5 to 7 MAY '17 DOHA

Middle East Forum on Quality and Safety in Healthcare 2017

Adding Value in Healthcare

Building Reliable Systems to Reduce Delays and Missed Diagnosis

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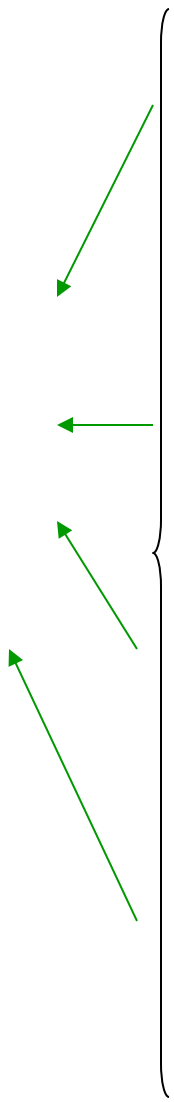
Description

Delays in diagnosis, misdiagnosis or missed diagnosis can result in significant patient harm. In the United States, a recent study Each year in the U.S., approximately 12 million adults who seek outpatient medical care are misdiagnosed, or 1 out of 20 adults. There are three drivers to improve: improving the cognitive process, improving reliability of supporting processes, and patient engagement. In this session, faculty will focus on methods to improve the reliability of processes to reduce delays and missed diagnosis.

Ensure Patient Receives "Right" Diagnosis



Primary Drivers	Secondary Drivers
•Clinician decision making process	Gathering and assessing relevant available information Choosing tests Interpreting test results Consultation with healthcare team Initial diagnosis follow-up plan
•Systems Support	Reliable test ordering, completion and communication of all results Timely and appropriate specialist availability Diagnosis concerns freely shared by other members of the care team Create the proper environment (minimize interruptions, privacy etc) Access to medical care
•Patient Involvement	Seek care Provide information Adhere to follow-up plan "Ask me 3"
•Learning systems	Feedback from colleagues Feedback from patients Ongoing evaluation of human factors Develop/refine critical thinking skills

Diagnostic Error

Diagnostic error: the failure to

(a) establish an accurate and timely explanation of the patient's health problem(s) or

(b) communicate that explanation to the patient. Simply put, these are diagnoses that are missed altogether, wrong, or should have been made much earlier

Details

- A **missed diagnosis** refers to a patient whose medical complaints are never explained. Many patients with chronic fatigue, or chronic pain fall into this category, as well as patients with more specific complaints that are never accurately diagnosed.

- A **wrong diagnosis** occurs, for example, if a patient truly having a heart attack is told their pain is from acid indigestion. The original diagnosis is found to be incorrect because the true cause is discovered later

- A **delayed diagnosis** refers to a case where the diagnosis should have been made earlier. Delayed diagnosis of cancer is by far the leading entity in this category. A major problem in this regard is that there are very few good guidelines on making a timely diagnosis, and many illnesses aren't suspected until symptoms persist, or worsen.

Why Diagnostic Errors Occur

- Cognitive errors
- Complexity of the diagnostic process
- Complexity in health care delivery

Our Approach

- Medical Malpractice Claims tell us:
  - Failure to follow up on test results
  - Failure to follow up on referrals
- Build reliable processes

PROMISES

PROMISES Goals

Improve Patient Safety and Decrease Malpractice Risk in Ambulatory Practices Relating to medication management, test ordering and results, referrals and follow-up, and communication

Framework Components

- Culture of Quality and Safety
- Effective Communication and Collaboration
- Reliable Tracking and Management Processes
- Enhanced Operational Efficiency

Measures

Communication
- Patient Communication
- Staff Communication

Reliable Processes
- High alert drugs
- Critical labs and tests
- Critical referrals
- New medications
- Patient and family engagement

Team Development
- Practice team rating

Conceptual Design

Culture of Quality and Safety	Effective Communication and Collaboration	Reliable Tracking and Management Processes	Enhanced Operational Efficiency
Improvement Capacity Cultivated	Health Literacy	High Risk Labs, Meds, Referrals & Tests Identified	Patient Needs Anticipated
Care Team Optimized	Mechanism to Listen and Learn from Patients/Families	Standardized Protocols and Algorithms	Efficient Workflow and Reduced Waste
Patient and Family Engaged	Effective Communication and Collaboration within/ between Practices	Patient and Family Engagement & Education	High Value Office Visit from Patient Perspective
No-Blame Reporting Culture Cultivated	Communication and Support for Patient/ Family Who Experience an Adverse Event	Measurement /Assessment of Processes	
High Risk Areas identified		Proactive Plan of Care w/ Follow-Up	
Safety Lessons Learned & Shared			

Our Approach

- Medical Malpractice Claims tell us:
  - Failure to follow up on test results
  - Failure to follow up on referrals
- Build reliable processes

What does a reliable process look like to you?

Common Reliable Processes

- Nuclear Power Plants
- Airline Travel
- Aircraft carriers
- Fast food restaurants
- And others….

Levels of Reliability

The reliability of your process or system is directly related to:

- The number of steps in the process
- How ‘messy’ your process or system is
- How much you know about the process or system
- Your ability to have some degree of control over all the steps in the process or system

Kevin Rooney

Why Are Processes Not Reliable?

- Individual Autonomy
- Focus on benchmark performance
- Over-reliance on training, vigilance and hard work
- Expecting that a policy will result in improved reliability
- Reliability not part of process design

Step 1

How to Build Reliable Processes

- Start out with intent to build a reliable process
- Set your goal: Reliable at least 95% of the time
  - Non-catastrophic processes- patient will not die within the next 4 hours
- Segment the population
- Develop high level flow diagram

Intent

- Develop a process which is reliable and capable to ensure that a doctor is able to follow up on test results within 24 hours at least 95% of the time to be completed in the next 6 months.

Segmentation-- Start Small

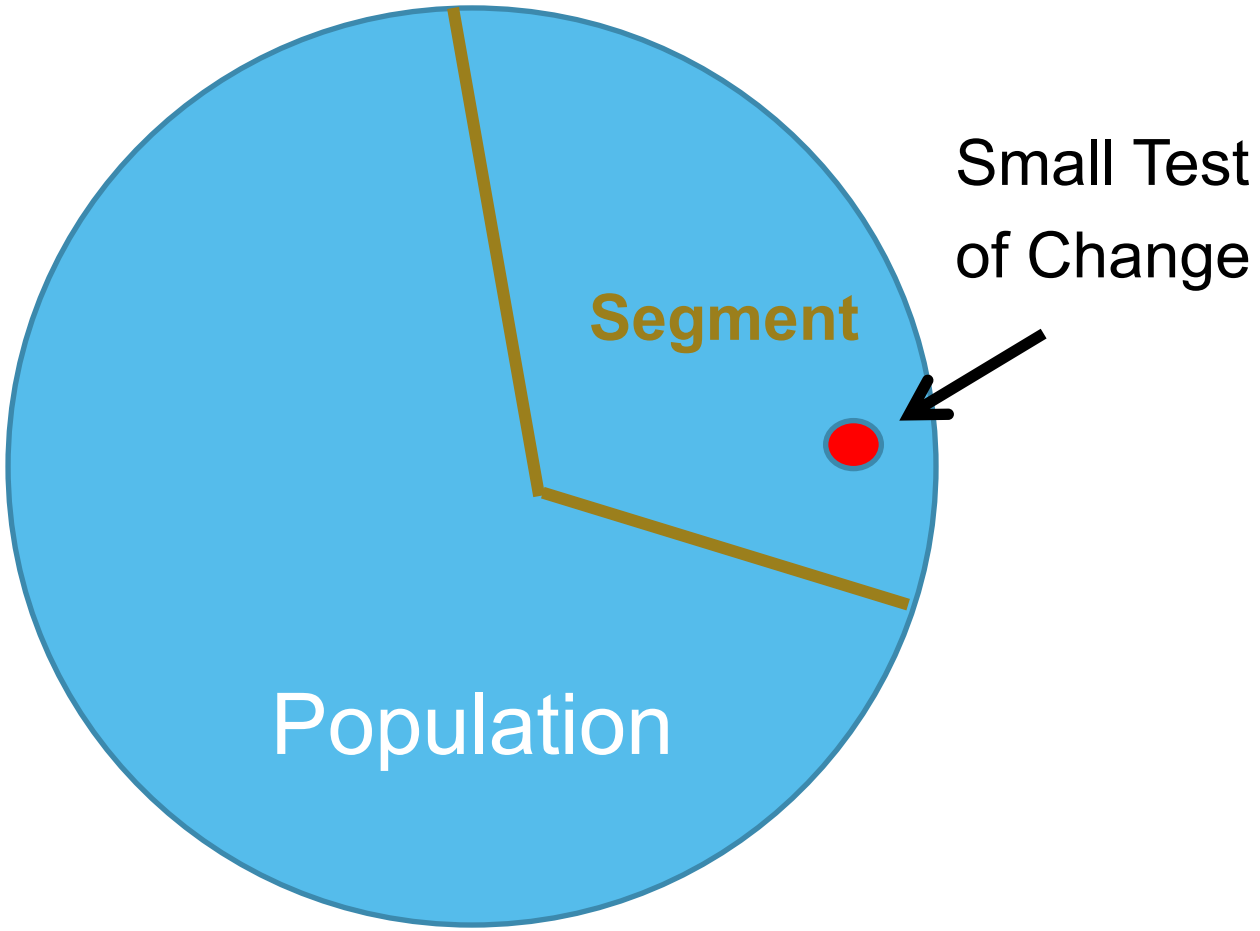
- Experience tells us that not all situations are the same
- One standardized process will not work for all
- Design a process to deliver reliable care for a group that is easiest to work with
- Learn from that group and spread to others

Selecting a Subset/Segment

- Easy to identify
- Willing participants
- Can learn how to design for other subsets
- High enough volume to be able to test daily or every other day
- “If we cannot make our process reliable for this group, what are our chances with other groups?”

Subset

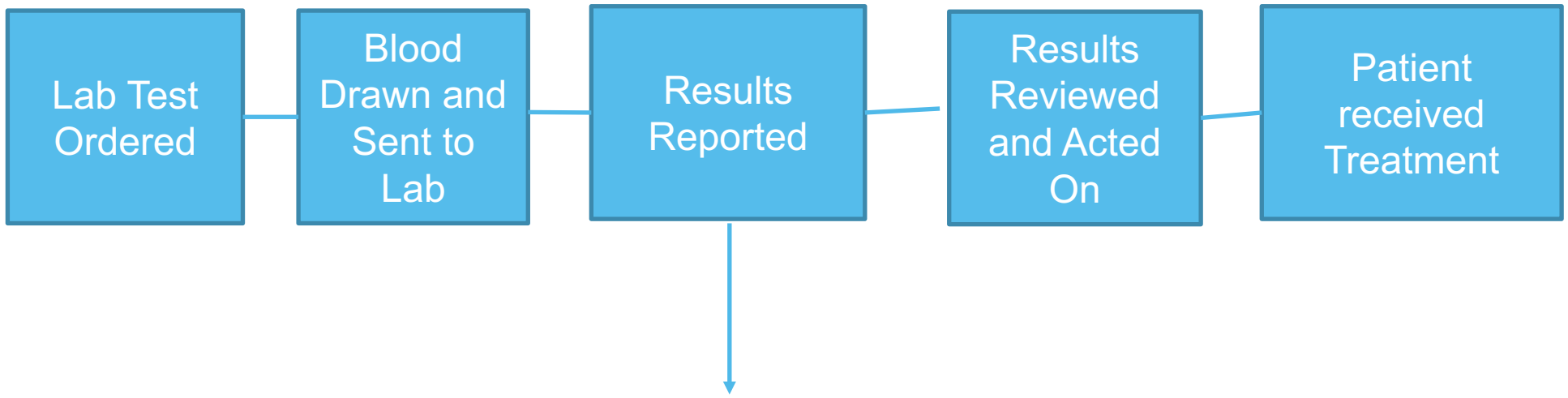
- Dr. Poonam's patient
- Patients who have had chem tests
- Patients on the one ward
- Medical ICU with two willing doctors


Small Test
of Change
Segment
Population

Visualize the Steps

- High level flow diagram
- 3 to 5 Steps-keep it simple
- Identify defects
  - Is there a cascade?
  - Which is the biggest defect?
  - Identify what you will fix

Example of High Level Diagram

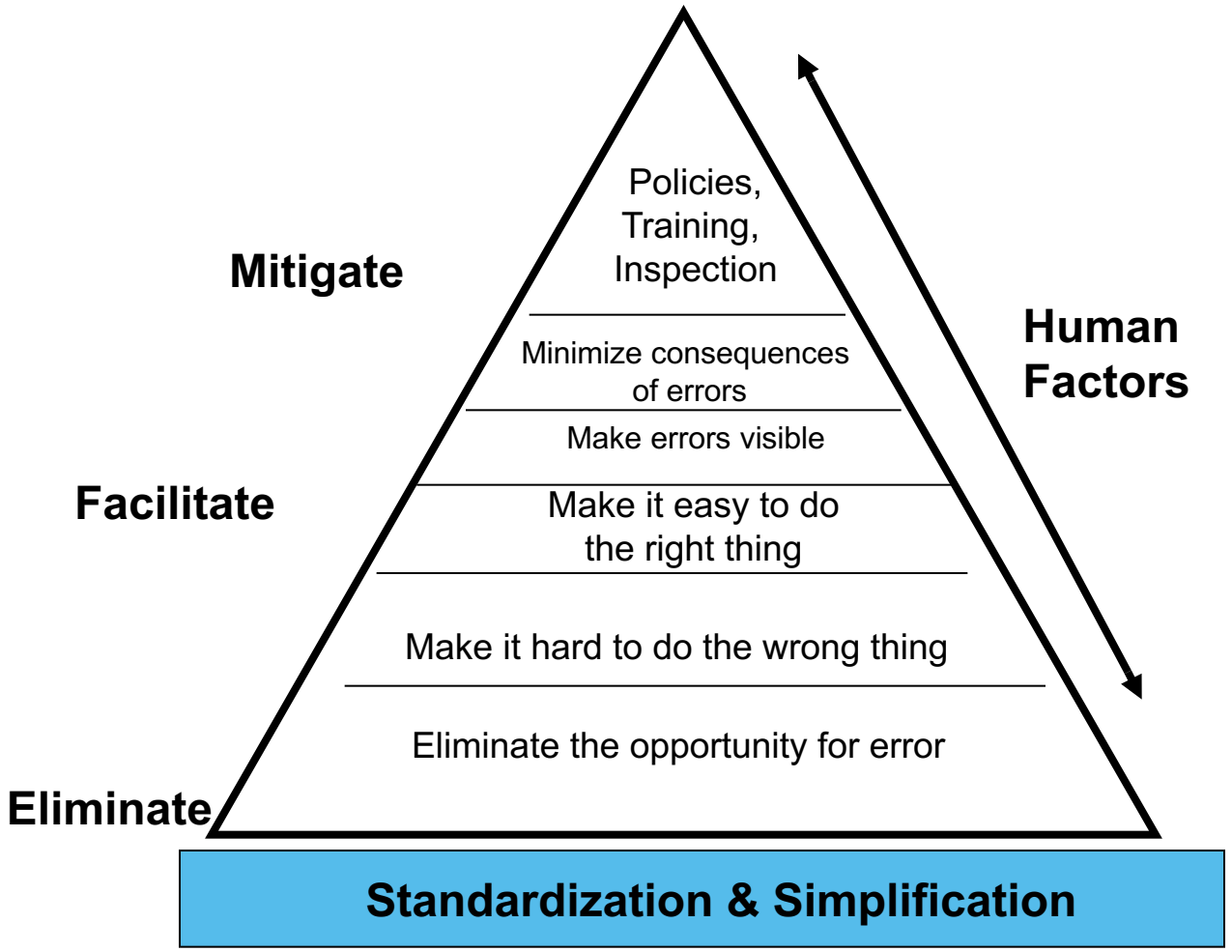


Step 2

Change Concepts

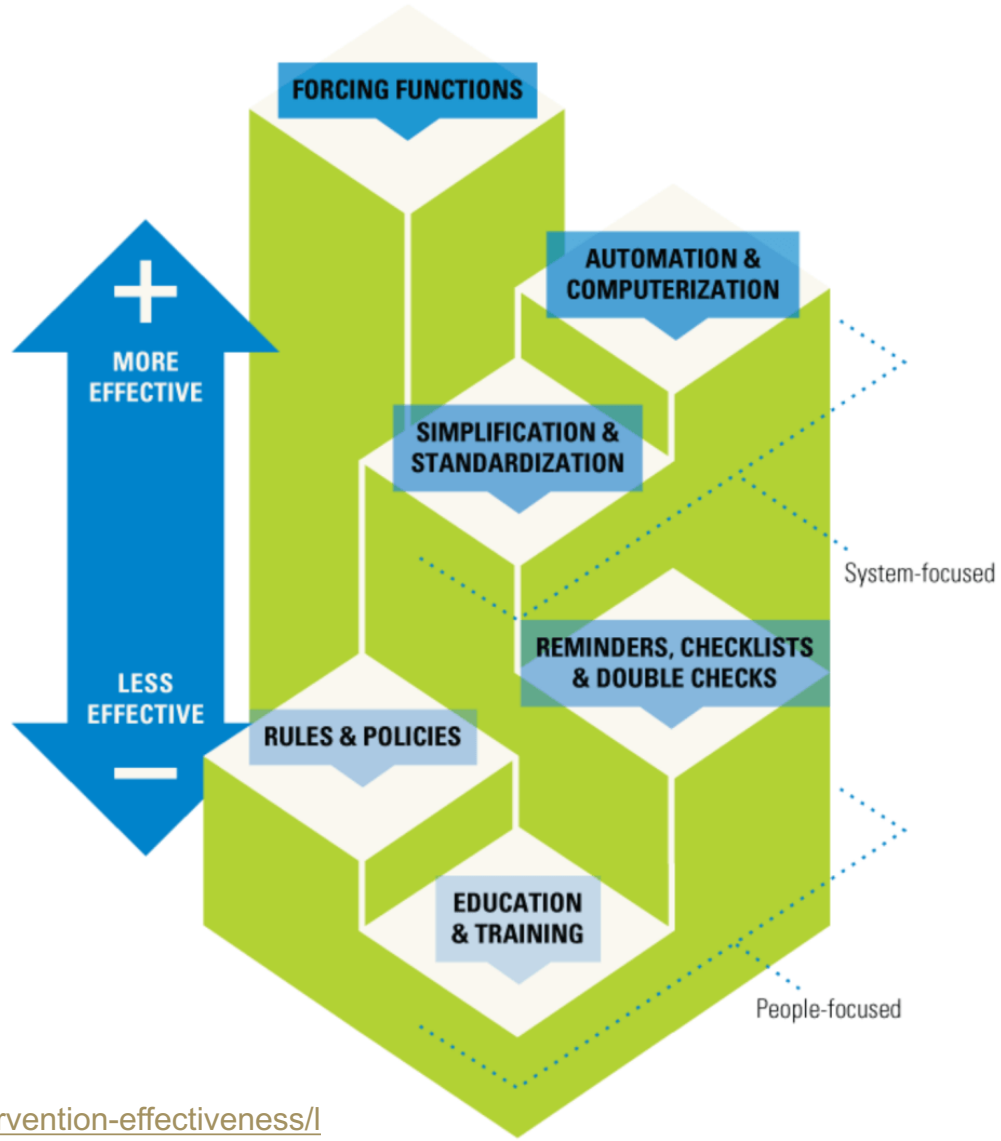
- Simplification
  - Are there Steps in your processes that can be eliminated?
- Standardization
  - Best known process to achieve desired results
  - But known today-may change with new knowledge or new context

Error Reduction Overview: Hierarchy of Controls



Doug Bonacum, KP

The Hierarchy of Intervention Effectiveness



The diagram was created by Cassie McDanie
https://patientsafe.wordpress.com/the-hierarchy-of-intervention-effectiveness/l

Definition of standard work

"…current best practice, standardized work forms the baseline for kaizen or continuous improvement. As the standard is improved, the new standard becomes the baseline for further improvements, and so on. Improving standardized work is a never-ending process."

http://www.lean.org/workshops/WorkshopDescription.cfm?WorkshopId=20

Why Standardize?

- Reduces variation
- Easier to fix a defect when one occurs
- Makes it easier to train
- Makes it easier to assess competency
- Supports care we expect our patients receive

Step 3

Why Develop a Back Up Plan?

- Very difficult to reach 100% each every time with only first step
- Allowing for 80% reliability in first step gives opportunity to design more freely
- You may achieve 95% or better with only first step-but is it sustainable?
- You will have a safeguard in place

Examples of Backup Plan

- Call to patient after discharge
- Checkout after primary care visit
- Follow-up phone call with patient about lab results

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Adding Value in Healthcare

Reduction in Rejected Blood Samples rate in Heart Hospital by using Lean Tools

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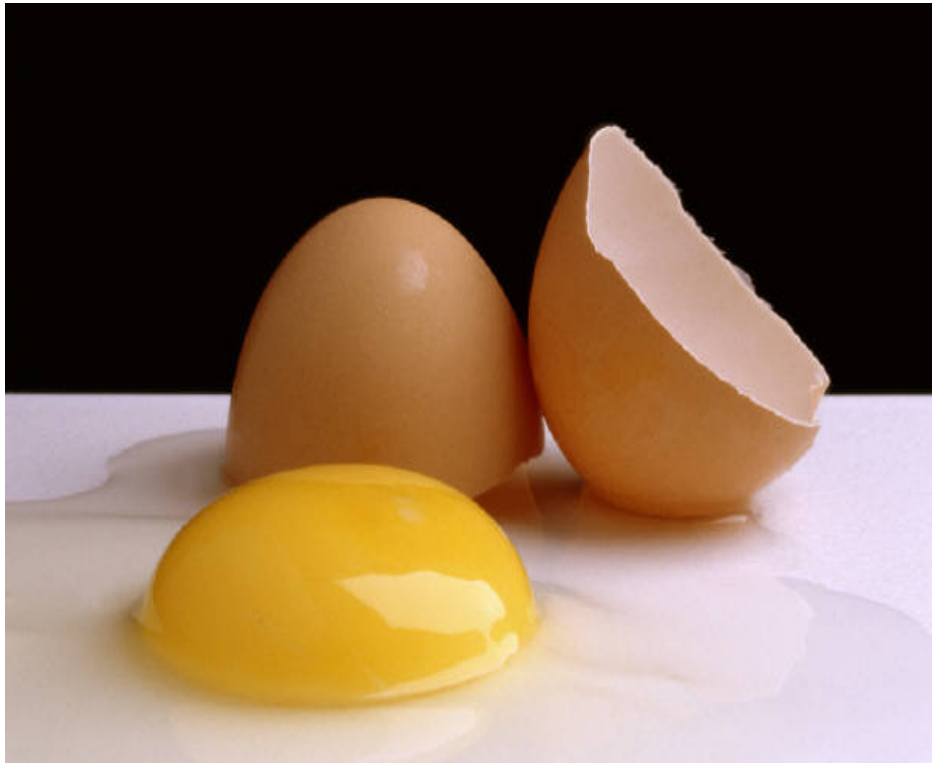
Team

- **Project Lead ED –** Ms. Sapdiya , Head Nurse ED
- **Project Coach & HH Lead** – Dr. Poonam Gupta, Sr. Quality improvement reviewer
- **Task Force** – Joycee Kurian (Quality Reviewer), Swapna Vava (Staff Nurse),Souad Mohammad (SN), Shiney Cherian (SN), Antonio Alegre (SN), Dolly Pappy, Golda Lacson , Nirmala Isaac ,Reinier Dusaban Cando ,Amani Hamid(Phlebotomy), Gilrose Bautista (Sr. Lab technician/Quality officer), Nevine Rasheed (Lab Supervisor) , Noora Al Mulla (Chief Technologist), Jaham (Sr. Lab technician)
- **Executive Sponsor** – Ms. Fadia Hasan Ali, AED Quality
  Mr. Mohd Al Zubi, A/AEDON
  Ms. Catherine Marshall, DON CC
  Mr. Emad, DON Telemetry
  Mr. Thabit Melhem, DON ED
- **Acknowledgement**- Prof. Mckenna , CEO & Medical Director
  Mr. Paul Mavin, Executive Director
  Mr. Ian Mcdonald, EDON

- The result of any laboratory examination is only as good as the sample received in the laboratory



Introduction

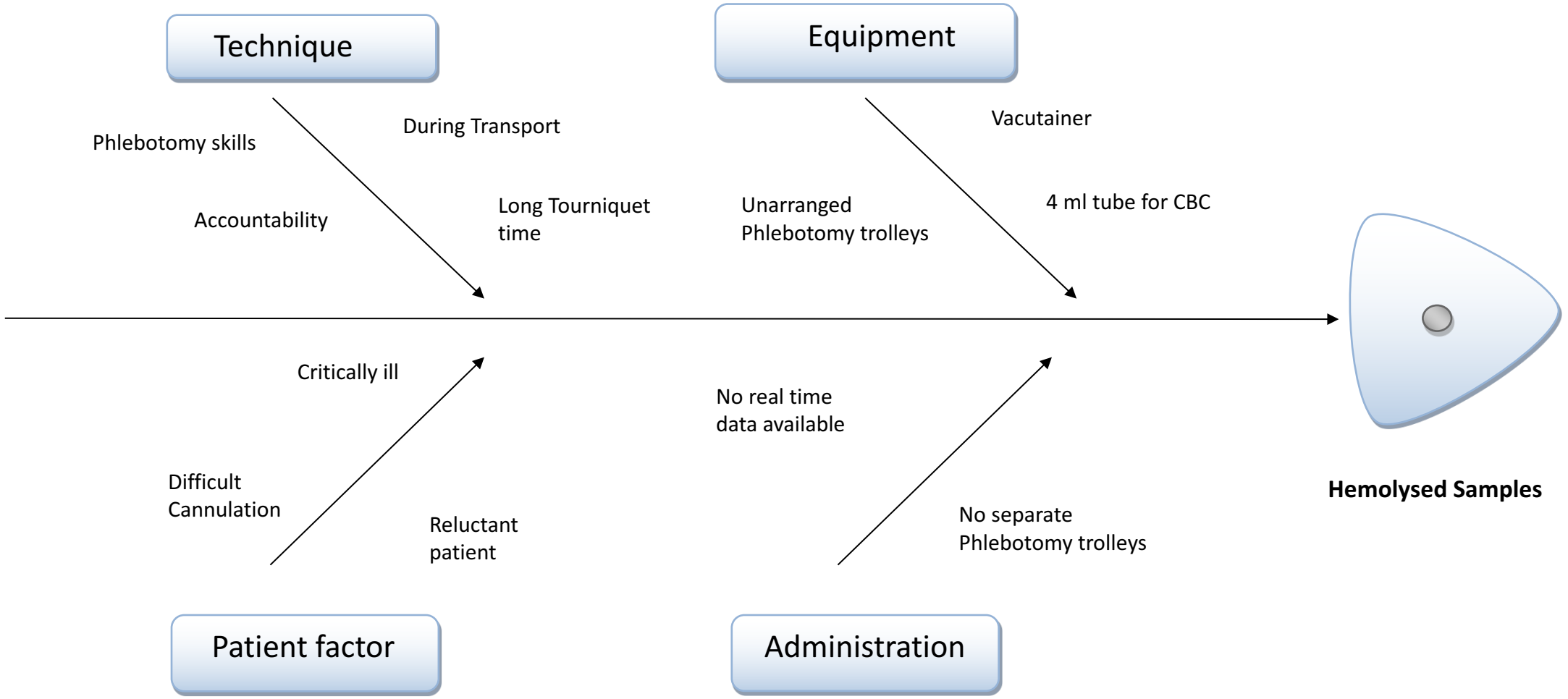
- Haemolysed specimens, the most common reason for rejection, account for ~60% of rejected specimens.

- Depends mainly on the way in which the blood samples are drawn and treated.

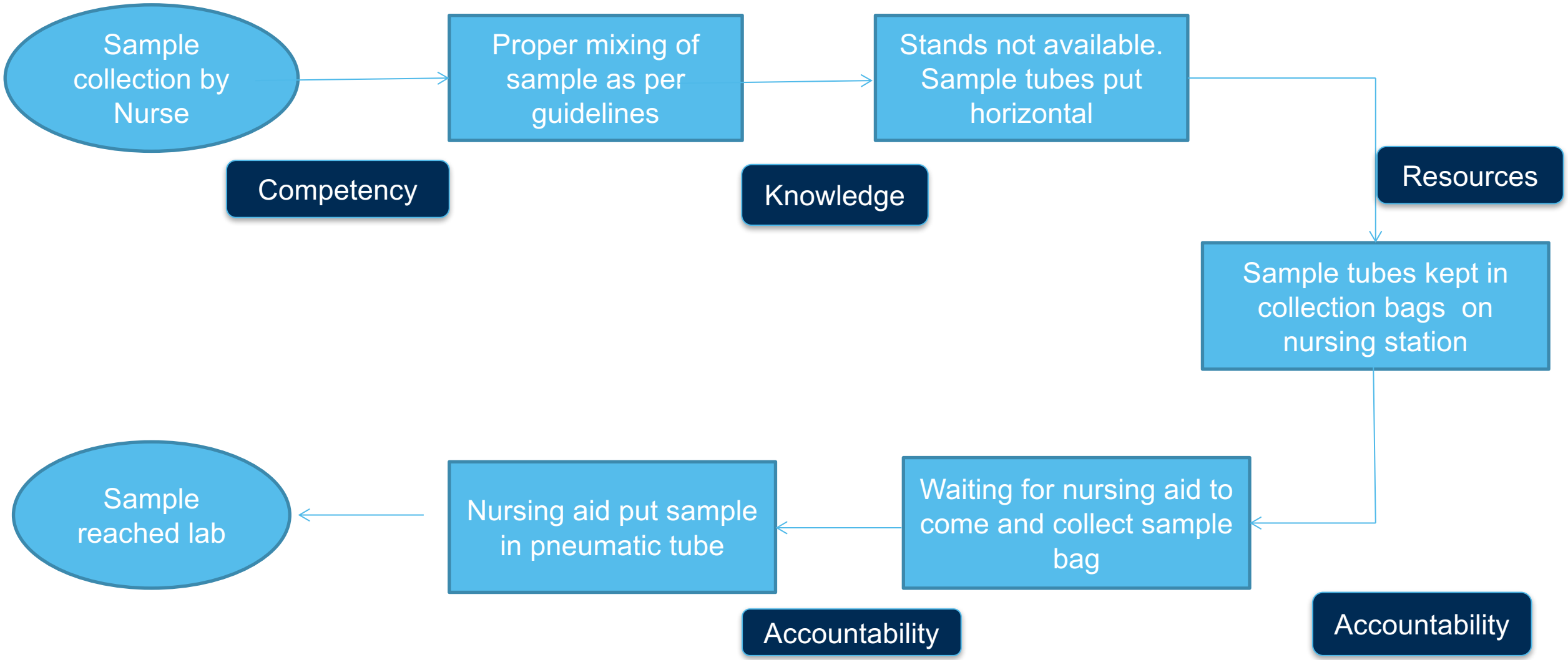
- Haemolysed samples cost time and money :

I. Impacts patient safety and experience
II. Delayed treatment
III. Delayed discharge
IV. Repeated assays.

Cause and Effect Analysis – Fishbone Diagram



Process Observation Flow Chart with areas of improvement opportunities



PHLEBOTOMY TROLLEYS – 5 S – Sort, Set in Order, Shine, Standardize, Sustain

“A place for everything, and everything in its place”

SORT

Remove unnecessary items from work area. Previously staff was using Bobby med trolley which had all material used for sample collection as well as IV fluids and bandages. We prepared 9 specific trolleys only for phlebotomy which has only materials to be used in phlebotomy.

After

PHLEBOTOMY TROLLEYS – 5 S – Sort, Set in Order, Shine, Standardize, Sustain

SET IN ORDER

Customize the work area to improve efficiency. Keep important materials nearby. Implement visual organization to streamline workflow. Total 9 phlebotomy trolleys kept in ED . One for each 3 rooms Color coded.

PHLEBOTOMY TROLLEYS – 5 S – Sort, Set in Order, Shine, Standardize, Sustain

SHINE

Clean the Work area, equipment's and tools. Find and eliminate sources of contamination

After

PHLEBOTOMY TROLLEYS – 5 S – Sort, Set in Order, Shine, Standardize, Sustain

STANDARDIZE

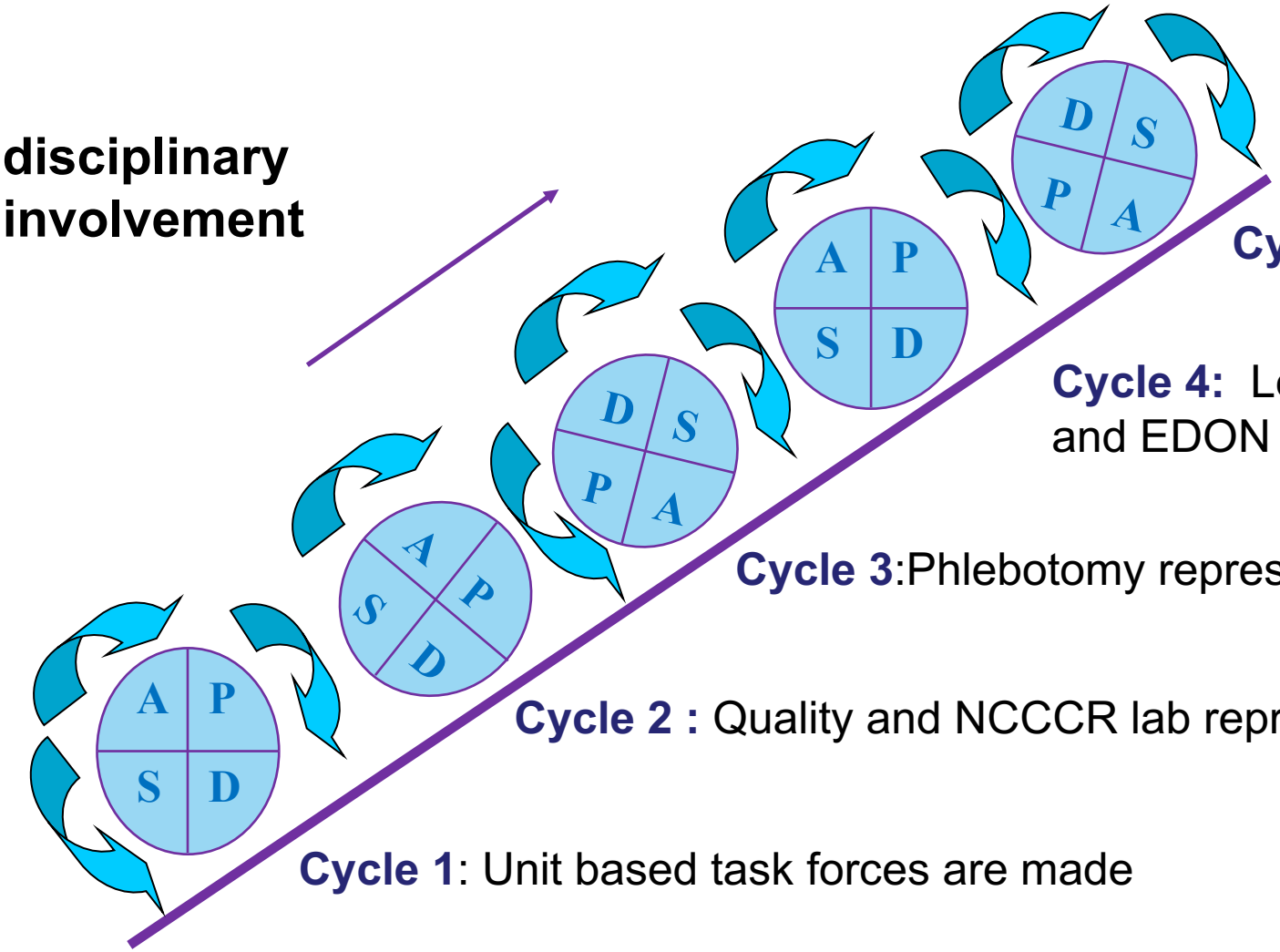
Create a standardized and consistent workflow. Assign tasks and create schedules so that everyone knows their responsibilities. Every shift phlebotomy trolley needs to be checked and refilled. It is labelled with Orange sticker so that can be visualized and differentiated with bobby med.

SUSTAIN

Ensure that 5 S is a long term goal. Every shift phlebotomy trolley needs to be checked and refilled. It is labelled with Orange sticker so that can be visualized and differentiated with bobby med.
Daily checking by head nurse and champions

Tests of Change - PDSA

Ramp #1: Multidisciplinary team involvement



Cycle 5: Monthly meeting conducted

Cycle 4: Leadership involvement by involving DON and EDON

Cycle 3:Phlebotomy representative made part of the team

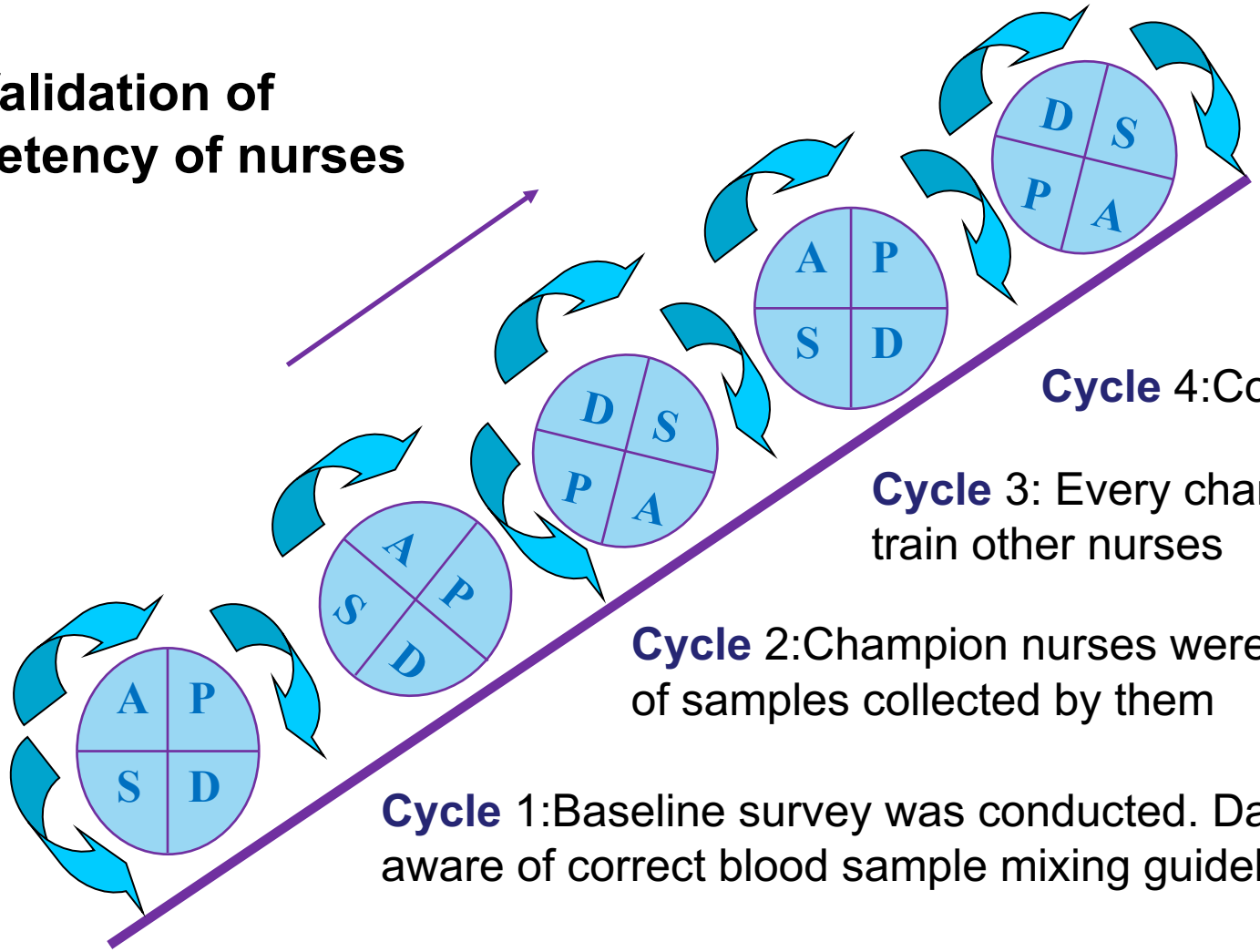
Cycle 2 : Quality and NCCCR lab representative added

Cycle 1: Unit based task forces are made

Tests of Change - PDSA

Ramp # 2 : To check competency of nurses for blood collection

Validation of Competency of nurses



Cycle 5. Sample colleting nurse is assigned to transfer it to pneumatic tube as compare to nursing aid previously

Cycle 4:Competency validation was performed

Cycle 3: Every champion nurse made responsible to train other nurses

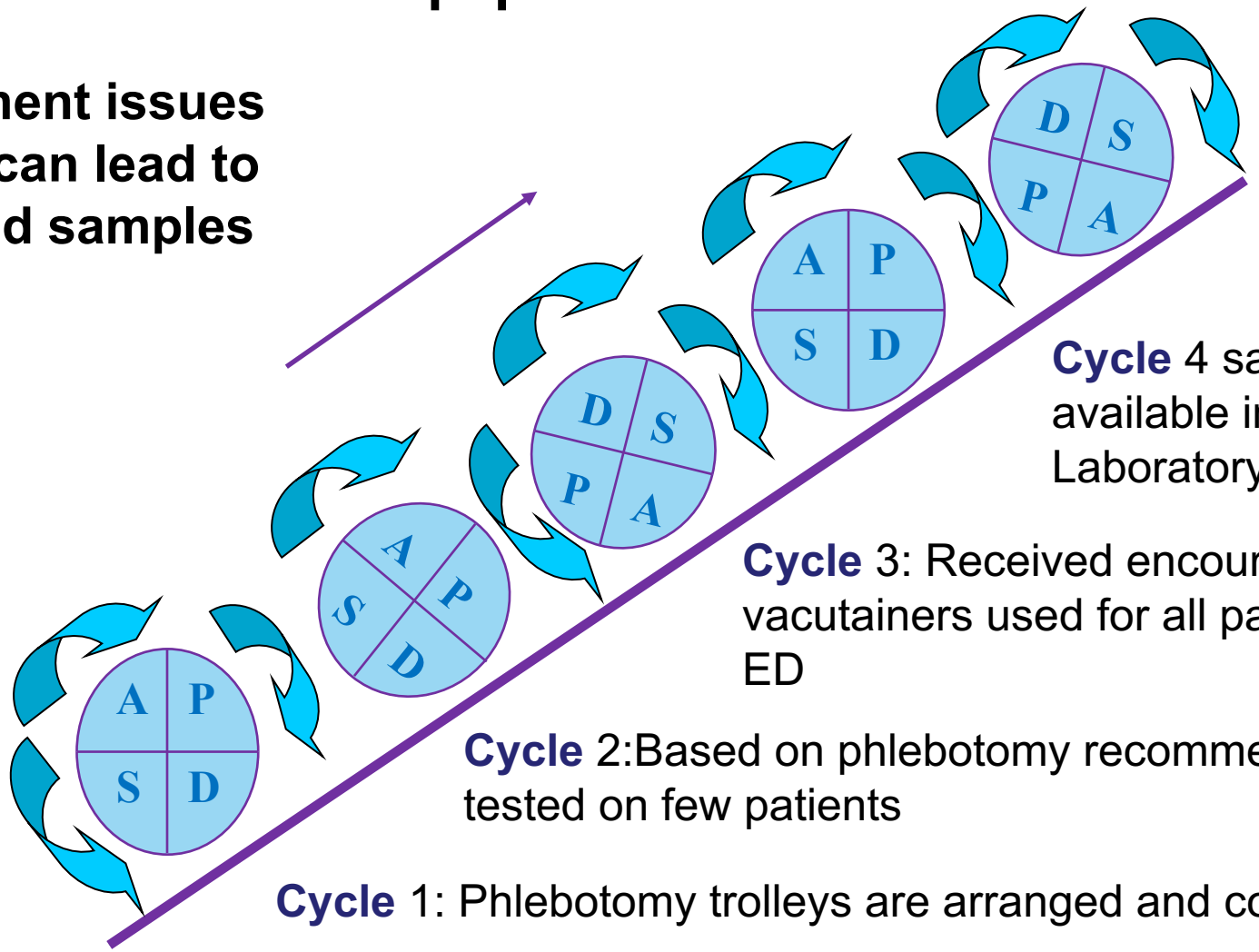
Cycle 2:Champion nurses were identified based on least rejection rates of samples collected by them

Cycle 1:Baseline survey was conducted. Data shows 60 % of the nurses were not aware of correct blood sample mixing guidelines.

Tests of Change - PDSA

Ramp # 3: To check Equipment issues which can lead to rejected samples

Equipment issues which can lead to rejected samples



Cycle 5. 4 ml EDTA tube for CBC replaced with 2 ml tube (less blood required)

Cycle 4 sample collection stands are not available in the unit. Stands arranged from Laboratory and now being used in ED

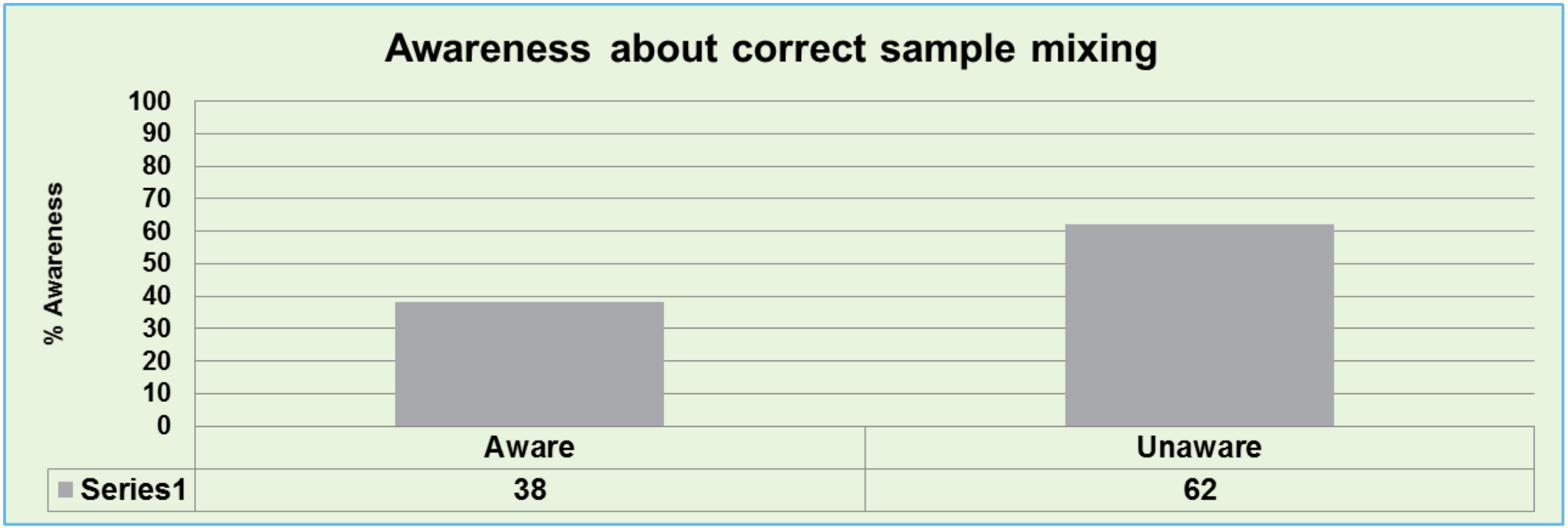
Cycle 3: Received encouraging feedbacks from nurses, new vacutainers used for all patients and 9 phlebotomy trolleys kept in ED

Cycle 2:Based on phlebotomy recommendations, sample collection vacutainers tested on few patients

Cycle 1: Phlebotomy trolleys are arranged and color coded.

Tests of Change - PDSA

- Knowledge of the nurses has been assessed for proper mixing of collected samples as per the test requirements.
- 50 Nurses have been surveyed.
- Education provided to update the knowledge
- Cross check to ensure understanding



Tests of Change - PDSA

As per the recommendations from lab, tubes should be kept in upright position, but due to unavailability of stands and busy ED, staff used to keep it horizontal. Stands were provided to all the units with the help of laboratory.

Before

After

Tests of Change - PDSA

New Vacutainer in use

Tests of Change - PDSA

- **Replacement of 4 ml EDTA tube for CBC with 2 ml tube (less blood required)**

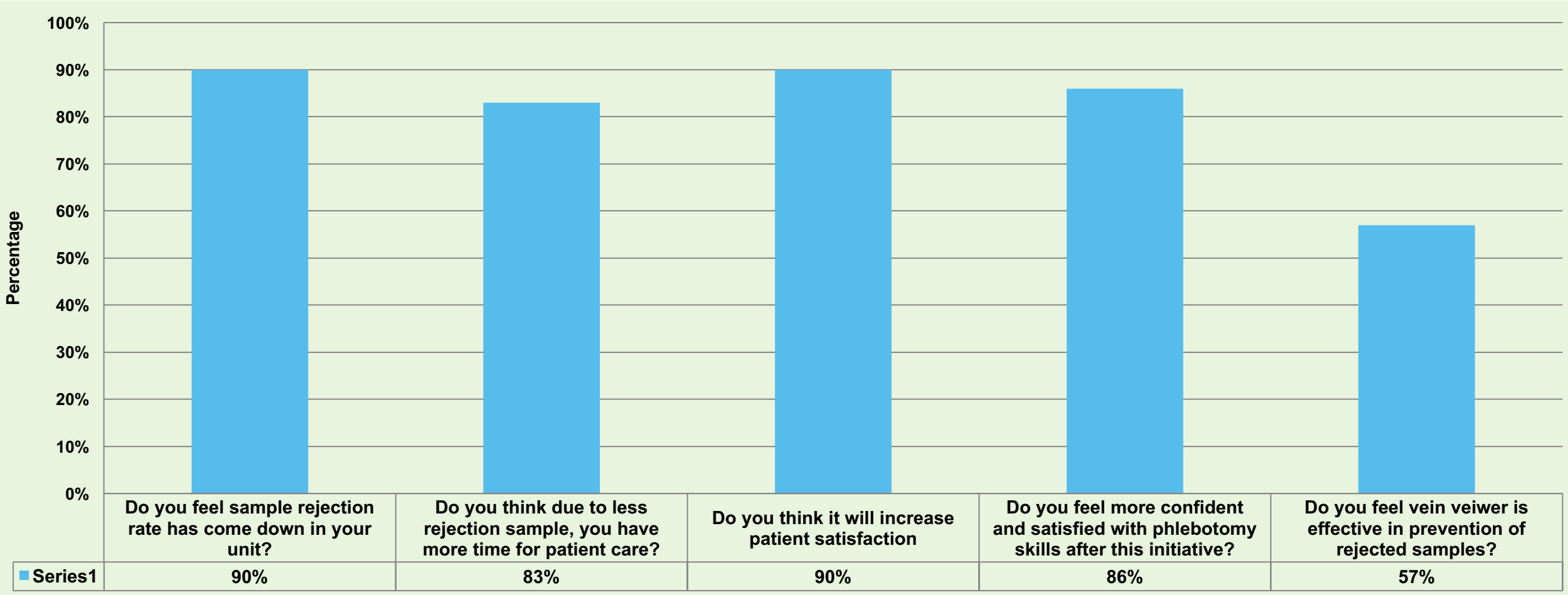
It was noted that nurses were collecting sample in 4 ml EDTA tube for CBC and blood group however lab advised that even 2 ml sample is sufficient for the test. We replaced 4 ml EDTA tubes with 2 ml tubes.

Before

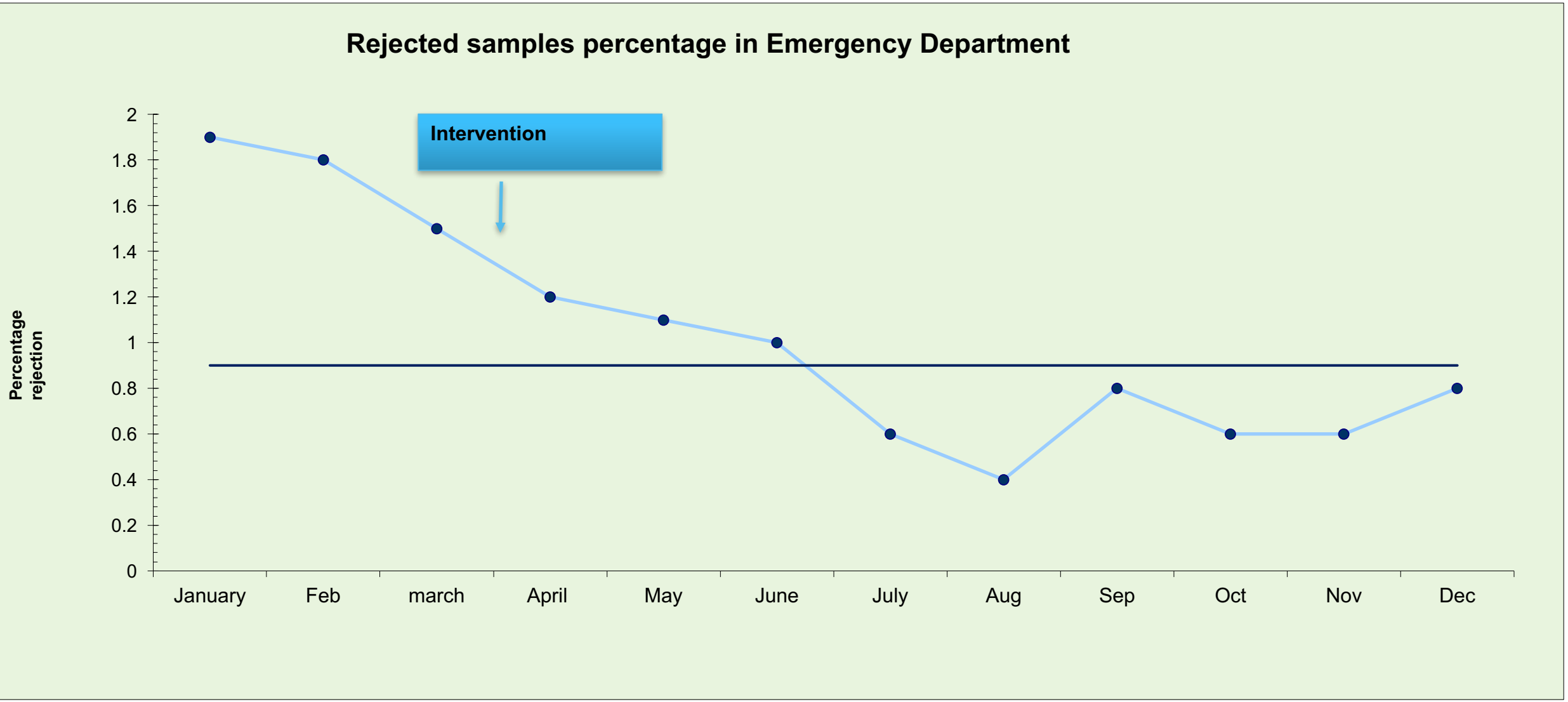
After

- **Staff satisfaction survey , 125 Nurses participated.**

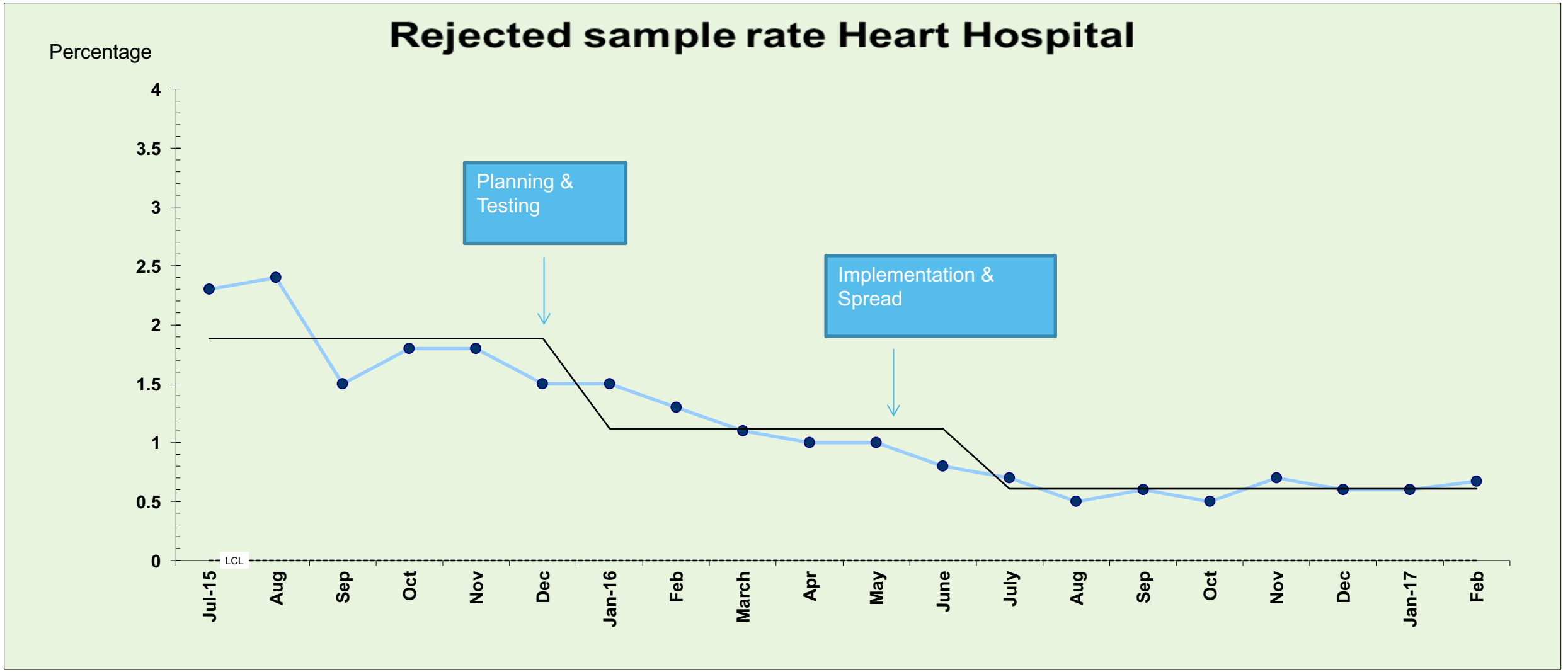
- 90 % of nurses agreed that after this project, their phlebotomy competency has increased and they are getting more time for direct patient care. It eventually led to more patient satisfaction.



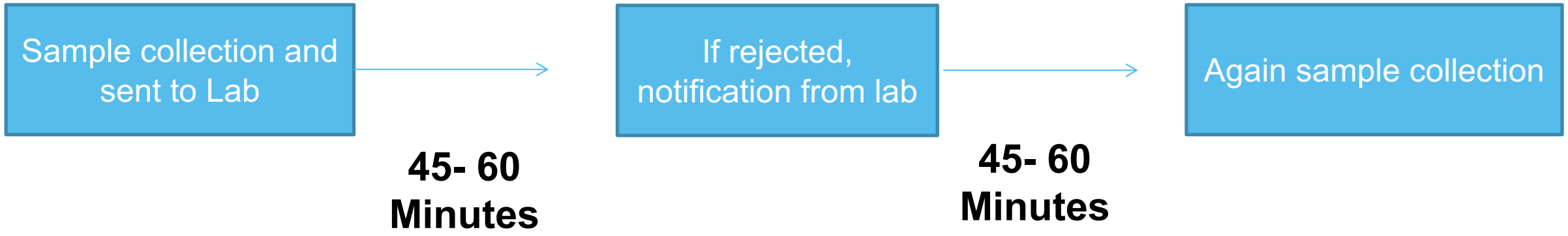
Results


Rejected samples percentage in Emergency Department
Intervention
Percentage rejection
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
January
Feb
march
April
May
June
July
Aug
Sep
Oct
Nov
Dec

Results


Rejected sample rate Heart Hospital
Percentage
4
3.5
3
2.5
2
1.5
1
0.5
0
LCL
Planning & Testing
Implementation & Spread
Jul-15
Aug
Sep
Oct
Nov
Dec
Jan-16
Feb
March
Apr
May
June
July
Aug
Sep
Oct
Nov
Dec
Jan-17
Feb

Delays due to rejected samples



- One rejected sample increases length of stay in ED by **90 - 120 minutes**

- We reduced 54 rejected samples **(81 Hours delay)** in January to 13 rejected samples **(19 Hours delay)** in Aug 2016

- We know that we can not eliminate rejected samples due to some of the patient conditions but we can reduce it to the accepted benchmark by adopting evidence based practices and teamwork

Benefit Realizations

1. **Clinical decisions** - 70 – 80 % of clinical decisions involves one or more lab investigations and dependant on laboratory based diagnostics. Reduction in errors will lead to provide Effective and Safe care to our patients.

2. **Transfers from HGH** – Increase length in stay in HH ED will directly affect any transfers from HGH ED.

3. **Financial Burden** - As financial resources are limited, repeated specimen collections results in unjustifiable increase in cost. It costs us in terms of nursing cost, technicians cost, equipment's cost and processing cost. By reducing the number of rejected samples, we are trying to reduce the costs as well.

Benefit Realizations

4. Patient satisfaction - Multiple pricks leads to discomfort for patient and relatives specially for elderly patients. Every additional prick adds up to the burden and pain received by these patients.

5. Staff satisfaction - There is nothing worse than getting a call from laboratory stating “The sample is haemolysed”. it adds up additional work load to both the nurses and laboratory technicians,

Lessons Learnt

1. Culture and process change do not happen overnight

2. Ongoing Education is an important part. Frontline staff should be aware of How, why and what.

3. For improvement, support from all departments are required. It's a multidisciplinary approach.

4. Sharing data each month keeps the staff motivated and facilitate planning for next step.

5. Don't be afraid to step back. If some tests are not giving desirable results, its always good to return to previous method or test some new idea.

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Thank you

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