You want me to do WHAT?

With THEM?

How SOON?

The Fun and Challenges of Point of Care Testing Implementation

Karen Jenkins, MT(ASCP)

poc.karen.jenkins@gmail.com

Introduction

- Karen Jenkins
  - Point of Care Coordinator
  - Emory Healthcare, Atlanta, Georgia
  - Group of 6
  - Oversee hospitals, clinics, outpatient surgery, etc
  - Tests – glucose, ACT, ABG, H. pylori, Troponin, INR, etc, etc

Disclaimer

- Been a Point of Care Coordinator for way too long to have any sanity left
- Like to have fun

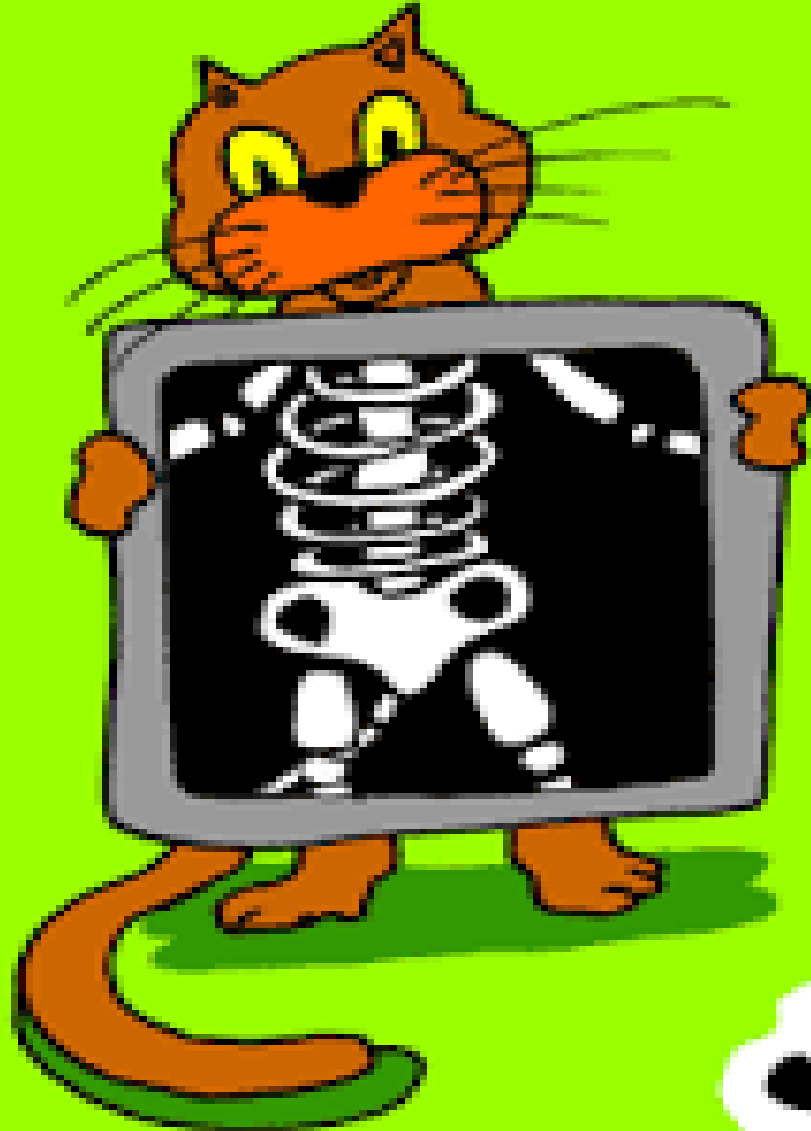- Love my kitty cats
- Sponsored by Pathfast
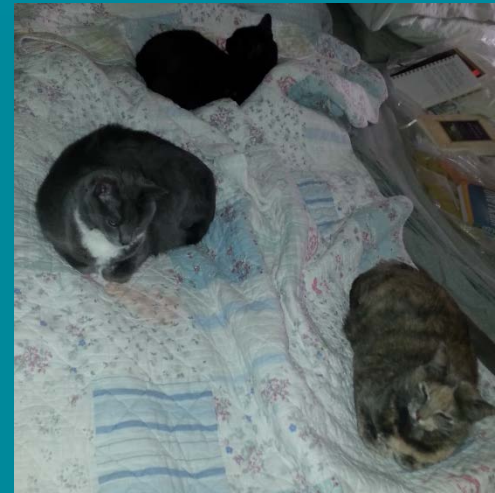
You want me to do WHAT? – tests implemented in the ER

With THEM? – Who's going to do the test?

How SOON? – timing of implementation

WHAT happened? – the "oops"

Sox

cat scan

PLEASE STARE INTO MY EYES
FOR ONE MINUTE.

THEN SCROLL DOWN.

THANK YOU. YOUR CAT SCAN
IS NOW COMPLETED.

You want me to do WHAT?

- Process can apply to any test
- Example :
  - Troponin – New to facility
- Request made by docs
  - TAT required
  - cutoffs / medical decision points for the test?
  - required accuracy and precision needed to treat the patient correctly 95% of the time?
  - How is the test currently being provided. List any problems.

You want me to do WHAT?

- Adequate space to perform the test
- Who will perform the test?
- Workload?
- Willing to abide by POC / regulatory oversight? Contract?

You want me to do WHAT?

- Argument for troponin is good enough to investigate further.

- Now what?

You want me to do WHAT?

- Regardless of test – process is the same

- Look at all vendors

- Evaluate all instruments with samples from main lab – at least 50 samples.
  - Other sample types – takes planning

- Results– spanning all ranges with concentration at medical decision levels – Discrepancies, Bias, Accuracy, Precision

Facebook.com/labhumor
Seasons in the lab – to be continued
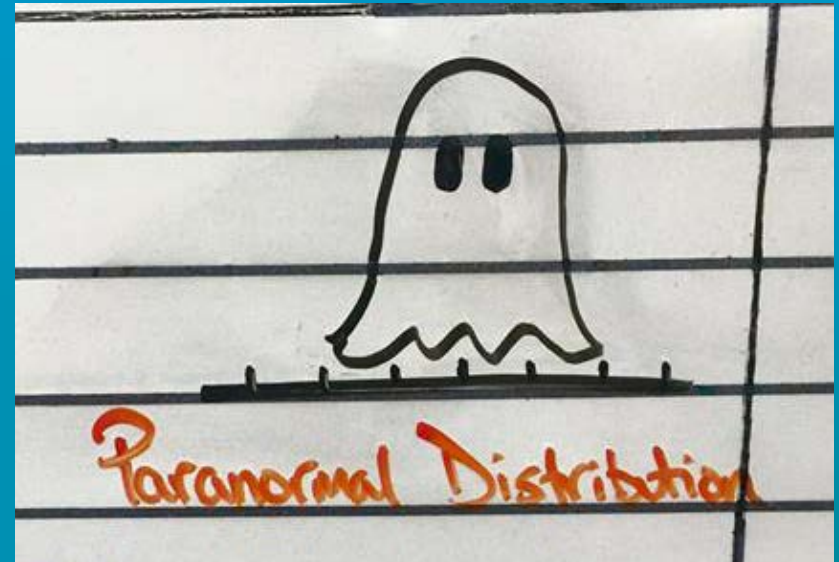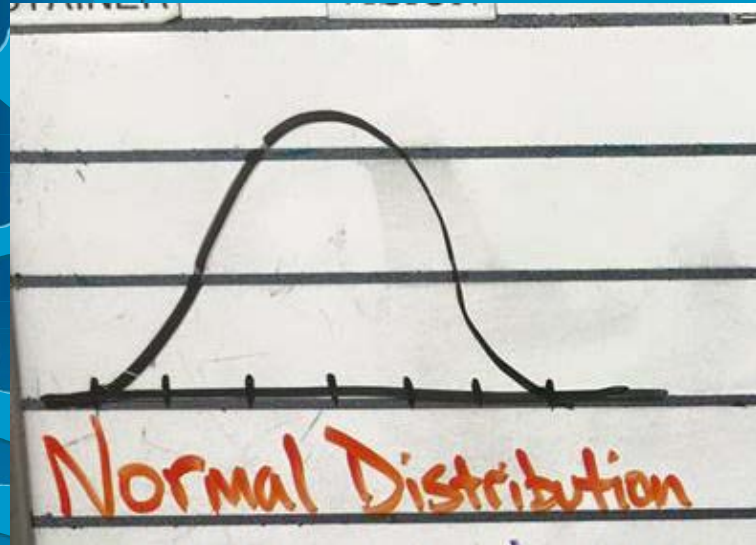
Goal – Continuum of Care

- Samples from the core lab tested for "the test" should give the "same" result when tested in the ER, OR, doctors office or nursing unit.

Briefcase with important lab results...

Instrument Comparison

Sample	Core Lab	Inst "A"	Inst "B"	Inst "C"	Comment
1	-/-	+/-	-/-	-/-	
2	-/-	-/-	-/-	-/-	
3	-/-	+/+	-/-	-/-	Unneeded trip to cath lab?
4	-/-	-/+	-/-	-/-	
5	-/-	+/-	-/-	+/-	
6	+/+	+/+	-/-	+/+	Sent home in error?
7	+/+	-/-	-/-	+/+	Sent home in error?
8	+/+	+/-	+/+	+/+	
9	+/+	+/+	-/+	+/+	
10	+/+	+/+	+/+	+/+	

They want this "cute" instrument

- Instrument presented to physicians
- It's cute; doesn't take much time; easy to use.

Putting things into "real" terms

Sample	Core Lab	CUTEST Inst "A"	CUTER Inst "B"	Inst "C"	Comment
1	-/-	+/-	-/-	-/-	
2	-/-	-/-	-/-	-/-	
3	-/-	+/+	-/-	-/-	Are you taking my husband to the Cath Lab? Do you really need to? He had bleeding complications! Why?
4	-/-	-/+	-/-	-/-	
5	-/-	+/-	-/-	+/-	
6	+/+	+/+	-/-	+/+	Sent home in error?
7	+/+	-/-	-/-	+/+	Wait – You sent my Mom home. 4 hours later, she had a MASSIVE heart attack? What happened?
8	+/+	+/-	+/+	+/+	
9	+/+	+/+	-/+	+/+	
10	+/+	+/+	+/+	+/+	

Instrument Chosen

- FINALLY – A decision has been made.
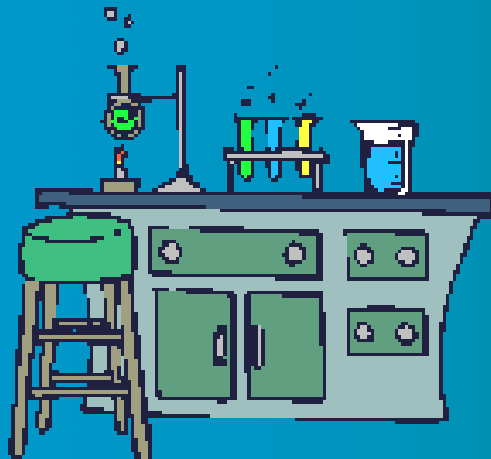
- Now What?

Instrument Chosen

- Again – regardless of test, process if the same

- Instrument delivery

- Reagent delivery – storage

- Validation of instrument - Reassess accuracy and precision

- IQCP

- Training

- Monitor

Implementation Steps
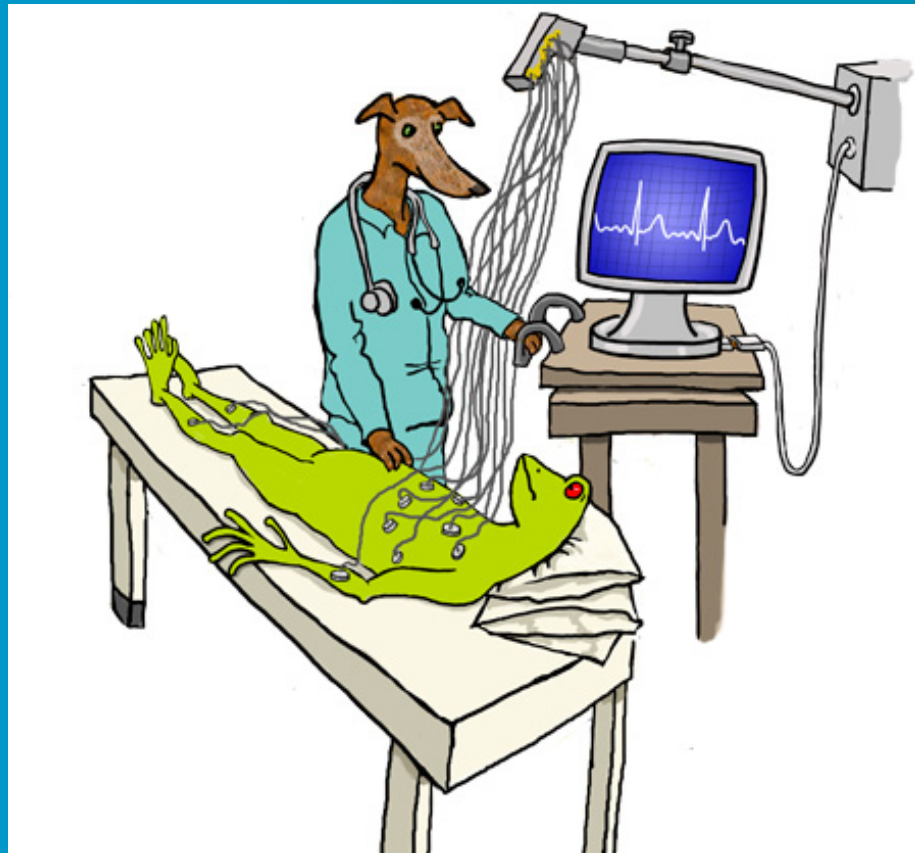
- Where is the instrument going to be?

With THEM? You mean I have to work with THEM?

- Who will be performing the test?

Are there trade offs?

- I'll run your troponin's if you run my EKG's said the RT to the nurse!

Implementation Steps

- How many will be performed?
  - Only first troponin on every patient that needs one?
  - Only first troponin on subset of patients?
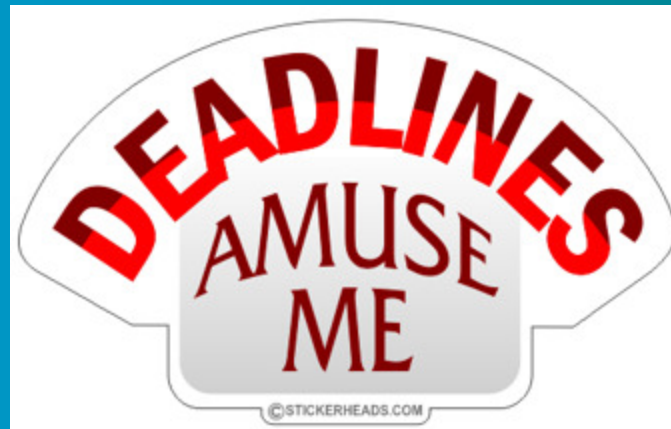 - All troponin's on subset of patients?

Decisions

Troponin – in the ER only
Performed on a "subset" of chest pain patients
Performed by Respiratory Therapists

How SOON?

- Give enough time
- Under promise / Over deliver
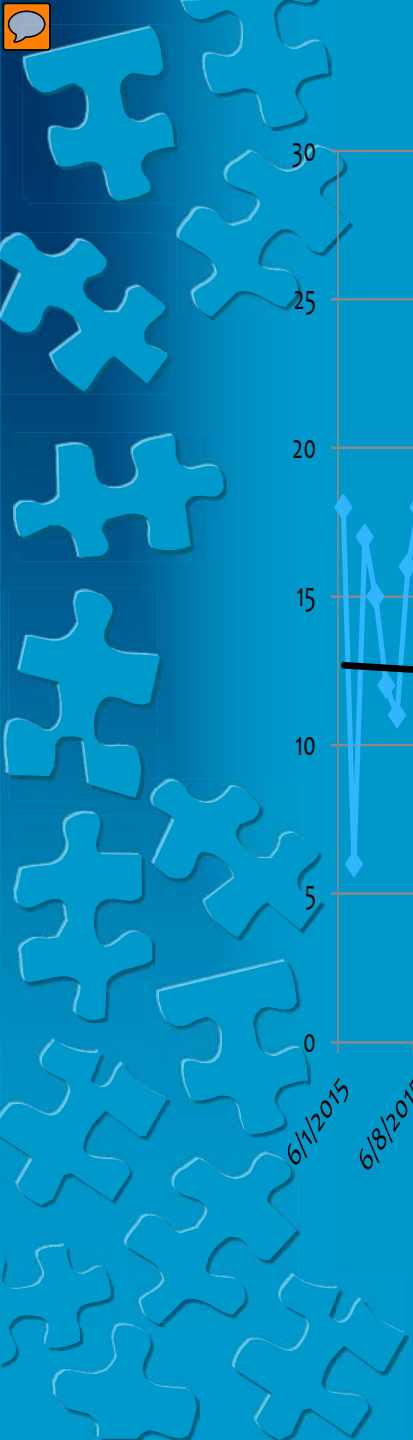
Instrument Implemented

- Keep assessing
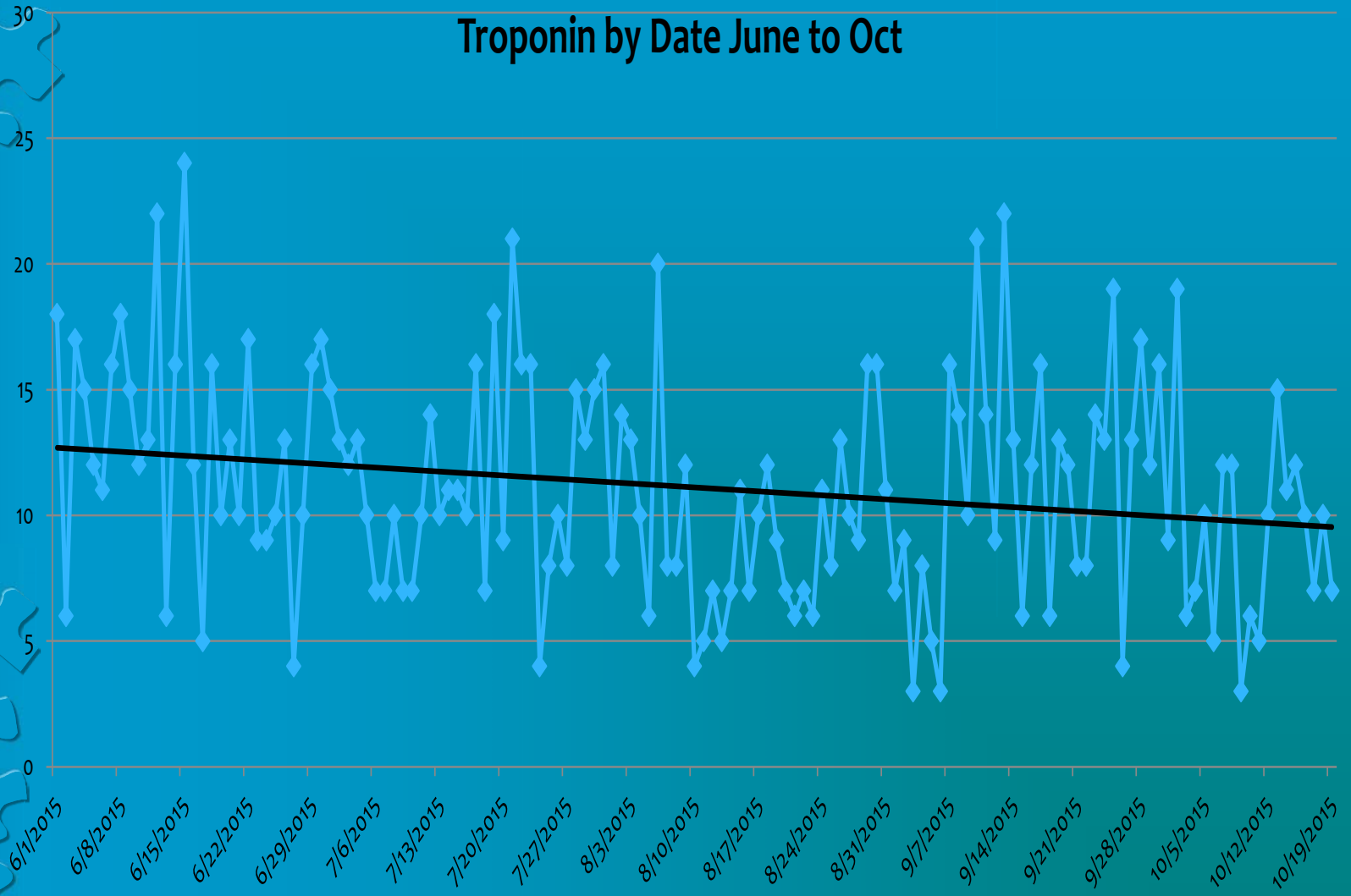- Troponin instrument to core lab comparison every six months

Monitoring

- Number of tests performed
  - Daily
  - By shift
  - By RT vs Nurses

Troponin by Date June to Oct

First Stage Opportunities

- Perform more tests using "new" instrument
- Labels not generated for troponin like other lab test request
- Order for POC Troponin triggers an icon in electronic medical record
- Once sample is loaded onto analyzer, operator "completes" the icon indicating the test is running.

Second Stage Opportunities

- Utilize chosen instrumentation on a more frequent basis

Opportunity #2: Utilization

| Date	Total Tests	POCT (Single)	POCT (Multiple)	POCT / Core > 1h	POCT / Core < 1h	Core prior POCT
May Totals	65	18 (27.7%)	3 (4.6%)	28 (43.1%)	10 (15.4%)	6 (9.2%)
June Totals	95	31 (32.5%)	1 (1.1%)	41 (43.2%)	3 (3.2%)	19 (20.0%)
July Totals	79	29 (36.7%)	5 (6.3%)	27 (34.2%)	15 (19.0%)	3 (3.8%)
August Totals	51	18 (35.3%)	1 (2.0%)	22 (43.1%)	7 (13.7%)	3 (5.9%)
Sep Totals	88	32 (36.4%)	16 (18.0%)	34 (38.6%)	3 (3.4%)	3 (3.4%)
Oct Totals	70	25 (35.7%)	9 (12.9%)	21 (30.0%)	15 (21.4%)	0

1st Goal: POCT/Core < 1hr less than 10%

1st Goal: Core prior to POCT less than 5%

Current State

- Usage – approximately 70 patient troponin tests per day

- Daily Maintenance and Quality Control – performed by Respiratory Therapists

- Weekly / Monthly Maintenance and Calibration – performed by Point of Care

Opportunities
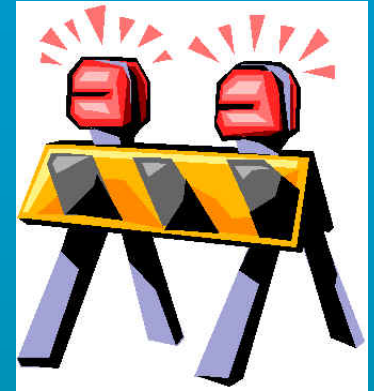
- I don't trust that result.
- I want it bedside / I don't want it bedside
- I'm going to send a sample to the lab anyway
- Oh, wait, the lab value didn't match this one

Correlations

- March 2015
  - 70 patients performed in ER and Core Lab
  - 9 "different" results (12.9%)
  - 2 repeated – correlated; no interferences
- April 2015
  - 49 patients
  - 4 "different" results (8.2%)
  - Repeated 12 samples of varying levels
  - Results correlated with previous results; no interferences; physicians were happy

Still fighting this one

- 56 year old female
- Hypertension and diabetes
- Presented to ER with symptoms of "cold"
- 3/17/22:10 POC Troponin 0.038 ng/mL
- 3/18 03:00 POC Troponin 1.700 ng/mL
- 3/18 04:40 and 09:10 Core Lab Troponin 0.03

- Physician note "Elevated POCT Troponin was followed by a negative laboratory troponin an hour later and subsequent reads have been negative. As these kinetics are physiologically implausible, it's more likely that the POCT assay was inaccurate"

More Opportunities

- Mislabeled samples
    - Same last names
    - Flow chart / meetings
    - Bottom line – two patient identifiers
    - Phlebotomists treated on different standard than nursing / PCT in ER
- More discrepancies
    - Mix tubes

Case Study # 1

- Male, 52 years presented to ER – Shortness of Breath
  - POC Troponin complete 19:54 result of 0.556 ng/mL
  - MD ER Report at 20:11 stating "increased troponin"

 - Core Lab drawn 19:50; complete at 20:38; result 0.94 ng/mL

Case Study # 2

- Male, 37 years presented with Chest Pain
  - POC troponin complete 11:12 result <0.019 ng/mL
  - Core lab drawn 10:45; complete 11:35 <0.01 ng/mL
  - POC repeat complete at 16:31; result 4.390 ng/mL; critical notification 16:52
  - Core repeat 16:38; complete 17:49; result 10.52 ng/mL

Case Study #3

- Male, 57 years presented with Chest Pain
  - POC troponin complete 15:17 results 1.21 ng/mL
  - EKG at 15:11 STEMI noted
  - Call to order in Cath Lab at 15:26

  - Core drawn 15:07; complete 18:44 result 1.10 ng/mL
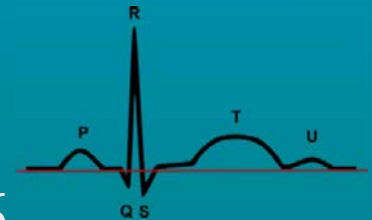
Case Study #4

- 77 year old female; history of Vfib, ICD, NSTEMI 35 days ago

- Patient presents to ER at 12:46 with Chest Pain; BP 189/84; Pulse 65 bpm

- POC Troponin at 14:14 0.026 ng/mL (Normal <0.029 ng/mL)

- POC Troponin at 18:29 0.044 ng/mL

- 20:00 BP 215/93; Pulse 100 bpm

- 22:26 BP 174/78; Pulse 84

- Next Day: 04:00 BP 124/57; Pulse 74
- 06:00 – Note documenting "run of Vtach"
- 08:34 POC Troponin 4.100 ng/mL
- 09:05 Core Lab Troponin (Completed 10:33) 5.76 ng/mL
- 11:25 Cardiology at Bedside

OOPS - The Case of the Disappearing IP Address

Information

The web interface utility is designed to help you configure the Po[...]

To access the Help pages choose the 📖 symbol.

Below are the current system settings.

Model: PortServer
Type: TS 4
Firmware version: Version 82000716_L2 04/11/2011
DHCP: Off
IP address: 163.246.128.131
MAC address: 00:40:9d:28:c9:15
My name:
CPU Utilization: 0%
Up time: 8 days 11 minutes 3 seconds

Connectware™

Setup Wizards
Configure
Report
Admin
Log Out

The Case of the Disappearing IP Address

Other Obstacles

- The case of the disappearing patient result

- Data Management System powered down

- QC and Patient Tests performed but did not cross to DMS.

- Mis-Identified Patients

Point of Care Resources

- Pointofcare.net

- AACC Point of Care Listserv

- AACC CPOCT Division

TriMark Conferences

- Webinars

Moral of the Story

Life is short – have fun!

Smile – it makes people wonder what's going on!

Point of Care can be fun!