


Bleeding issue: a quality improvement project on the phlebotomy service at the Royal Devon and Exeter Hospital

Samuel Lawday , Kirstin Abraham, Katie Joyce, Zoe Shellie, Rebecca Shuttleworth, Rebecca Dunne, George Nowell, Simon Corke, Carine Silver, Rob Hayward, James Grant, Rob Bethune

To cite: Lawday S, Abraham K, Joyce K, *et al.* Bleeding issue: a quality improvement project on the phlebotomy service at the Royal Devon and Exeter Hospital. *BMJ Open Quality* 2020;**9**:e000570. doi:10.1136/bmjoc-2018-000570

Received 31 October 2018
Revised 18 December 2019
Accepted 12 January 2020

INTRODUCTION

Blood tests form an important part of a patient's journey through hospital; they play a vital role in decision-making. At our large district general hospital (DGH), it was identified that proportion of blood tests requested to be taken by phlebotomists were not being done, this impacting on clinical decision making.

We conducted a quality improvement project to improve the proportion of blood results available to the medical team, in a timely manner to alter patient management during normal working hours.

Issues identified highlighted poor communication of failed venepuncture attempts between the phlebotomy team and the ward junior doctors.

METHODS

Data were collected on 24 consecutive weeks, on one medical and one surgical ward. Blood samples requested to be taken on the phlebotomy round were measured against the proportion of results published by 15:00. Our interventions designed included highlighting pre-existing communication methods between phlebotomists and junior doctors through a pre-existing WhatsApp group, introducing a new mechanism of communication via the ward clerk and publication of a flowchart of the new system.

RESULTS

The average number of patients for whom venepuncture was requested varied between the two wards, with the medical ward averaging 16.3 patients and the surgical ward averaging 19.1 patients per day. The mean number of results back by 15:00 over the total period on the medical ward was 86.34%

(range 21%–100%) and on the surgical ward was 88.30% (range 59%–100%).

Prior to any intervention the successful proportion of bloods back by 15:00 was 84.85% and 87.96% for the medical and surgical wards, respectively. After the first intervention, surprisingly, these figures were lower at 83.92% and 84.93%. Following the second intervention the averages rose to 95.82% and 98.53%. Finally, after the third intervention the mean averages were 92.21% and 88.59%. There was no significant change in results identified at any point over the 24 weeks of data collection (figure 1).

DISCUSSION

While three interventions were attempted during our period of data collection, no intervention made a statistically significant change to the proportion of blood results available at 15:00. We hypothesise that this is due to three reasons: the inconsistencies in ward staff, the challenges of changing staff behaviour and the longer communication chain after our intervention.

Changing the action of a group, rather than individuals is therefore more likely to be successful.¹ It is well known that changing the behaviour of staff in a healthcare setting can be challenging. For interventions to have the highest chance of success, guidelines and rules must be provided to an entire cohort of individuals, with reminders and audits following this. Our second intervention focused on changing the behaviour of the staff across the hospital but was reviewed on only two wards. While the information was given to all ward clerks and phlebotomists (intervention 3), it was not followed up with reminders. The second and third interventions meant that there were three separate staff members in a chain of communication. All team members need to be aware and motivated to partake in



© Author(s) (or their employer(s)) 2020. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

Quality Improvement Academy, Royal Devon and Exeter NHS Foundation Trust, Exeter, UK

Correspondence to

Dr Samuel Lawday;
slawday@nhs.net

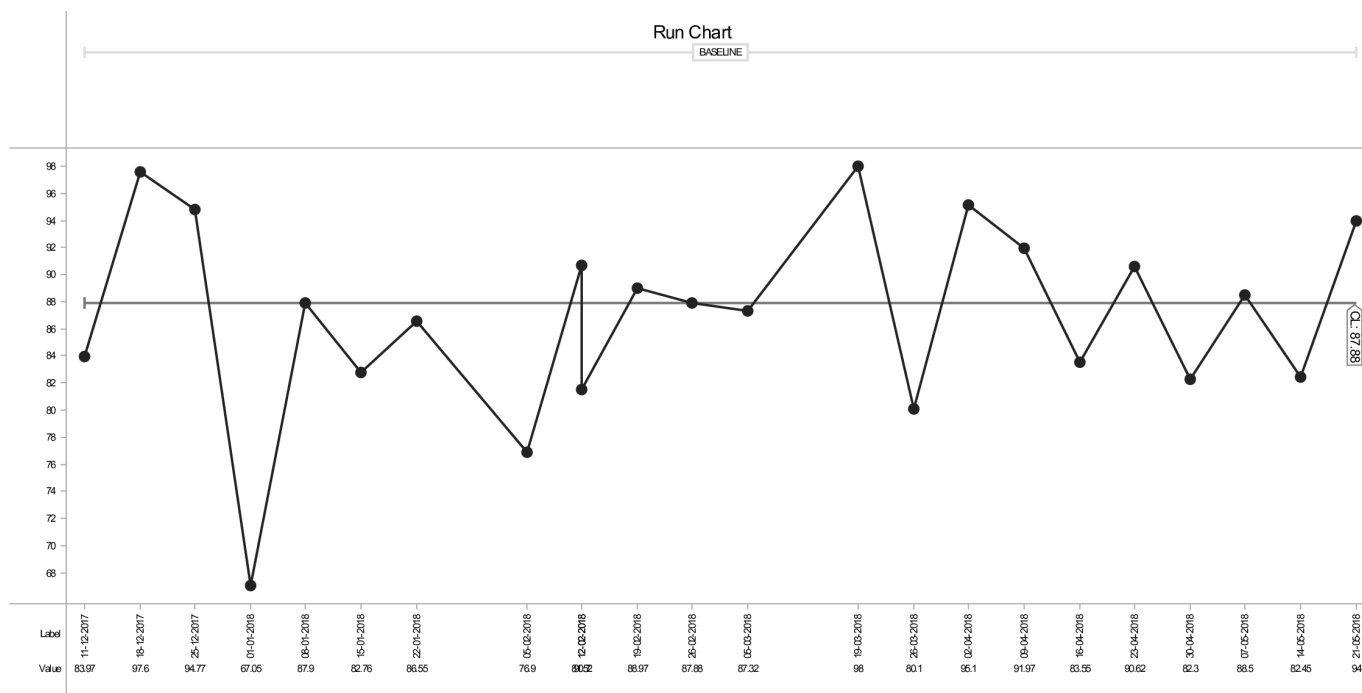


Figure 1 Average percentage of blood results available across a medical and surgical ward.

the project. If one part of that chain does not know how to enact the procedure, or is not motivated to do so, the system breaks down. For doctors and patients the benefit of a working system is obvious: doctors do not have to take bloods late in the day, and earlier clinical decisions are made for patients. However, for phlebotomists and ward clerks, a personal benefit is less tangible. It is perhaps more difficult to reliably change the behaviour of a group in which there is little personal benefit in doing so.

A further possible intervention focuses on improving of the phlebotomy service. The possibility of a second senior phlebotomist's round was discussed, which may improve problems with patient availability or difficult venous access. Alternatively, altering the time of phlebotomy ward round, allowing senior clinicians to make decisions regarding which patients require blood test that day and thereby reducing the total number bloods ordered by junior doctors. Further training for phlebotomists in order for them to be able to take bloods from central lines and other bodily sites would also increase the number of results available.

CONCLUSION

While our three interventions were unsuccessful, the project did provide insight as to what interventions could work in the future. It is suggested that in order to improve the number of bloods taken, the focus needs to be on procedural change rather than simply encouraging better communication.

Acknowledgements We would like to thank the phlebotomy team at the Royal Devon and Exeter Hospital for their participation, contribution to ideas for

interventions and continued hard work throughout this project. In particular we would like to thank Aled Lewis, for his communication and support with the project.

Contributors All authors were involved in the design and analyses of the manuscript. All authors approved the submitted manuscript. RB was consultant supervisor of the Quality Improvement Academy and aided with implementation of change. SL supervised the group, aided change implementation, edited the manuscript and amalgamated the report. KA communicated with the lead phlebotomist at the RD&E, collected data designed the flowchart for the intervention, and edited the final report. KJ contributed to data collection. ZS wrote up the methods and contributed to data collection. RS was involved in data collection. RD did data collection and wrote the abstract and the report. GN collected data and edited the report. SC did data collection. CS contributed to data collection. RH contributed to data collection. JG collected data and performed the first intervention.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iD

Samuel Lawday <http://orcid.org/0000-0001-9165-4023>

REFERENCE

- 1 Johnson MJ, May CR. Promoting professional behaviour change in healthcare: what interventions work, and why? A theory-led overview of systematic reviews. *BMJ Open* 2015;5:e008592.