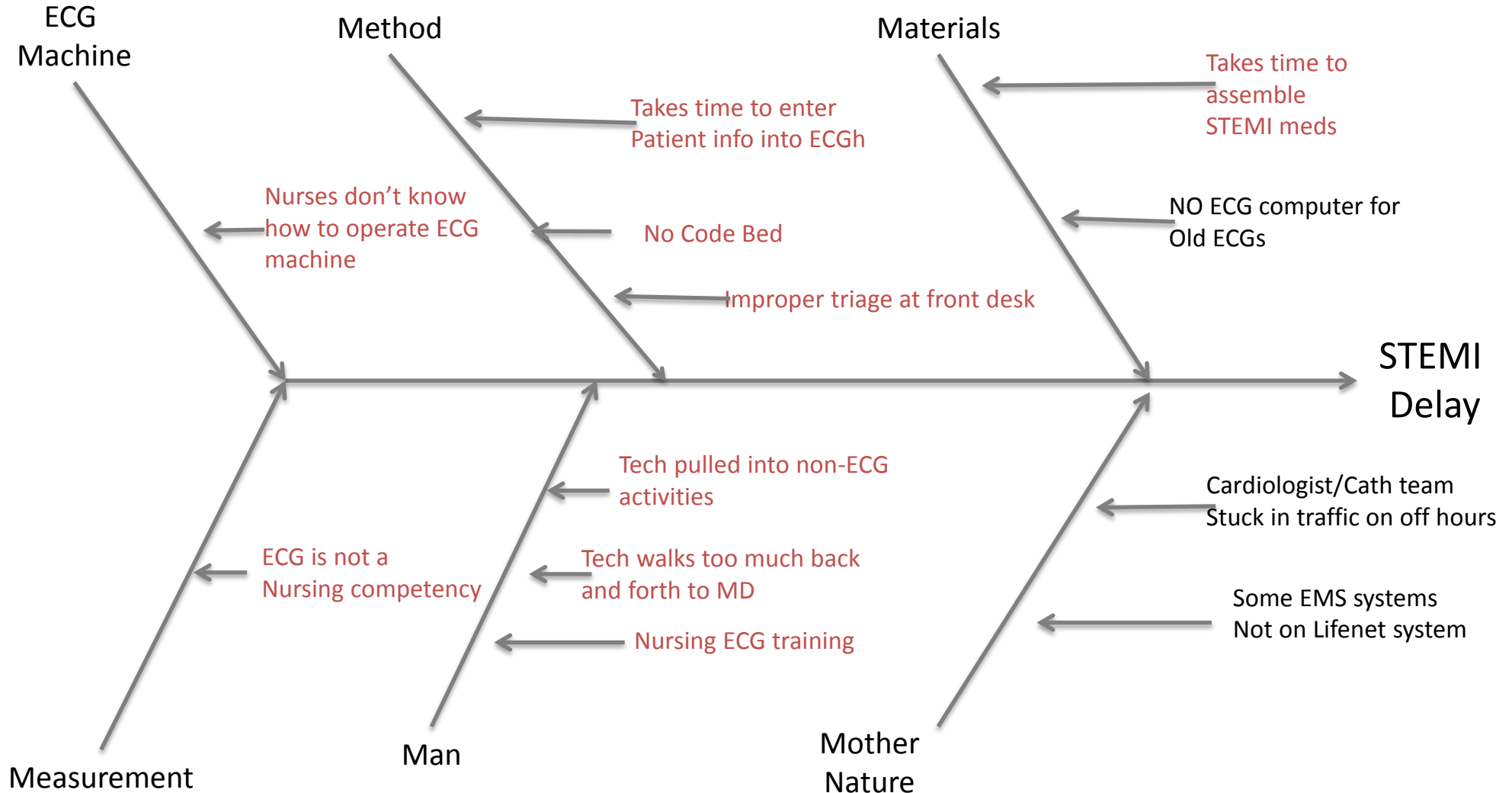
# We Started with Process Mapping



# Then noted the { Issues& Delays }



# Took it further with a Fishbone..



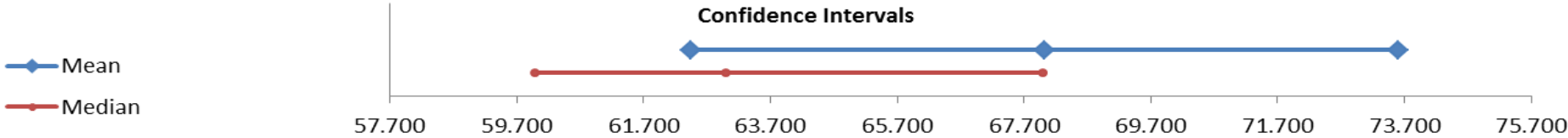
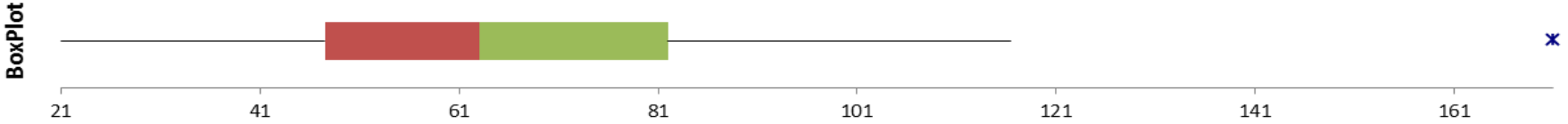
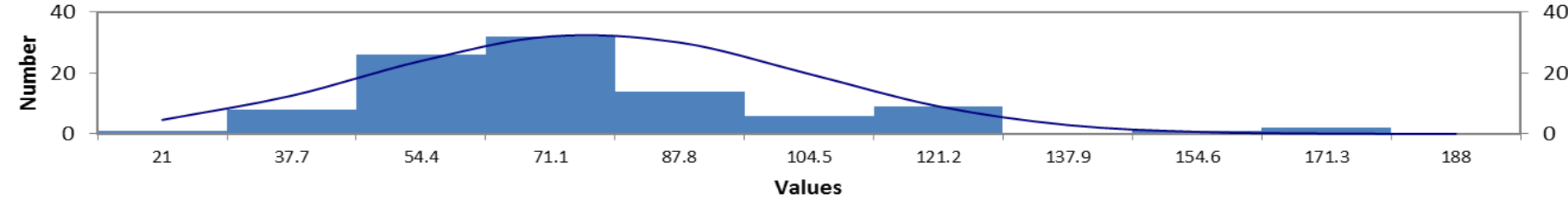
# Selected Decision Making Tools

- **Nominal Group Technique**
- **Brain storming and prioritization (Easy/Hard vs. High/Low Impact)**



# General Statistics

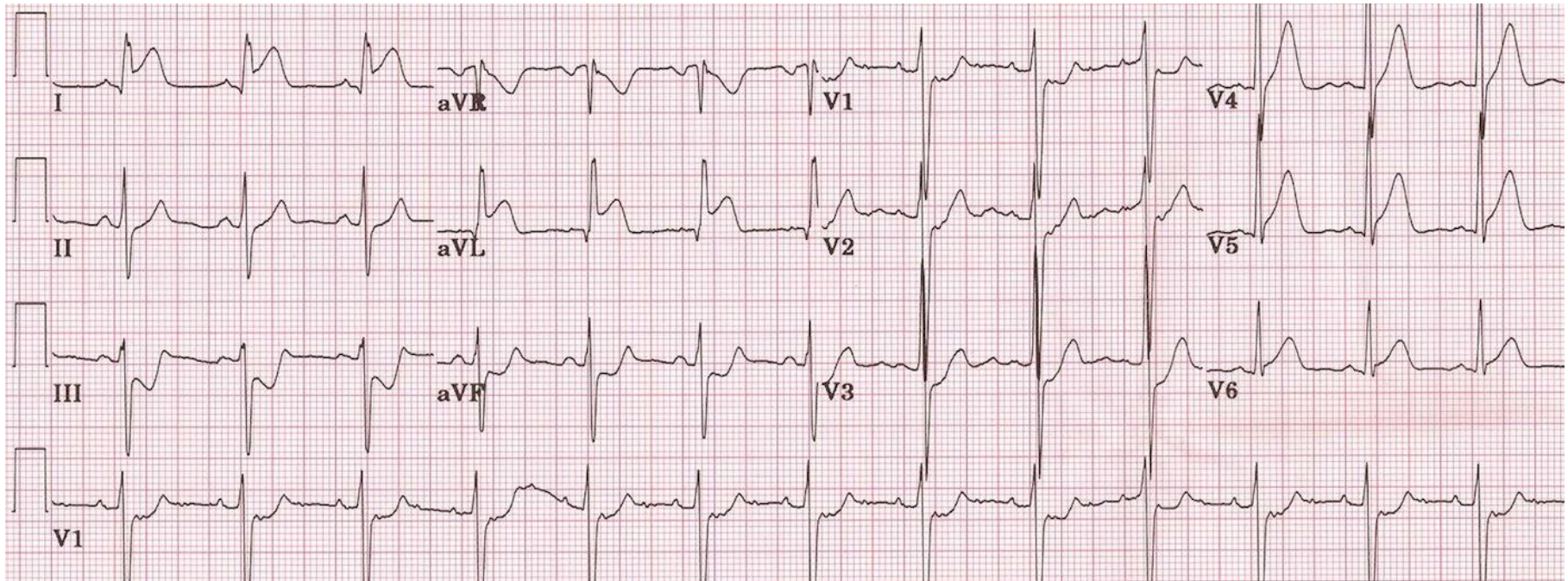
D2B GAP



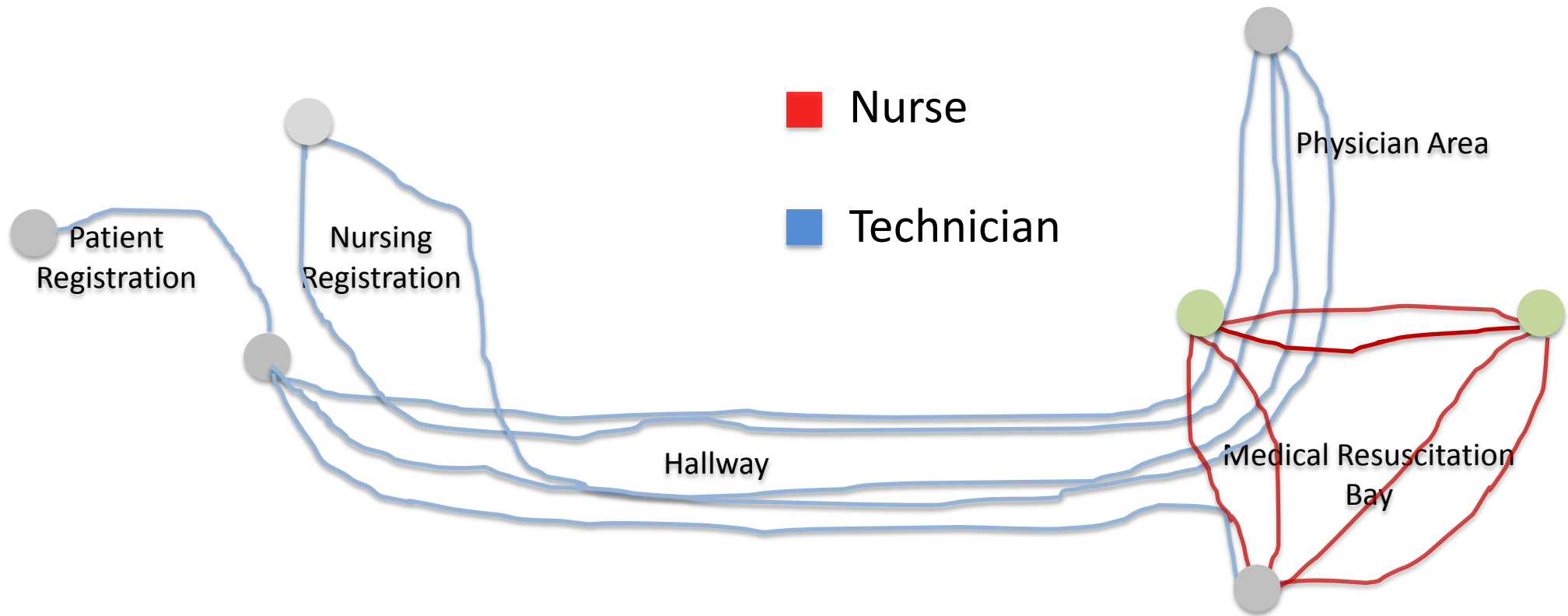


# Background Data

Currently we are not averaging Door to EKG times  $\leq 10$  minutes, which is one of the biggest contributors to decreased D2B times

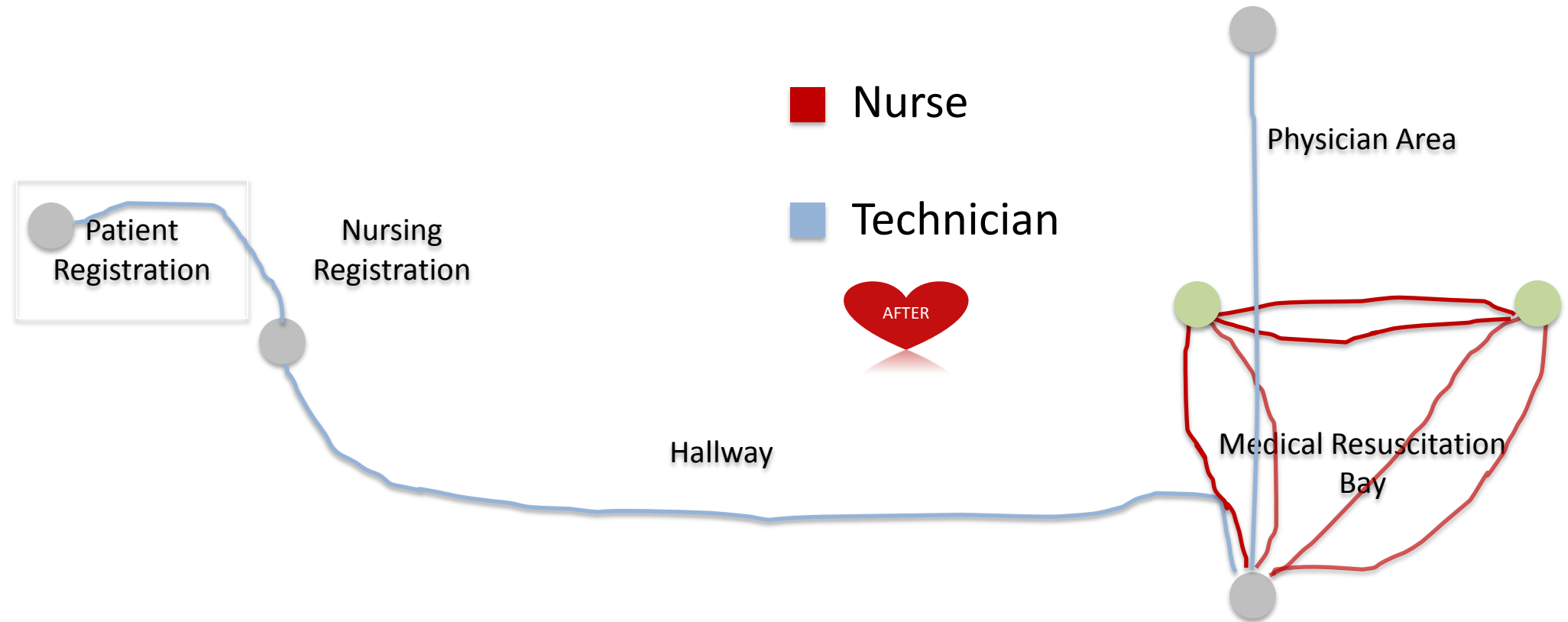


# Spaghetti Diagram (Before)



Technician did plenty of walking!

# Spaghetti Diagram (after)



Eliminated 105 Ft of Tech travel = 36.4 seconds each way  
Saved total 2:43 Minutes



# Pharmacy STEMI Box



# Results

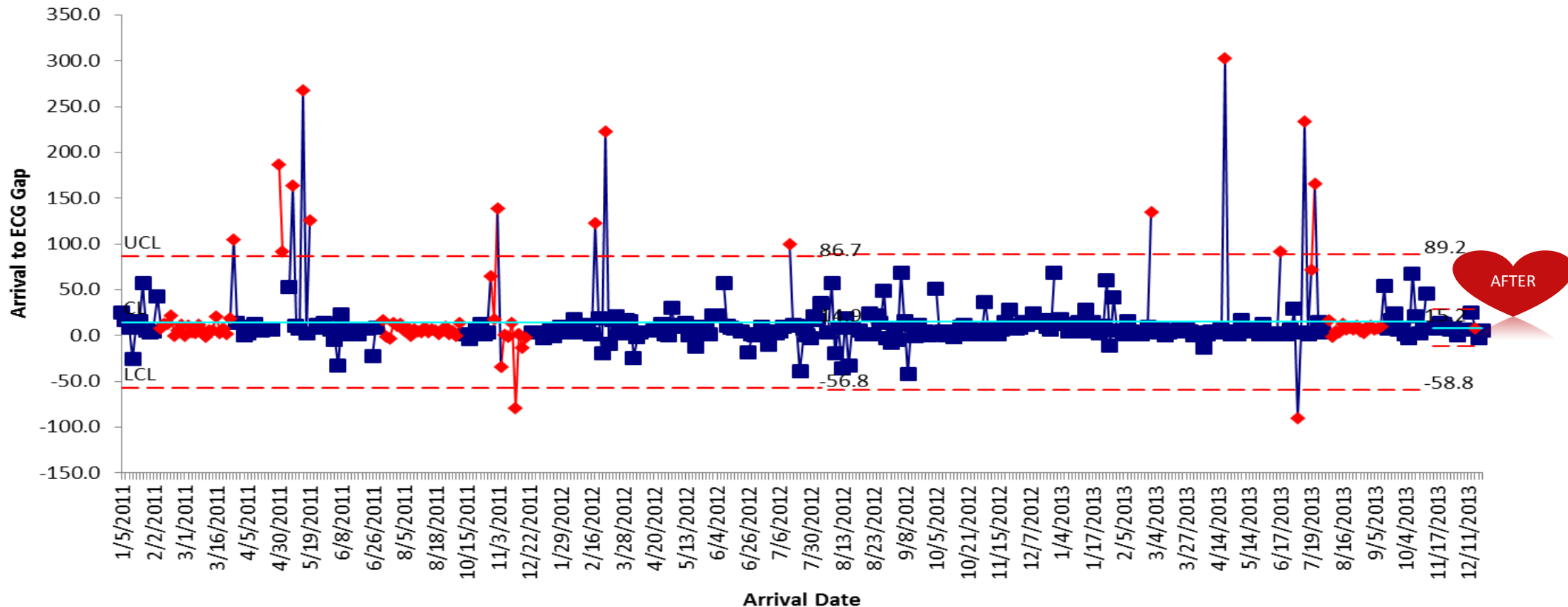
- The net result of our improvement was tighter distribution ( less variation) and reduction in Door to ECG time by 2:43 min!

# Door to Balloon Time (min)

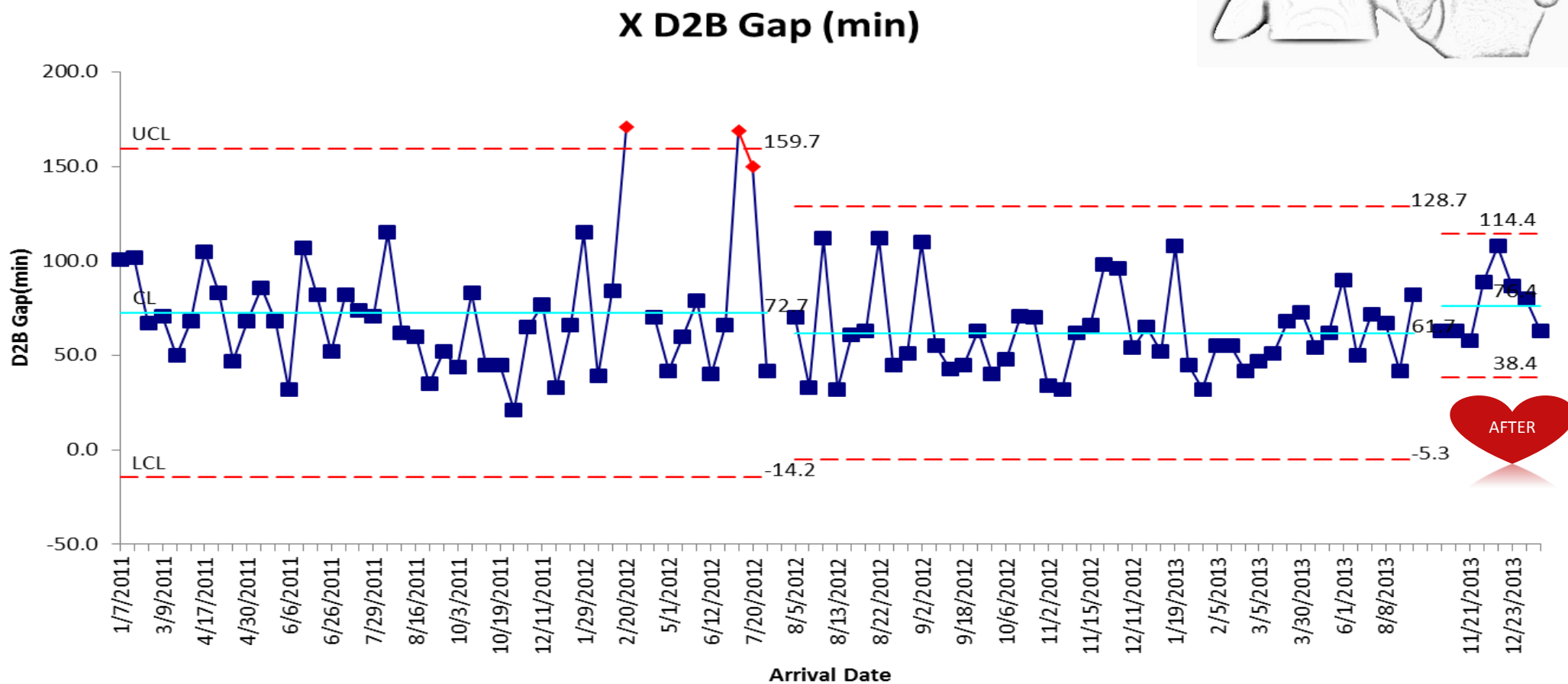
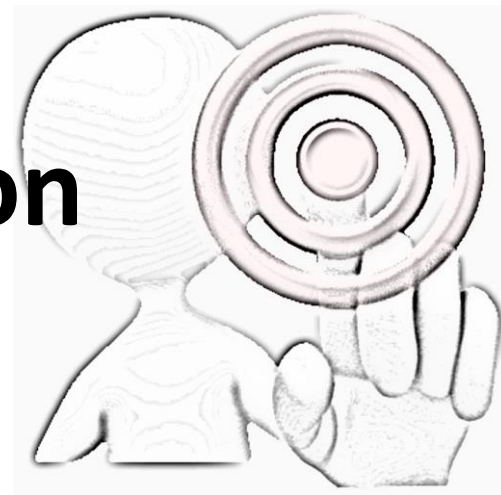


- Process change occurred during our CSE project Sept 2013.
- Direct Bedding interfered with our process improvement

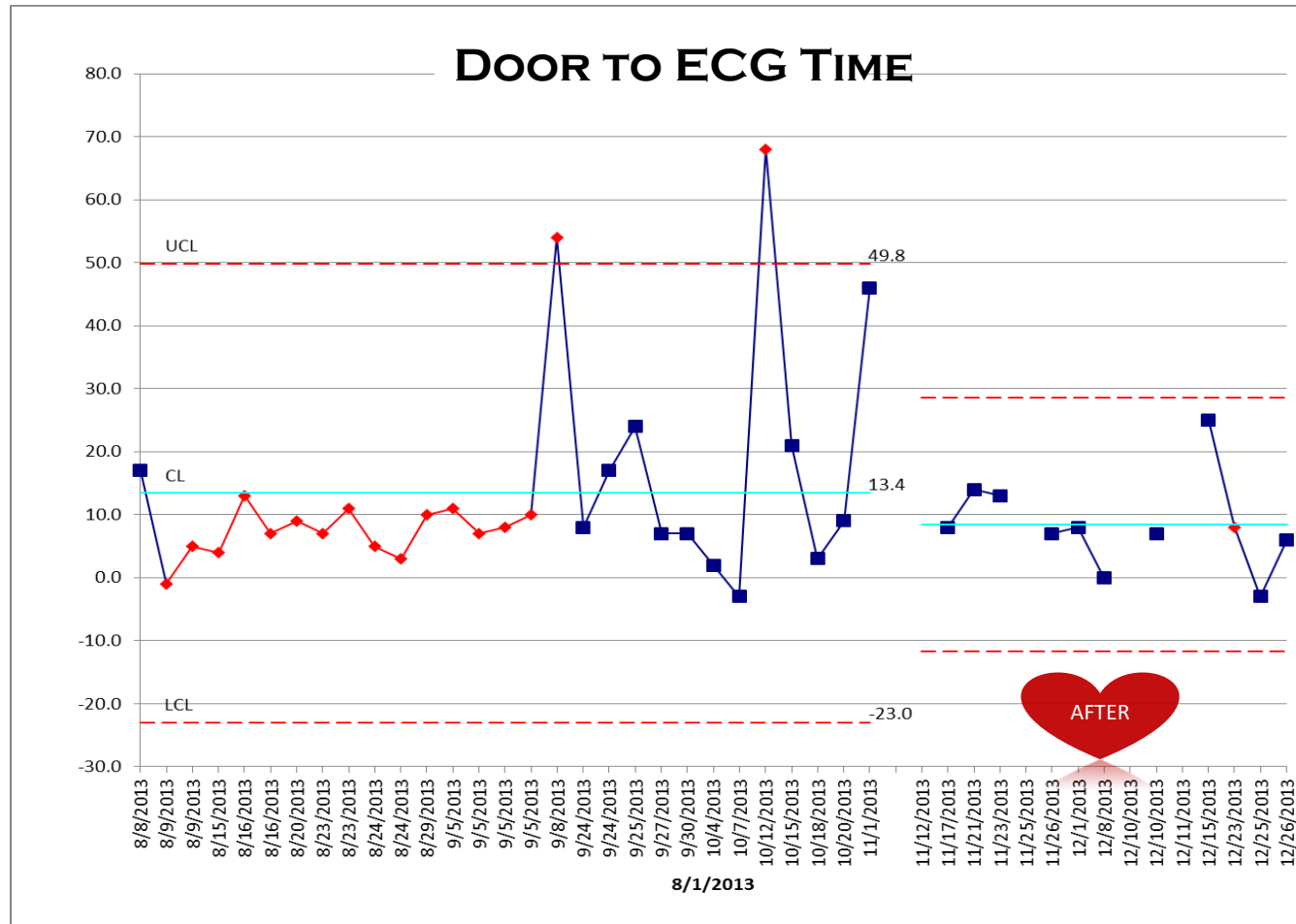
**X Arrival to ECG Gap**



# Door To Balloon Activation



# Door to ECG Time



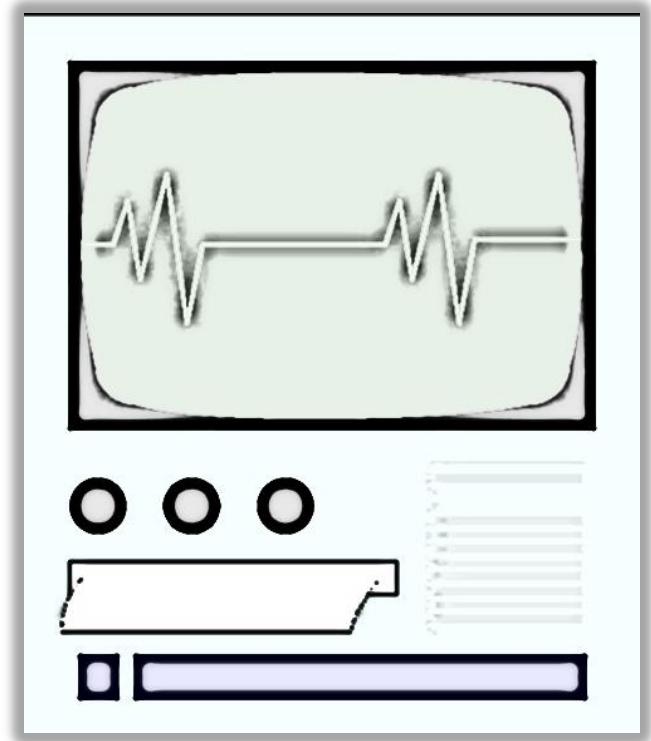
# Implementation Challenges

- Implementation issues
  1. Triage system changed while working on this project
  2. Hospital did not approve new ECG machines and STEMI medication box until move to new building in April 2014



# Expansion of Our Implementation

We will move forward with new ECG machines and pharmaceutical boxes for STEMI's in April with our move to the new facility, which should help in continuing to improve these times.



# What's Next

We are implementing monthly  
ECG competencies to all nurses  
and techs in the EC

Overhead paging for ECGs that  
need to be obtained on  
patients that are directly  
bedded





# Return on Investment

Year	Number of Visits	Avg D2B Time (min)	Avg D2ECG Time (min)
2011	121	78.3	14.41
2012	146	77.36	10.08
2013	122	76.6	16.77

- Avg D2B Time for 2013 76.6 min at avg cost ED visit of \$1500 = \$183,000
- With 10% reduction = \$164,700
- This would have saved \$18,300 for the ED for 2013
- But.....

# ROI for Heart Activations Alerts

**According to CDC**

Average Length of ED stay is 240 minutes in teaching ED

Average cost per visit is \$1500

In a 40 bed ER, average Visits per day is about 240 patients/day

Average charges per day \$360,000



10% reduction in D2B time would allow for 24 more patients to be seen/day = \$36,000/day in billing

# THANK YOU



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