Increasing Treadmill Echo Stress Test Throughput and Efficiency

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Problem Description and Project Goals

Problem:
- Appointments are currently booked 4-5 weeks in advance
- More than 20% of appointments take longer than expected
- Resources are underutilized

Goals:
- Decrease lead time to 2 weeks
- Increase number of tests per day
- Decrease delays and wastes
- Increase resource utilization

What is a Treadmill Echo Stress Test?
Treadmill Echo Stress Tests (TME) take ultrasound images of a patient’s heart before and after running on a treadmill.

Medical Personnel
- Nurses:
  - Monitors the patient’s blood pressure
  - Administer IV medications
- EKG Technicians:
  - Monitors heart rhythms
  - Assist patient with 12 lead
- Sonographers:
  - Take pre and post images
  - Assist patient from treadmill to bed

Solution 1: Adopt Team Based Approach
- 66% Increase in throughput
- 35% Decrease in lead time
- 18% Decrease in process time
- 10% Increase in utilization

Xcelera workstation added
Blood pressure and imaging procedural modifications
Cross-departmental training
3 person teams

- Eliminates time waiting for personnel to arrive
- Reduces wastes in motion and transportation
- Increases utilization of staff and equipment

Solution 2: Implement Streamlined Procedures:
- Quick improvement ideas generated from Lunch and Learn sessions should be introduced to workflow. Additional improvement ideas should be identified.
  - Improves test accuracy by guaranteeing complete images
  - Decreases probability of requiring repeat testing
  - Enables Echo Lab to continuously improve workflow, methods, and teamwork

Ensure machines are not idle, and personnel are given ideal working conditions.
Use simulation to identify needs.

- Reduces number of delays during daily operations
- Shortens lead time in booking appointments
- Increases efficiency and number of tests per day

Solution 3: Improve Resource Utilization:
- Ensure machines are not idle, and personnel are given ideal working conditions.
- Use simulation to identify needs.

- Reduces number of delays during daily operations
- Shortens lead time in booking appointments
- Increases efficiency and number of tests per day

Projected Results
- 66% Increase in throughput
- 35% Decrease in lead time
- 18% Increase in utilization
- 18% Decrease in process time

Winter 2017
- Lead development and outreach awareness
- "Lunch and Learn" networking
- Nurse education and certification training of echocardiography

Spring 2017
- Nurse and EKG technician assignment
- "Lunch and Learn" networking
- Nurse education and certification training of echocardiography

Future
- Nurse and EKG technician assignment
- "Lunch and Learn" networking
- Nurse education and certification training of echocardiography

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