Forward Thinking: Seeking Alternatives to Bleeps

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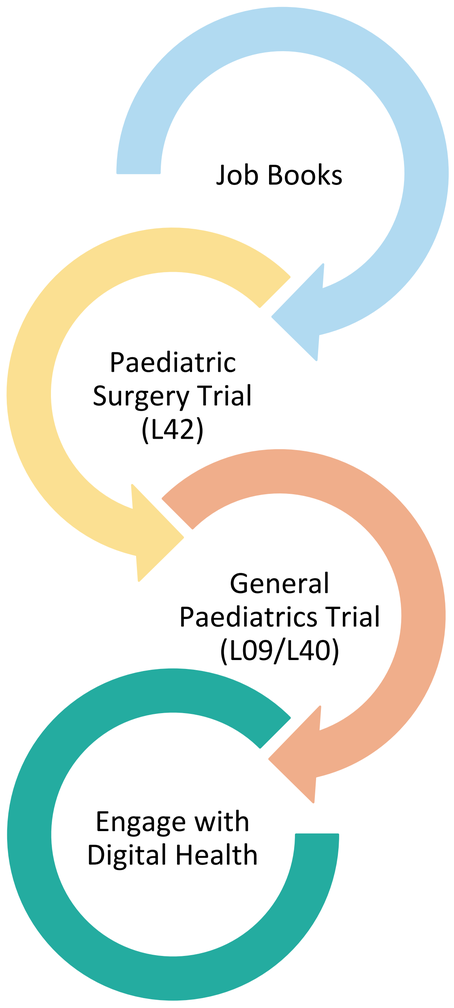
Background 'Bleep' systems are central communication tools between medical and nursing teams in hospitals. The majority of bleeps are for non-urgent tasks; this inefficient use of the bleep system leads to routine tasks taking longer to complete and disruption of patient care[1,2]. The Health and Social Care Secretary ordered that pagers for non-emergency communications be removed from the NHS by 2021[3].

Aim To reduce the number of bleeps for non-urgent tasks in a tertiary paediatric hospital.

Methods A multi-disciplinary working group was established and developed a standard operating procedure (SOP) for the use of bleeps. This included a 'traffic light' system to prioritise tasks with those considered non-urgent (completion needed within 1-4hrs) categorised as green, and appropriate for communication via a bleep alternative. A series of PDSA (Plan, Do, Study, Act) cycles (Figure 1) were completed using two strategies:

- A **ward job book** for non-urgent tasks was introduced with the expectation that on call doctors would complete these during designated walk around times.
- A **secure messaging platform** ('Forward' app) was chosen to be piloted to scope out its functionality and efficacy in communicating non-urgent tasks using personal phones. Quantitative and qualitative feedback was sought.

Figure 1 PDSA Cycles



Plan	Do	Study	Act
- Establish MDT group - Traffic light system bleep policy	- SOP devised - Job books - Designated walk around times	- Qualitative feedback from ward managers on use of books proved trial unsuccessful	- Seek alternative to job books and bleeps
- Traffic light system bleep policy - Trial communication platform app using personal phones	- SOP amended - Staff training - Limited trial to assess viability	- Doctors' tallies pre- and post-implementation showed reduction in bleeps - Positive feedback from staff	- Expand trial - Consider designated baton phones - Explore means of collecting more accurate data
- Traffic light system bleep policy - Expanded to include two further wards	- SOP revised (Figure 2) - Staff training - Baton phones with app pre-installed and connected to WiFi	- Switchboard records demonstrated significant reduction in bleeps (Figure 3) - Staff reported inconsistent WiFi	- Approach Digital Health team regarding a WiFi solution - Pause trial pending solution
- Discuss challenges encountered (Table 1) - Liaise with Digital Health team	- Create brief for Wi-Fi infrastructure	- Consistent WiFi suitable for app use planned to be implemented February 2020 - Clinical and Information Governance needs	- Recommence trial once reliable WiFi connection available - Produce Appropriate Use Policy

Figure 2 Standard Operating Procedure for 'Forward' app

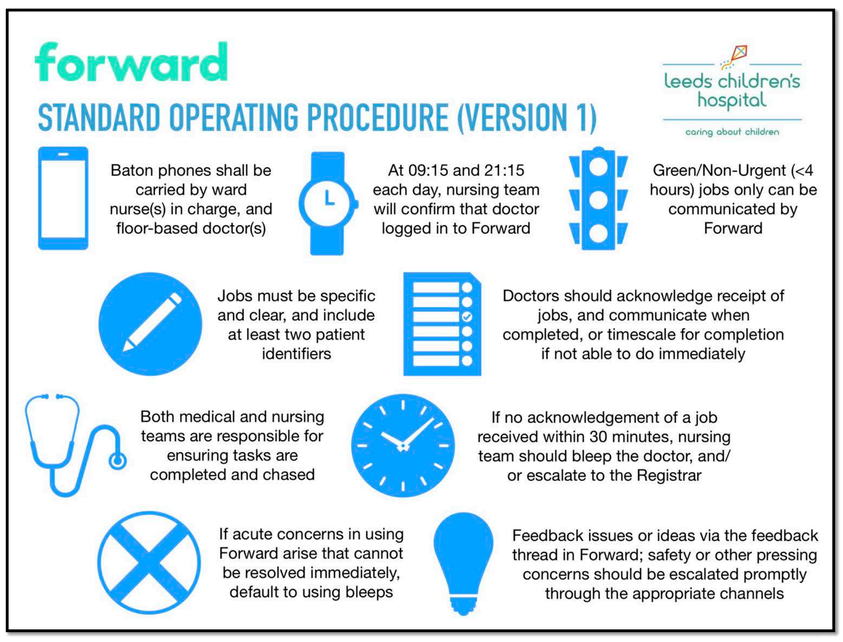


Figure 3 Number of bleeps around introduction of 'Forward'

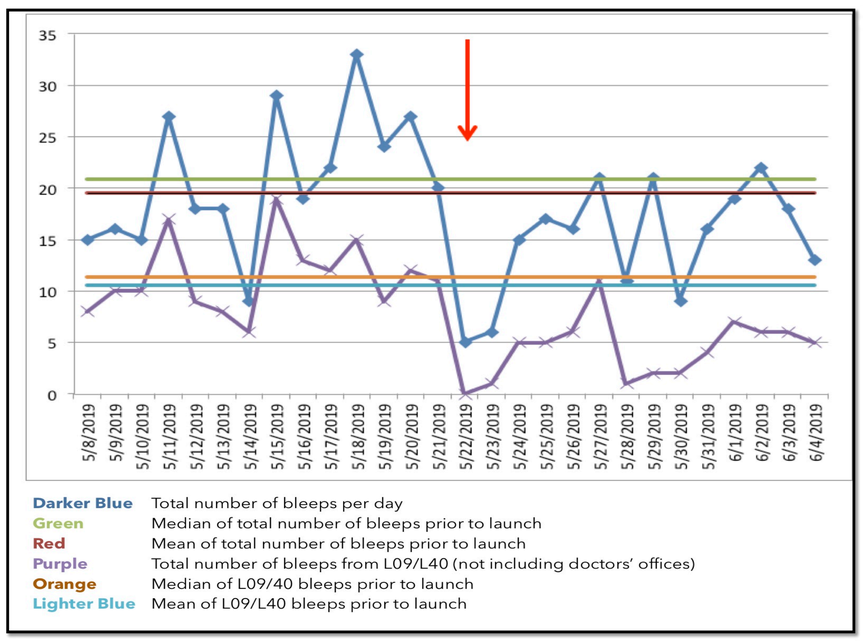


Table 1 Challenges encountered during trials

Infrastructure	• Inconsistent WiFi
Staff	• Lack of Use of Patient Identifiers • Inappropriate Use (e.g. Clinical Deterioration)
Platform	• Limited Functionality • Device Compatibility
Governance	• Clinical Governance • Information Governance

Results

Job Books

- Inconsistent use by nurses and doctors
- Irregular frequency of walk arounds

Paediatric Surgery Trial

- Incomplete data
- Reduction in average number of bleeps from 8 per 24 hour period to 1.16
- Qualitatively-reported faster response times and fewer interruptions during clinical care

General Paediatrics Trial

- Significant reduction in the number of bleeps as demonstrated by a shift below the median on a run chart (Figure 3)

Discussion This project has found a solution for decreasing the number of non-urgent bleeps. However, the wider applicability of these findings may be affected by **intensity of clinical workload** and **levels of staff engagement**, which has not been accounted for. This trial has also been limited to two **specific clinical areas**; the effectiveness of a similar messaging platform may not directly translate into other clinical settings. Any clinical system has **patient safety implications** and these are reliant both on the operator and system design. Whilst there were two inappropriate uses of the messaging platform, these errors were remedied in a timely fashion by staff, and no patient was brought to harm. Discussion with the Digital Health team highlighted the need for additional safeguards in accordance with **clinical and information governance** requirements and has prompted a review of structures to ensure compliance. There are currently no subscriptions payable for the app and baton phones were provided without charge. Hence, the overall **cost implications** of such a messaging platform cannot be assessed.

Conclusion This project has shown that a novel, secure messaging platform can effectively reduce the number of non-urgent bleeps. This requires an appropriate induction to the platform, a SOP on the use of the platform/bleeps, adequate information technology infrastructure, and a rigorous user policy to ensure reliability and safety. An economic assessment might prove valuable to make a business case for the use of a similar system long-term. Careful consideration of the clinical and information governance implications is crucial when deploying applications dealing with patient identifiable data.

Acknowledgements

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References

1. Fargen, KM, O'Connor, T, Raymond, S, et al. 2012. An Observational Study of Hospital Paging Practices and Workflow Interruption Among On-Call Junior Neurological Surgery Residents. Journal of Graduate Medical Education. 4(4): 467-471.
2. Sin, FE, Watts, G, Kingdon, E. 2019. The effects of bleeps on medical on-call doctors' workflow and work efficiency. Future Healthcare Journal. 6(2): s77.
3. Department of Health and Social Care. 2019. "Health and Social Care Secretary bans pagers from the NHS." Avaialble at: https://www.gov.uk/government/news/health-and-social-care-secretary-bans-pagers-from-the-nhs [Last Accessed: 28th August 2019].