Critical care transfer bags: improving maintenance and efficacy off unit

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Introduction

The Royal Berkshire Hospital is a busy teaching district general hospital with a 17 bed adult intensive care unit and over 1000 admissions annually (1). It is imperative to have a functional critical care transfer bag for use in critical/emergency situations to help facilitate high quality patient care.

Initially on the unit there was a critical care kit, comprising of three bags with intended weekly checks. The bags contained equipment to help deal with airway emergencies as well as anaesthetic and emergency drugs. These bags however were missing certain key items such as neuromuscular blockers for rapid sequence induction and could often go for long periods without being restocked or checked due to time constraints on the unit and the inefficiency of the system.

The aim of this quality improvement project was firstly to create a standardised approach to the checking and refilling of critical care bags by making this process as user-friendly and time efficient as possible. This was in order to eliminate the variability we were encountering. Secondly we wished to optimise the essential drugs and equipment available in the bags for emergency situations.

By doing so, it would overall help to create a simplified process, minimise workload, provide essential equipment at emergency situations and ease the transition period during the turnover of junior staff.

Methodology

The project included an initial data collection followed by four cycles. The initial data was collected whilst on shift (real time 14 days).
- Cycle 1 (retrospective study 28 days) introduced a kit checklist and the introduction of rocuronium.
- Cycle 2 (retrospective study 42 days) was staff education about the kit and changes.
- Cycle 3 (retrospective study 56 days) introduced a new consolidated transfer bag [figure 1] followed by video communication to staff.
- Cycle 4 (retrospective study 91 days) included further staff training, a new refill station and a refined checklist.
Quantitative measures of time take to refill transfer bag following use, as well as qualitative measures of feedback from users were used for data collection.

Figure 1: Photos showing parts of the inner layout of the new consolidated transfer bag.

Results

During the initial data collection the mean refill time of the critical care bags was 40 hours with multiple expired drugs and inconsistencies across the different bags on the unit. Analysis of data collected up to and including cycle 4 shows significantly reduced refill times, reduced on average to 2 to 3 hours [figure 3]. There is also more frequent checking of the transfer bags with ongoing positive qualitative feedback from trainees on the unit regarding the functionality of the bag and its contents, highlighting its, 'intuitive layout' and the time saved having a central restocking unit.
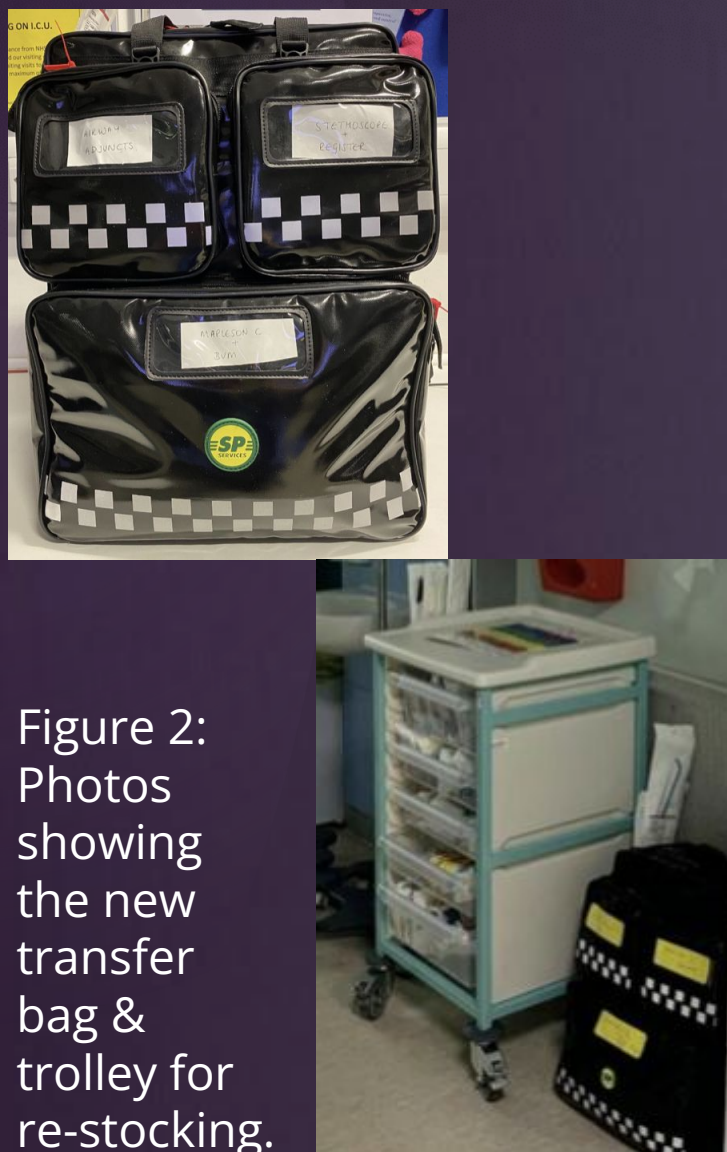

Figure 2: Photos showing the new transfer bag & trolley for re-stocking.
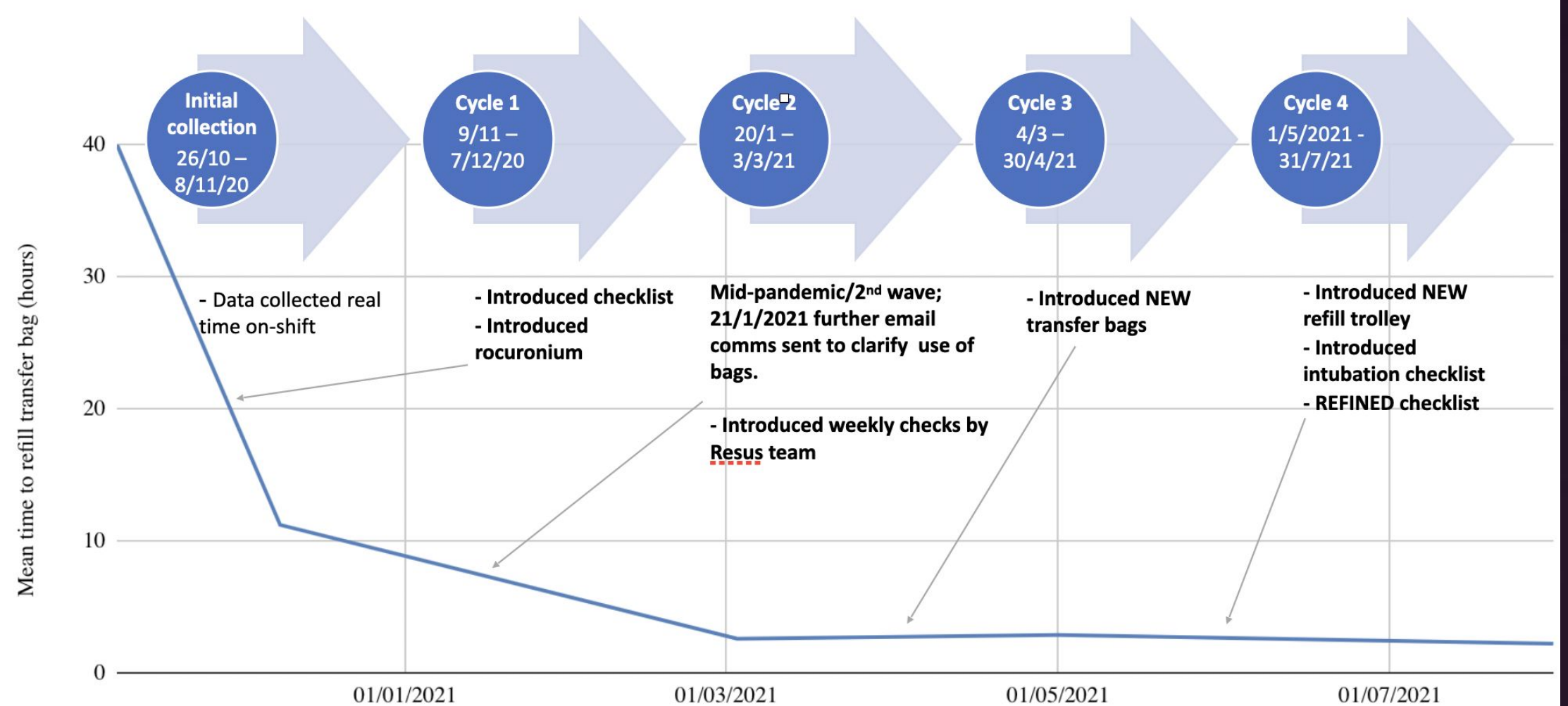
Results - Time taken to refill transfer bag

Figure 3: Timeline and graph showing change in time taken to refill transfer bag as changes implemented through each cycle.

Conclusions

Data analysis illustrates:
- 95% reduction in mean time to refill transfer bags.

- More regular checking/restocking of the critical care bags, detecting drugs about to expire.

- This allows for more time on the unit to focus upon patient care and ensuring that all necessary equipment is ready to hand for any emergency calls outside the unit.

- Qualitative feedback is also suggestive of improved functionality of the transfer bag in emergency situations outside the unit due to its, 'intuitive layout' with increased availability of emergency equipment and drugs.

References

1. Thames Valley & Wessex Adult Critical Care Network Transfer Policy [Internet]. Southodns.nhs.uk. 2016 [cited 23 August 2021]. Available from: https://southodns.nhs.uk/wp-content/uploads/2018/05/Thames-Valley-Wessex-ACC-ODN-Transfer-Policy.pd

2. Intensive Care Units For Training [Internet]. Oxford Intensive Care Medicine. 2021 [cited 11 August 2021]. Available from: https://www.oxfordicm.co.uk/readingintensivecare