

Quality Improvement Science, laboratory data & collaboration with requesters: small changes with big impacts in the ED setting.

Christopher Pitt¹, Euan Fisher² Dominique Black², Bronwen Warner², Ben Ramasubbu³, Claire Gilroy².
Biochemistry Dept¹, Emergency Dept², Dept of Medicine³, University Hospital Crosshouse, Kilmarnock, NHS Ayrshire & Arran.

Introduction

Of laboratory requests from ED, around 15 per week are rejected as unsuitable. Over the year, that's just under **1000** patients for whom there may be a delay in management or discharge.

By reducing wasteful or harmful variation in the processes, we hoped to improve the effectiveness of the service provided to patients and we wanted to explore collaborative approaches to reduce the variation.

Furthermore, we wanted to establish novel ways of using laboratory data and quality improvement science methods to embed improvements.

It's just great that the clinicians are working with us. (Labs)

Aim

We wanted to reduce the number of rejected samples from ED.

This work is strategically aligned with Realistic Medicine, the NHS 2020 vision and with laboratory test demand optimization.

Method

Laboratory data was inspected for sample rejections and common causes identified (Fig one) The process used in ED was studied to identify variation.

Change ideas were identified using established Quality Improvement (QI) techniques. We used QI behavioural science methods to examine what interventions might be helpful in addressing rejections due to contamination errors due to the order of draw.

We launched an order of draw poster to address EDTA contamination. We agreed criteria for coagulation & glucose requesting to address unwarranted requesting and we re-positioned glucose tubes away from the routine tubes to address over-requesting.

We audited the quality of request labelling and introduced sessions on accurate labelling for new staff.

These concepts harmonize with Realistic Medicine in addressing variation.

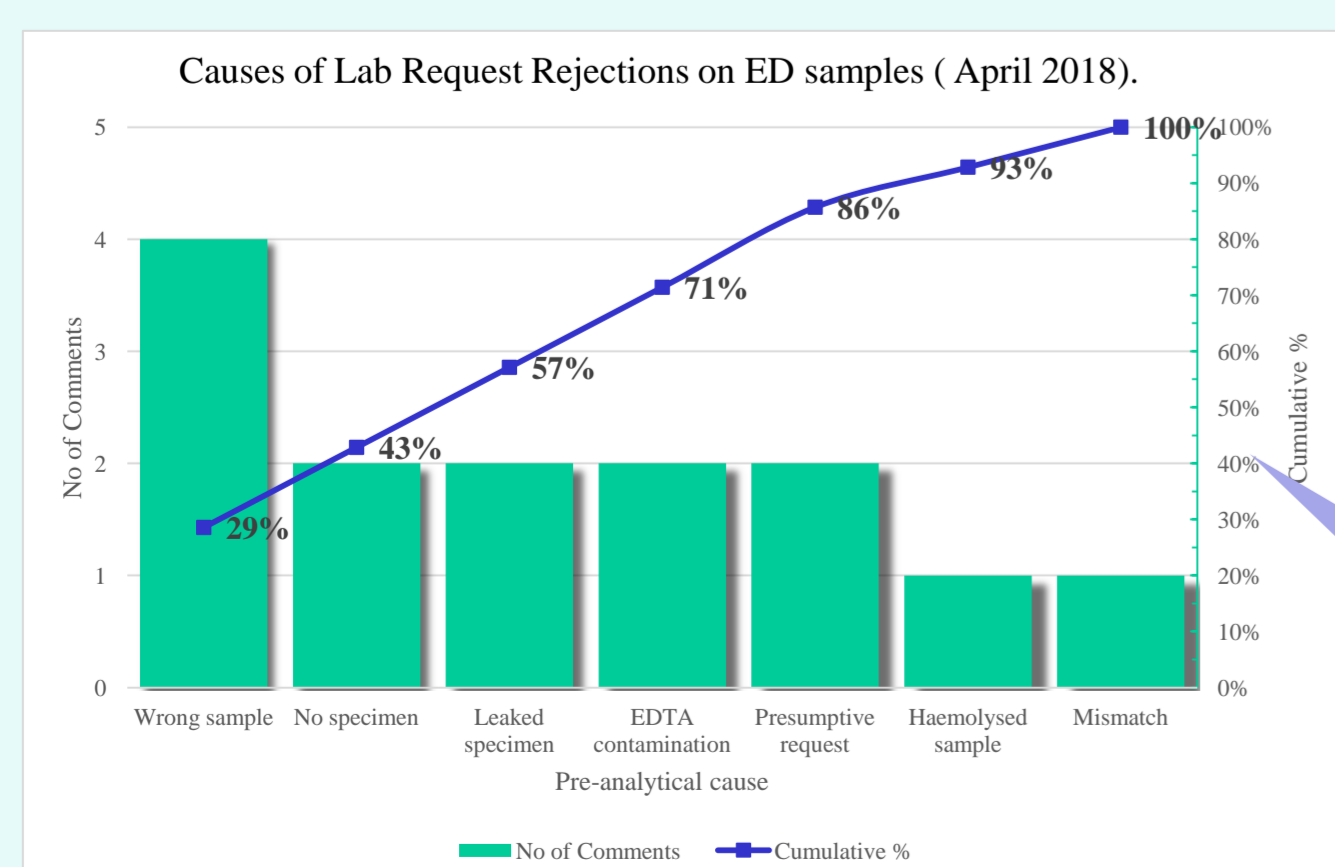


Fig one, Pareto Chart showing rejection causes.

Hey, easy things made a difference. (ED)

I didn't know labs could do all that with data.

Results

Run-chart evidence (Fig two) shows the rejection rate of ED samples in the biochemistry lab decreased by **73%**. That is, from a mean of 15 per week to 4 per week or annually from around **1000** patients to **200** patients.

Furthermore, in February 2018, before this study, we carried out **456** analyses for coagulation & glucose. In February 2019, after the study, this reduced to **88** requests. That is an **81%** improvement.

We also improved the quality of request labelling. Baseline data showed that **13%** request forms were correctly labelled. Following QI interventions, **62%** of request forms were correctly completed.

Further benefits of this work include closer inter-departmental working between ED & the laboratory. Data collection processes for future work have also been established.

Can we try this in my Dept?

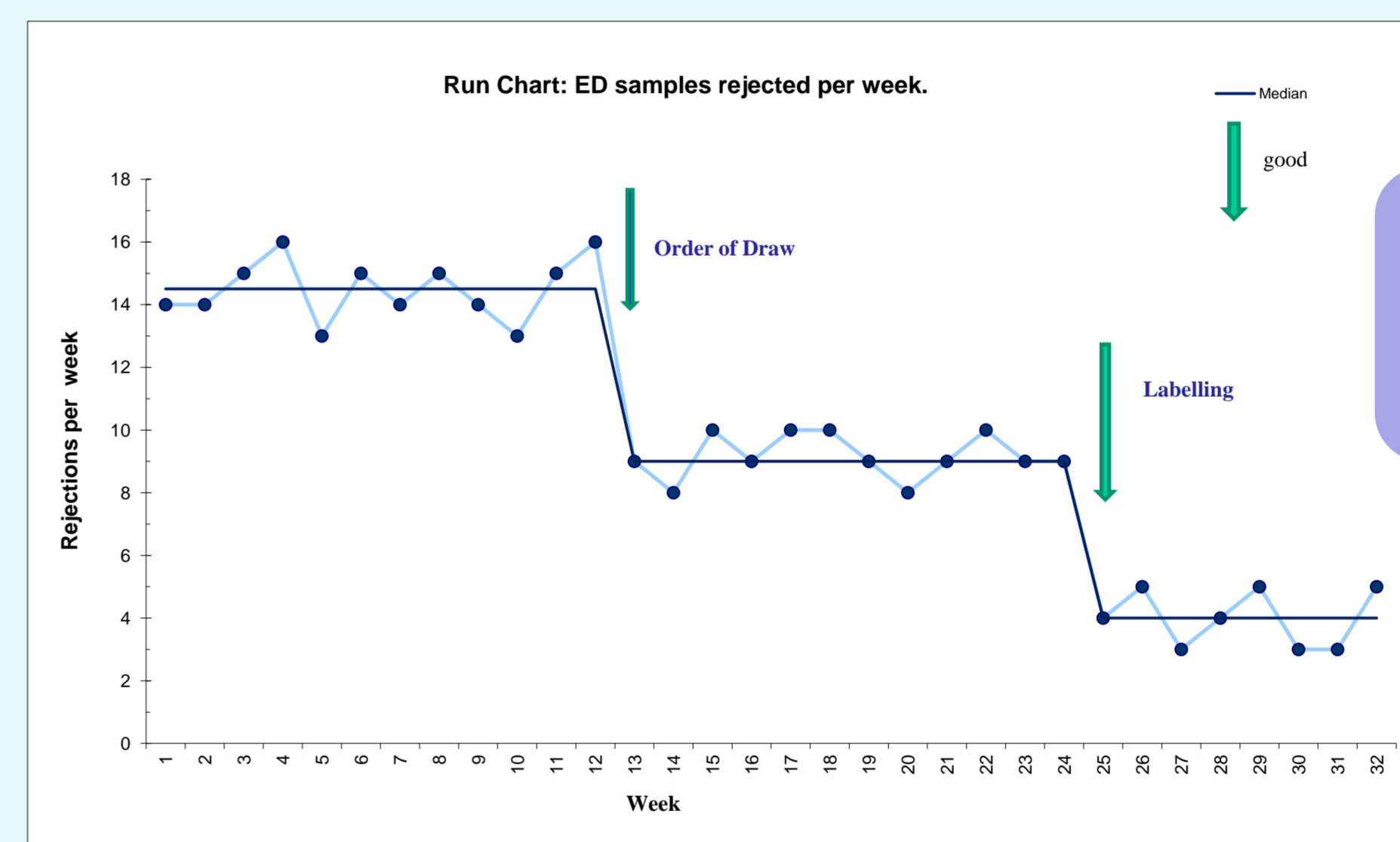


Fig two: run chart showing iterative improvements in request rejections.

Conclusion

The NHS 2020 Vision identified Unscheduled and Emergency Care as a priority area for improvement. Laboratories have a large searchable archive of patient data. Working in collaboration with ED requesting colleagues and using Quality Improvement methodology can identify variation in established processes.

- From that, changes that improve the processes can be made. Evidence of effective and sustainable models can be gathered and the models rolled out to other clinical areas that make use of laboratory services including primary care

Further work will address the sustainability and transferability of these concepts.

Acknowledgements

We are very grateful to ED & laboratory staff and to Diana Beveridge & Catriona Hayes at the Scot.Gov ScIL program for support in this work.

