CHEST PAIN:
Changing Outcomes one call at a TIME!
The RN CHEST pain team:
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Objectives

1. Identify the barriers to early in patient STEMI identification
2. Define the components of chest pain assessment
3. Discuss the methods of creating a nurse driven team
4. Discuss the methods of evaluation in a case study framework
Mortality is higher for In Patient STEMI

Why:
- failure to recognize
- Failure to create a bundle of symptoms
- Busy staff
- Admitted for unrelated reasons
  - tunnel vision
- Not on Cardiac Service
Inpatient STEMI: Why is PCI delayed?

**Delayed recognition**
- Symptoms of MI may be masked (analgesia, sedation, mechanical ventilation) or attributed to surgery or medical condition
- ECG may be delayed or not interpreted rapidly by an experienced reader

**Delayed triage and treatment**
- Outside of standard STEMI protocols
- Complex condition and comorbidities (recent surgery, risk of anticoagulation) may require additional consultation or testing

Case 1: ECG may be normal in any ACS...

Case 1: Troponin may also be normal on 1st measure...
My goal supported by my system was to make a simple method for any nurse, family or housekeeper to call in chest pain (NOT MET or RRT).

1. Proposed a 5 week intensive 8 hour course for nurses from Medical ICU and Cardiac Step down floor. Trained to perform ECG and must interpret 200 in order to graduate from course.

2. Developed a simple strategy for bedside nurses anywhere in the hospital to make a strong evaluation of chest pain, vital signs and simple therapy.

3. Notify the operator “CODE chest pain”.

4. Notify ECG STAT STEMI screen ECG.

5. Within 5 minutes approved cardiac nurses arrive at bedside perform (if necessary) and evaluate ECG.

6. ECG loaded into "tracer master" a remote viewing system.

7. If nurse feels diagnosis definitive, checks quickly with cardiology OR activates the CCL.

8. Diagnostic uncertainty, uploads ECG and communicates with cardiology 24/7.

Barriers abound
Chief of cardiology strongly against it... nurses cannot evaluate!
We are a teaching hospital and our interns and residents can do it.

Interventional cardiologist completely uncertain, but our times and statistics were appalling.

Nurses had been trained to accept whatever whomever said... even thought they may not have ECG/Cardiology trained

BUT they were willing to give it a try.
Making the program

1. Training ICU and Cardiac ward nurses
2. Training all nurses how to objectively evaluate chest pain
3. Setting up a system alert
4. Achieving all equipment (portable ECG, cell phone with alert)
5. Setting up 6 day intensive courses, ECG performance training
6. Setting up monthly review classes
7. Setting up QI follow up

So let’s look at a case: A 54 year old man call you to his room, clenching his fist to his chest

Subjective: "My chest feels tight and I feel really weak."

Step 1: Initial Assessment
Level of consciousness: Conscious and alert to person, place and time; restless and anxious.
Airway and breathing: Airway is patent; respirations are slightly increased and unlabored.
Oxygen saturation: 97% (on room air).
Circulation: Radial pulse is rapid, strong and regular; skin is cool, clammy and pale.

Now, Assess

Step 2: Focused Questions regarding Chest Pain (use the tool)
Onset: “This began suddenly. It woke me from my sleep.”
Provocation/Palliation: “This pressure in my chest is constant. Nothing that I do makes it better or worse.”
Quality: “My chest feels very tight.”
Radiation/Referred: “The pressure stays in my chest. I don’t hurt anywhere else.”
Severity: Seven on a 0–10 scale.
Time of onset: “This began about an hour ago.”
**RN Chest Pain Assessment Evaluation Guide**

Subjective: Pain/descent/presence/decline

Assessment:

Chest Pain

- Nature of pain
- Radiation
- Aggravates
- Alleviates
- Quality:
  - Sharp
  - Dull
  - Stabbing
  - Tearing
  - Pulsatile

- Duration
- Frequency

Sensory:

- Anxiety
- Diaphoresis
- Nausea
- Diarrhea
- Headache
- Shortness of breath

Oxygen saturation:

Respirations:

Pulse:

Blood pressure:

Posterior reciprocals:

- Order ED/IP Non-STEMI
- Diagnosis Non-STEMI
- Call Cardiac Fellow
- Use pocket card for assessment:
  - R: Radiation?
  - Q: Quality of the Discomfort?
  - S: Sharpness?
  - T: Temporal?

- Notify the primary team
- Send ECG to Cardiac Fellow via Tracemaster

**CHEST PAIN Team**

**REQUEST:**

- If inferior with operator guidance

- In Patient (IP) RN Chest Pain order set

**TIME for the Chest Pain TEAM!!**

**Now Evaluate and Further Investigate**

Step 4: Back to patient:

- Apply 2 L/oxygen
- Sit patient up to 35-40 degrees and evaluate vitals

**Blood pressure:** 160/92 mmHg

**Pulse:** 112 beats/min, strong and regular

**Respirations:** 22 breaths/min and unlabored

**Oxygen saturation:** 99% (on 100% oxygen)

**Signs and symptoms:** Chest pressure, restlessness, diaphoresis, tachycardia, hypertension

**Allergies:** None

**Medications:** Nitroglycerin (as needed) and Vasotec. He has not taken any Viagra.

**Patient care history:** "I have high blood pressure and the doctor told me I may have a heart attack if I don't start exercising." Last oral intake: "I ate supper last night, but can't remember the exact time."

**Events leading to the present illness:** "I was asleep when the pressure in my chest woke me up."

**In Patient (IP) RN Chest Pain Flow Sheet**

1. **Immediately Assess P, Q, R, S, T**
   - Evaluate history
   - Use pocket card for guidance

2. **Immediately perform Vital Signs**

3. **Call 911 to in house operator**
   - REQUEST: RN CHEST PAIN TEAM

4. **NURSE/Epic:** Go to all others
   - Order ECG: STEMI SCREEN
   - Nurse/Ward Clerk: Call 112
   - Ask for STEMI screen: 406-207-0255

5. **Notify Primary Team**
   - Cardiac Fellow
   - Apply for MI at 112
   - Document care plan at point of care
   - Document diagnosis/plan
Cardiac Bootcamp
8 hour days for 5 days!
8:30 AM to 4:30 PM
Get a crash course in Cardiac Boot Camp for 5 days.
12 lead ECG is mandatory for BOOT CAMP. Anyone interested in 12 lead may come to day one.

Monday
2/20/2017 8:30-4:30
Day 1
ECG

Tuesday
2/21/2017 8:30-4:30
Day 2
ECG

Monday
2/27/2017 8:30-4:30
Day 3
A and P review

Monday
3/06/2017 8:30-4:30
Day 4
ACS and PCI, CHF

Tuesday
3/14/2017 8:30-4:30
Day 5
Pharmacology and Pacemakers

1. All classes will be held in 6E Critical Care Classroom
Grady Memorial Hospital
2. Attending the 2 day 12 Lead ECG is MANDATORY for those who wish to enroll in boot camp: Both days are essential!
3. No class can be missed and late arrival is discouraged
4. All attendees must complete readings and homework
5. All work must be complete by last day of class

register with:
.bamclean@mindspring.com
please document your directors agreement to support the time
all conflicts resolved before registering
please send preferred email and cell phone in registration email
8 hour days for 5 days!
8:30 AM to 4:30 PM
All 5 days required for nurses attending Boot Camp (BC)
12 lead ECG is mandatory for BOOT CAMP.
Anyone interested in 12 lead may come to day one.

Hello, I am ________ from the RN Chest Pain Team. I am calling about patient ________ with MRN ________.
I am calling because the patient has chest discomfort and the ECG shows ST elevation/depression of ________ mm (lead groups) ________ and reciprocals in (lead groups) ________. There is/is not any evidence of LVH or LBB.
Heart Rate: ________ Respiratory rate: ________ BP: ________ Pain level: ________ Admitting diagnosis: ________
I have/have not initiated a STEMI activation based on my evaluation.
Any other information you might require regarding the patient or orders that you might give (STEMI protocol, NSTEMI protocol or others) will go through the primary nurse (name). Let me give the phone to them.
Hard to miss
Less Common Evaluations

1. LVH with chest pain, ST segment changes for LVH only
2. Subtle changes
3. Inferior changes
4. Posterior changes

53 year old female medical floor, stated feeling poorly, physician said not to call chest pain team, gave NTG

20 minutes later chest pain worse, hypotension ensued NOW chest pain team notified

Most definitive

Finding ST segment elevations otherwise not detected (common site in this particular ECG)
- 6th lead - elevated = occluded coronary artery (LCx) = STEMI
Most definitive

Inpatient STEMI: Improve Time to PCI

264 chest pain activations
- 4 STEMI
- 2 LVH masking STEMI
- 6 NSTEMI
- 60 LVH without STEMI

All inpatient STEMI cases are reviewed monthly

Periodic meetings with surgical and medical departments to improve awareness of inpatient STEMI

What has happened

Comparative retrospective data
- Average time to open artery pre chest pain team: 400 min (+/- 180)
- After chest pain team: Average time to open artery 130 min (+/- 40)

More rapid evaluation
Direct communication to cardiology
Includes the primary team, does not require their agreement
What has happened

Comparative retrospective data
average time to open artery pre chest pain team
400 min (+/- 180)
After chest pain team
average time to open artery 130 min (+/- 40)
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Why Develop an Expert RN Chest Pain team?

Fast response
Fast diagnosis
Confirmed directly with cardiology
Three groups can activate STEMI (alert)
  cardiologist
  the Central operating desk in ER
  the chest pain team
Has it changed patient care?
Has it improved outcomes?
Is it time consuming and nurse intense?