

Project Title

Let's Get it Right!: Reducing Specimen Rejection Rates in a Neonatal Department

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Organisation(s) Involved

KK Women's & Children's Hospital

Healthcare Family Group(s) Involved in this Project

Healthcare Administration

Applicable Specialty or Discipline

Neonatology, Pathology and Laboratory Medicine

Aims

To reduce specimen rejection by 30% over a 6-month period

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign, Value Based Care, Safe Care, Quality Improvement

Keywords

Blood Specimen Rejection, Patient Safety, Target Zero Specimen Rejection, Root Cause Analysis

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Let's Get it Right! : Reducing Specimen Rejection Rates in a Neonatal Department

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Background :

Integrity of biological specimens sent for analysis in the laboratory is important to ensure accountability, accuracy and timely management of clinical problems.

Specimens rejection can result in unnecessary repeat sampling, additional pain involved in repeat collection, delays in reporting and lack of timely intervention on abnormal results.

Breach in the first International Patient Safety Goal (IPSG) of Identifying Patients Correctly can also lead to suboptimal management and potential compromise in patients' outcomes.

From January to October 2019, 22 specimens rejected (mean specimen rejection rate of 0.32 per thousand orders) in KKH Department of Neonatology.

Objective :

To reduce specimen rejection by 30% over a 6-month period

Methods :

Quality improvement (QI) initiative by the multidisciplinary Patient Safety Leads.

Root cause analyses revealed the following:

- human errors and fatigue,
- knowledge gaps in sampling, labeling and dispatching specimens
- label printers malfunction.

Multiple PDSA cycles were carried out to pilot, spread and implement the following interventions from November 2019:

- pocket guide cards on the correct specimen containers to specific tests- Figure 2
- reminder posters at dispatch sites on correct specimen labeling- Figure 3
- standardized procedure carts for sampling,
- education during orientation of new trainees, and
- repair or replacement of defective label printers

Number of specimen rejection per thousand orders were tracked on a monthly basis to compare the pre- and post-intervention periods.

PT/APTT	1 ml (Until mark) Shake gently to avoid clotting	CRP, UeCr, LFT, Cal, Phos, Mg, Genta	0.5ml
FBC, reticulocyte count	0.25ml-0.5ml	TFTs, insulin, cortisol	1 ml
Ketones	0.25ml, dispatch immediately	Serum free fatty acid	0.5-1ml (send in ice)
GSPD	0.5ml	Plasma glucose	Until mark (send in ice)
GXM, Paediatric ABO (< 4 weeks)	3ml blood volume	Plasma lactate	Until mark (send in ice)
NNI profile	Baby (2ml tube), Mother (9ml tube)	Chromosomal analysis	3-5ml, aseptic technique
Paediatric plasma bilirubin	Until the mark		
Plasma ammonia	0.4ml (send in ice)		
Plasma amino acids	3ml (send in ice)		

Figure 2- Pocket guide carts- made available to clinicians and procedural trolleys

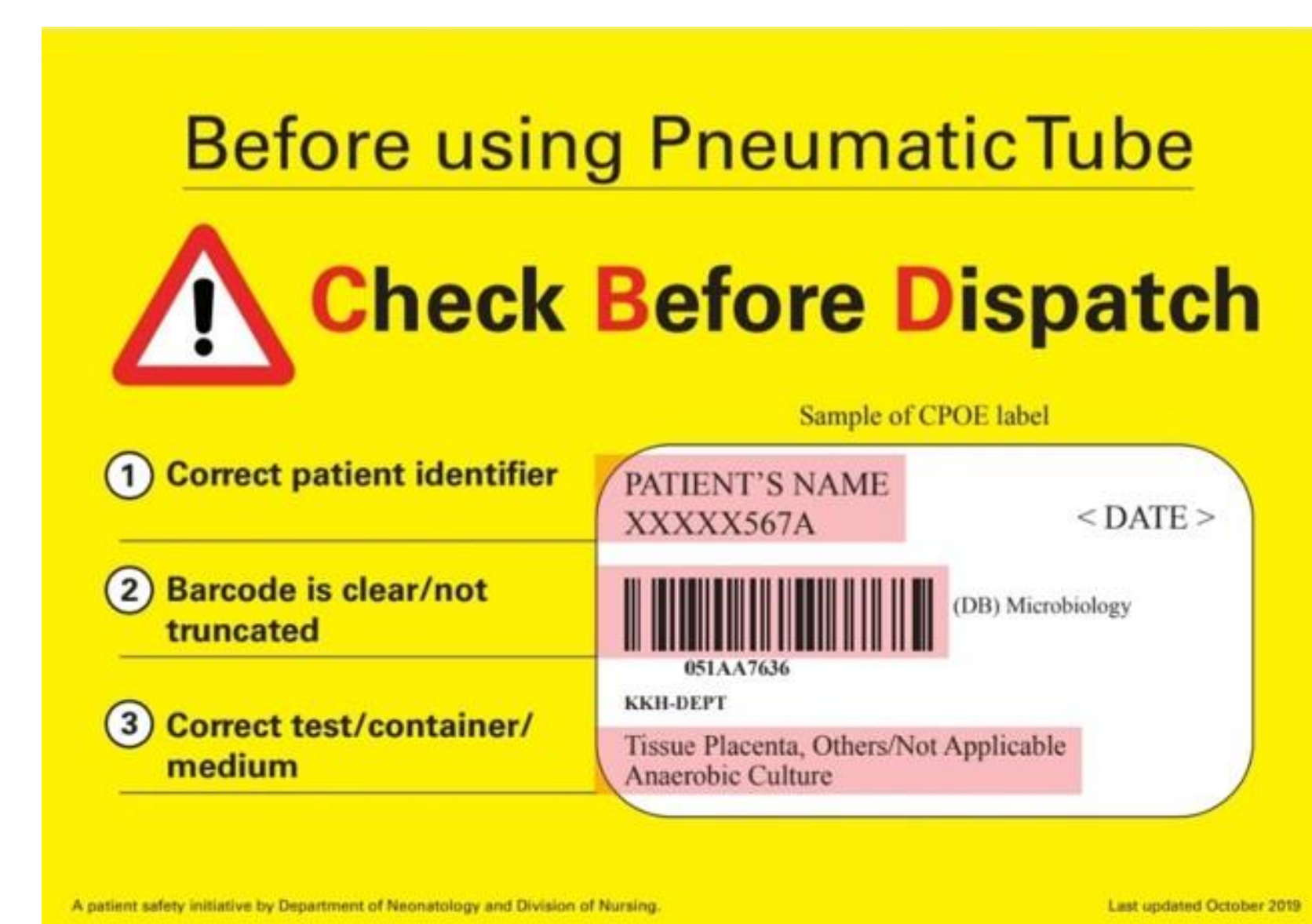


Figure 3- Visual reminders at specimen dispatch areas in the clinical area

Results:

The mean specimen rejection rate reduced from 0.32 per thousand orders (January to October 2019) to 0.20 per thousand orders (November 2019 to April 2020).

This was a 37.5% reduction in specimen reject rates.

The mean specimen rejection rate was further reduced to 0.16 per thousand orders from May to December 2020. This is evident that the efforts put in place was sustainable.

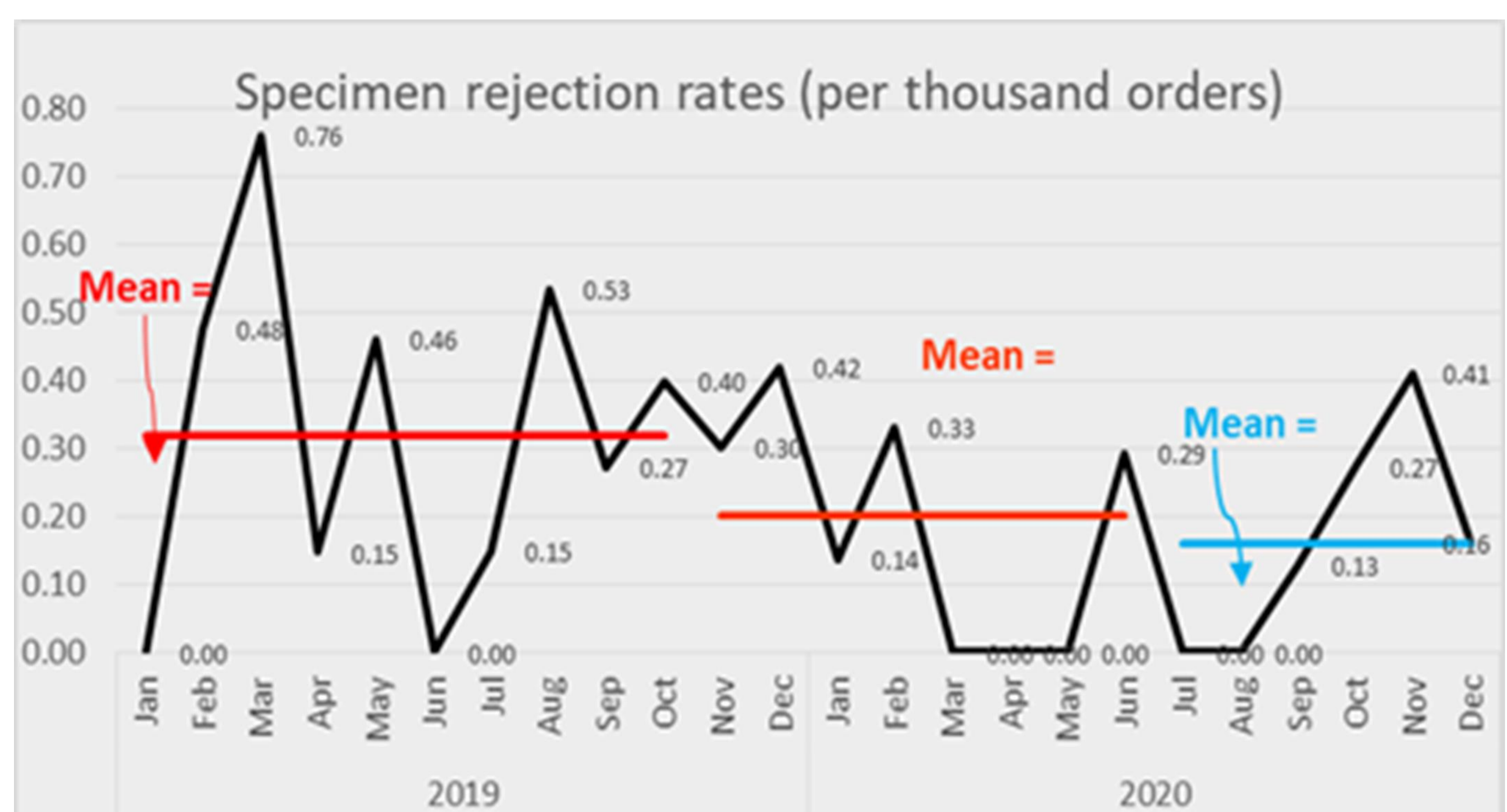


Figure 4- Monthly specimen rejection rates per thousand orders

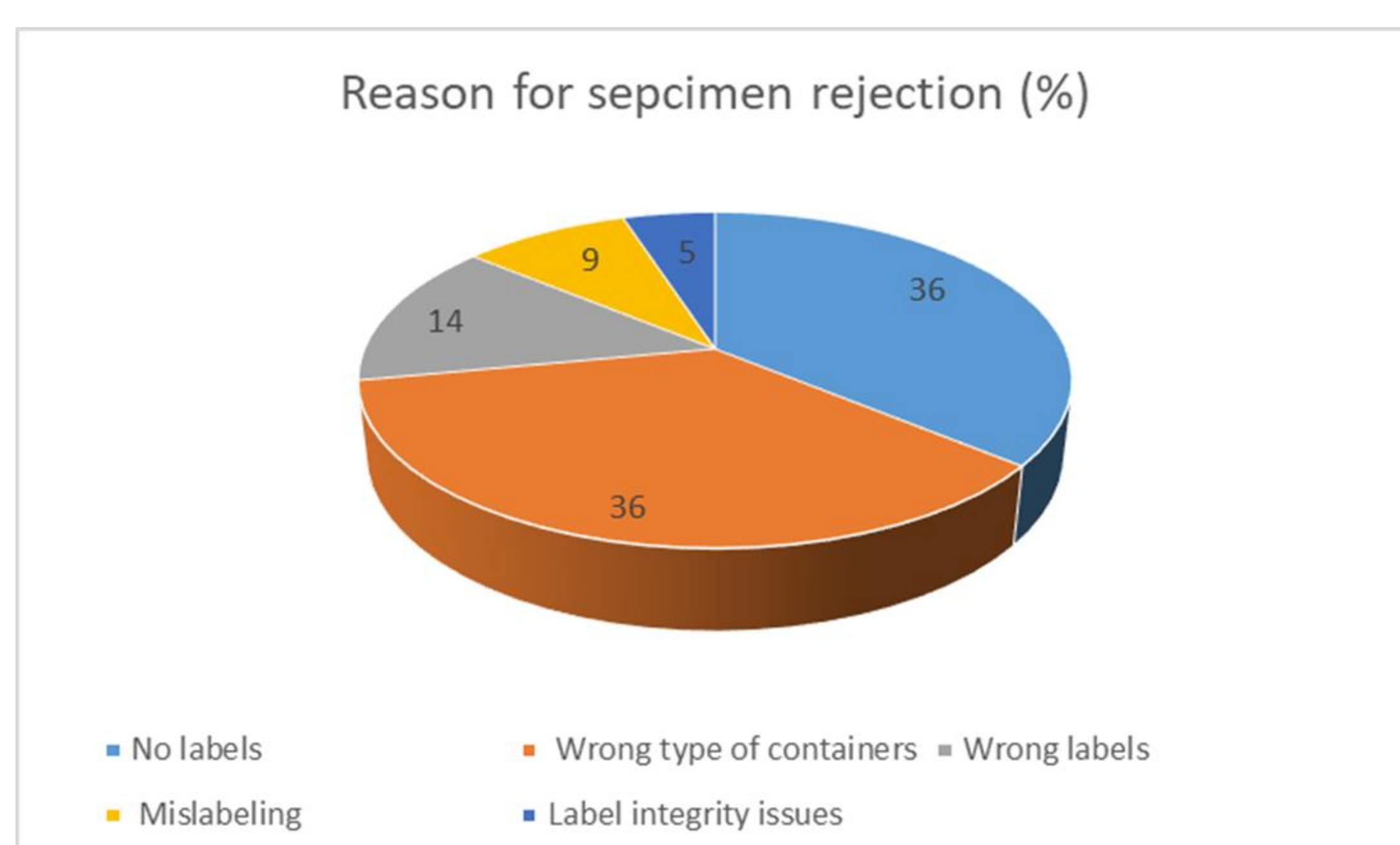


Figure 1- Reasons for specimens being rejected

Conclusions:

Collaborative effort from a multidisciplinary team of Patient Safety Leads is important to ensure success and sustainability of efforts on a long-term basis.

Engagement of staffs by understanding the challenges encountered contributed to selection and implementation of interventions that are well accepted and subsequently adopted.

Continued effort to track this improvement will be instituted to further target zero specimen rejection.