One and Done !
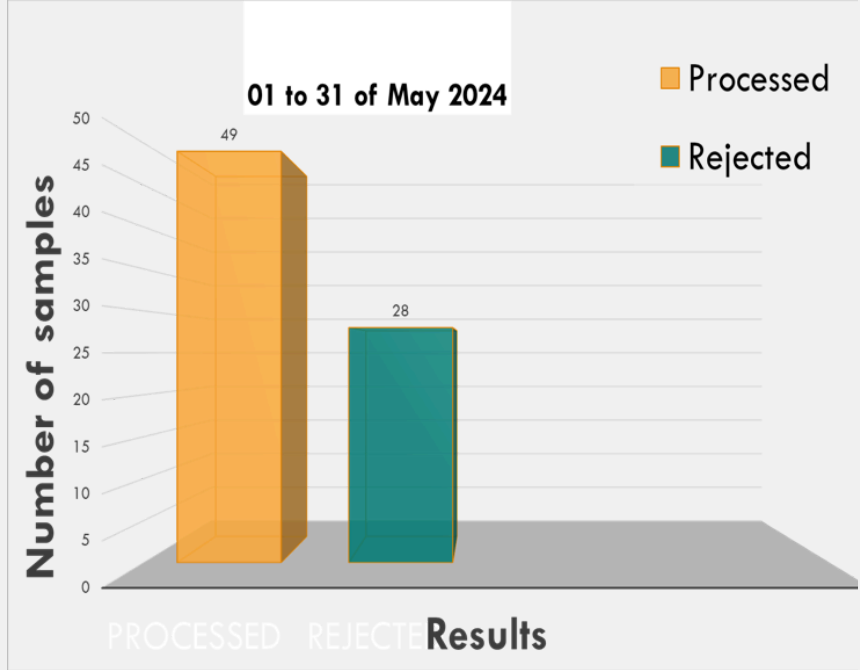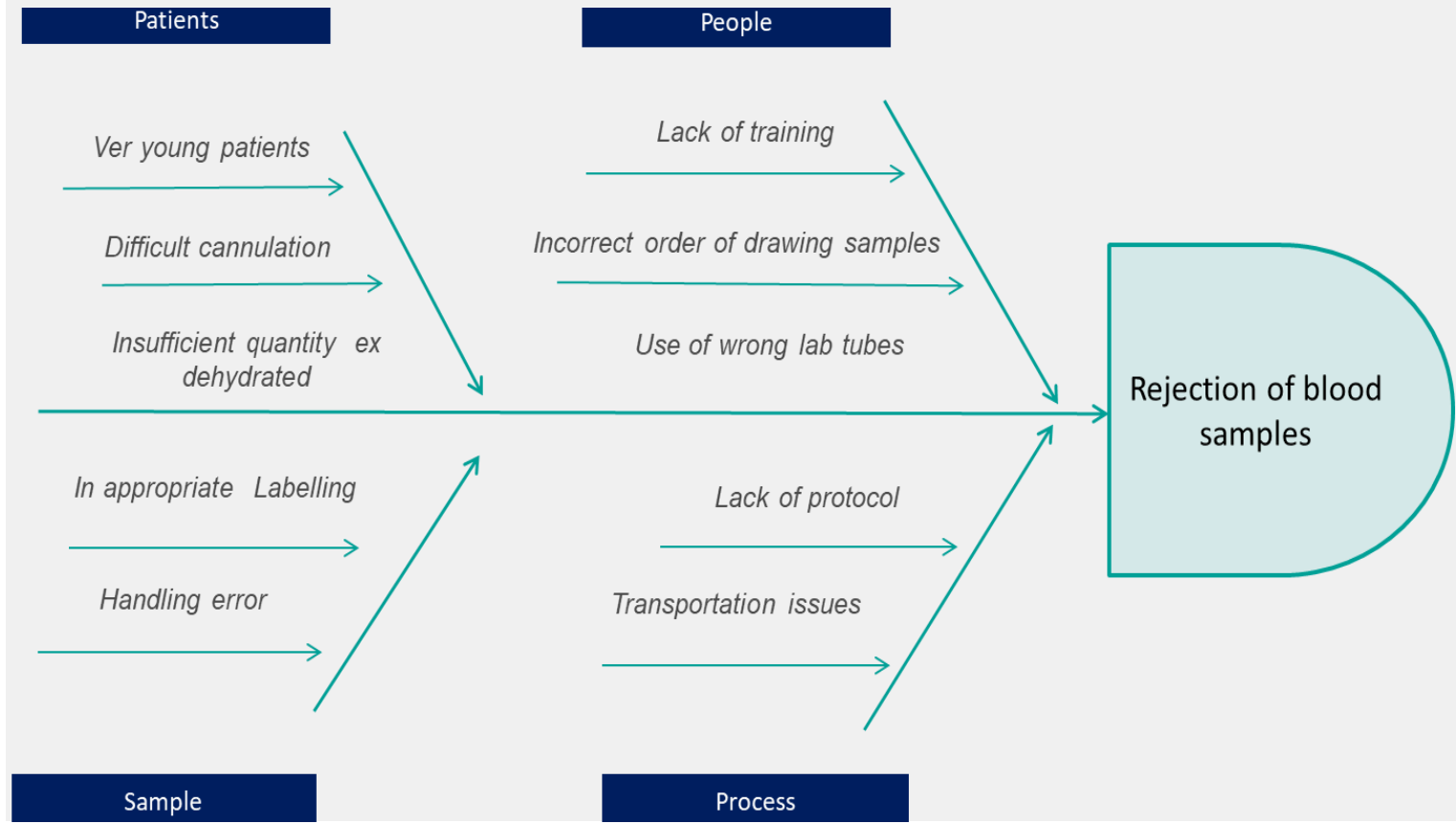## Ensuring Successful Blood Sampling in Infants Under 1 Month

Mervat Elyas [1], Mahmoud Barakat 1
[1] Leeds Teaching Hospitals NHS Trust

QIC learn

SPRInT

leeds children's hospital — caring about children

DIAGNOSTICS

Blood samples from children are often rejected by the lab. This necessitates repeating the samples, which causes additional work for staff, distress for children, and delays in care.

Fishbone diagram — Rejection of blood samples

Patients
- Very young patients
- Difficult cannulation
- Insufficient quantity ex dehydrated

Sample
- In appropriate Labelling
- Handling error

People
- Lack of training
- Incorrect order of drawing samples
- Use of wrong lab tubes

Process
- Lack of protocol
- Transportation issues

→ Rejection of blood samples

01 to 31 of May 2024
- Processed: 49
- Rejected: 28

(Bar chart: Number of samples vs Results — PROCESSED / REJECTED)

Aim
By the end of August 2024, at least 6 out of 10 blood samples from Infants less than 1 month old in the Children Assessment Unit will be successfully processed on the first attempt

Measure
Number/Percent of blood samples that were rejected by the lab .

Inclusions
Blood samples that were taken from Infants less than 1 month old
Weekly data collection from the electronic lab results software

Exclusions
Blood samples from children aged more than 1 month old

CHANGE IDEAS

1. **Enhance Staff Training** : Conduct training sessions every four months for junior doctors, particularly those rotating in, focusing on best practices for collecting blood samples .

2. **Develop a Standardized Blood Collection Protocol** : Create a clear, step-by-step protocol for capillary blood samples in infants less than 1 month old (e.g. correct order of tubes and the minimum blood volume required for accurate analysis).

3. **Implement a Pre-Sample Collection Checklist**: to ensure all necessary steps are followed before sample collection, including verifying patient identification, confirming the sample type, and proper labeling.

4. **Improve Communication and Handover Process** : Establish clear communication protocols during shift changes to ensure all staff are informed about pending samples and the urgency of processing them in a timely manner.

PDSA cycles

Cycle 1 (P): Extend the initiative by sending reminders in the department's WhatsApp group to reach more staff members.

Cycle 1 (S/A): - Received positive feedback from staff members.
- New trainees were not aware of this information.
- **No rejected samples** based on the review of lab rejection data for 3 nights.

Cycle 2 (P): Design brief, targeted reminders covering essential blood sample collection tips, correct order, and the required amount of blood needed in each tube.

Cycle 2 (D/S): **3rd – 5th August:**
- Conduct a review session with 2 junior staff members during three consecutive night shifts .
- Present the established tips and measure their understanding and practices regarding blood sample collection.
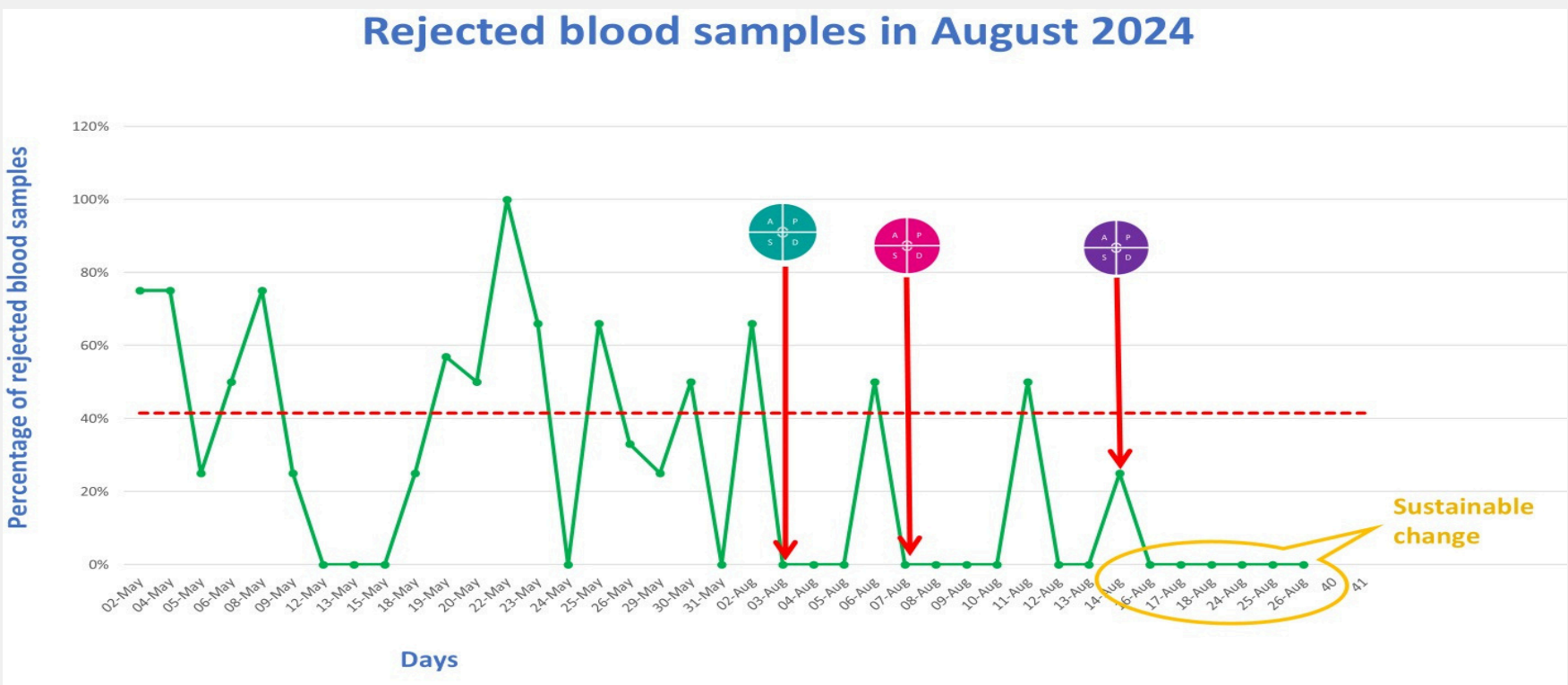
Cycle 3 (P): Extend the initiative by displaying clear posters in relevant areas, outlining the protocol for blood sampling, including tube order and minimum sample volume.

Cycle 3 (S/A): Received positive feedback, from new trainees who found it a helpful guide .
- Suggestions to create posters as a constant reminder.
- **-93%** of blood samples successfully processed, according to lab rejection data.

Cycle 4 (P): Send concise reminders with practical tips in the department's WhatsApp group.

Cycle 4 (D/S): **7th – 13th August:**
- Monitor the responses from the group (engagement, feedback) during the week .
- Review the lab rejection data for the week.

Cycle 5 (P): Adopt and maintain the use of visual reminders (posters) in the treatment room and consider developing additional materials based on ongoing feedback.

Cycle 5 (S/A): - Posters were well-received, especially since they were placed in areas relevant to the blood collection process.
- **83%** of blood samples were successfully processed based on lab rejection data.

Cycle 6 (P): - Design and print posters that summarize blood sampling protocols.
- Ensure they are visually appealing and easy to understand.

Cycle 6 (D/S): **14th – 30th August :**
- Place posters in key areas, such as the treatment room in the Children Assessment Unit where blood samples are collected.
- Gather staff feedback regarding the effectiveness of these visual reminders.

RUN CHART

Rejected blood samples in August 2024

(Run chart: Percentage of rejected blood samples vs Days. Median line ~40%. Three intervention markers. "Sustainable change" annotation near end.)

REFLECTIONS & LEARNING

The project exceeded its goal of 60% successful blood samples, achieving **83-93%** through small PDSA cycles.

We learned that targeted reminders and posters can be effective, but maintaining improvements without constant oversight can be challenging. The Model for

Improvement helped us test and refine changes successfully. To ensure lasting success, we will focus on integrating these changes into daily routines and encouraging staff ownership to sustain progress.

Change CHAMPION — The ONE thing