

Patient safety at the end of the shift - an electronic solution

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Introduction

The Handover is the accurate, reliable communication of task-relevant information across shift changes and it is vital to facilitate high-quality health care. Verbal and paper-based handovers are common practice in many institutions but the potential for clinical errors and inefficiency is significant. Poor quality or inadequate handover can lead to serious harm for both patients and doctors. Electronic handover tools are advocated as a potential strategy to improve the quality of handover, especially during on-call periods and weekends, but they can be expensive.

In our trust a verbal handover system was in use across the medical department for evenings out of hours. The system was cumbersome, unreliable and prone to miscommunications due to human factors. There was no documentation of the tasks and identification of participants was done verbally and was inconsistent.

The weekend handover consisted of a standardized MS Word document in which the tasks were recorded. However, the access to the handover sheet was done through a single computer terminal on the Medical Assessment Unit, which often resulted in waiting queues for submitting entries on a Friday afternoon.

Our aim was to improve the existing system with a standardized electronic handover that would provide an accurate recording of high-quality clinical information while being easily accessible, intuitive and implying minimal costs for the trust.

Method

We developed an electronic handover system (EHS) using MS Access 2010, software already available in the vast majority of trusts. The handover pro-forma requires specific information about the management plans, resuscitation status and escalation plans as detailed in Figure 1. The handover application can be accessed from any computer with MS Access installed. The application database resides on a protected shared drive and undergoes backup every 4 months.

The new system was introduced across the medicine department to be used for on-call evenings and weekends. Both systems have been running in parallel for one week to ensure adequate training for users without impacting on patient safety. A survey was conducted three months later among the users of both systems.

Conclusion

The EHS was welcomed and overall appreciated as improving patient safety and the quality of the handover process. The electronic handover training has now been included in the junior doctors' medical induction within the trust. We aim to continue improving the EHS based on the latest feedback and to extend its usage to the surgical wards.

All organizations should consider implementing a well-designed electronic handover system to reduce the risk of communication failure across the shifts and to allow consistent patient safety.

List of abbreviations
 EHS—Electronic Handover System
 BHS—Bleep Handover System
 RCP—Royal College of Physicians
 MS—Microsoft®

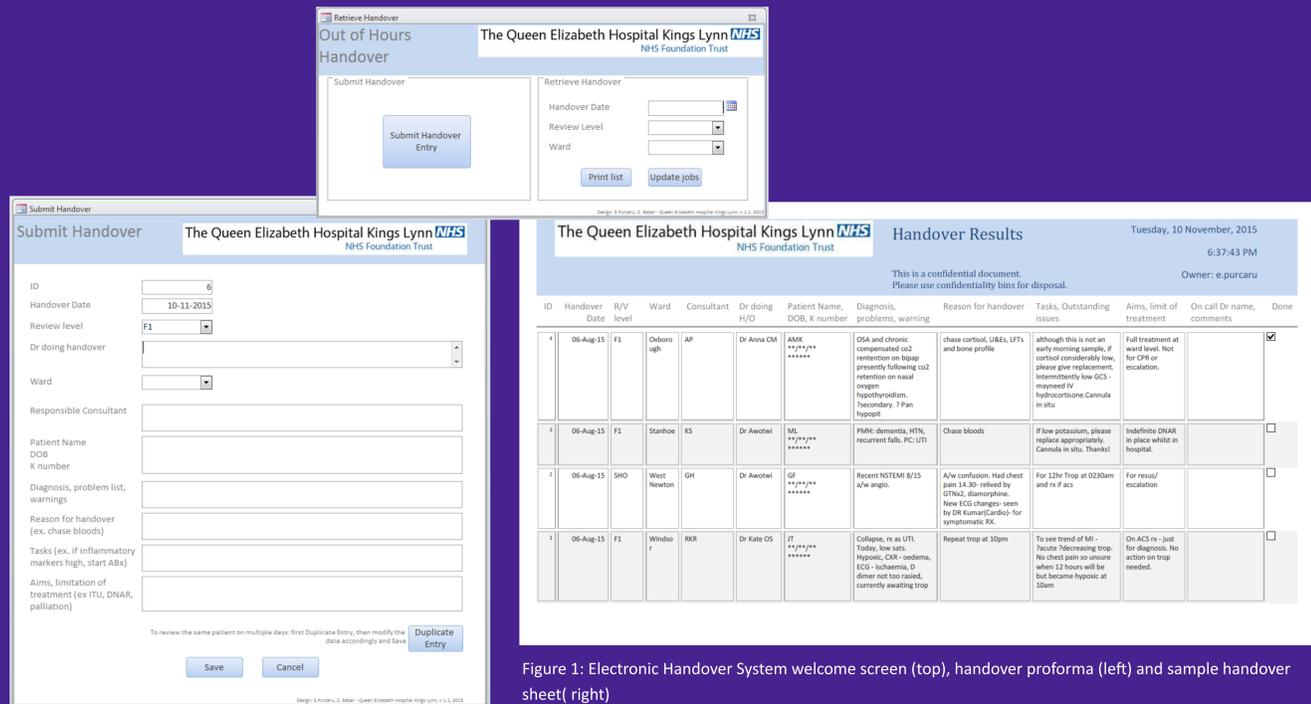


Figure 1: Electronic Handover System welcome screen (top), handover proforma (left) and sample handover sheet (right)

Results

23 doctors agreed to rate both handover systems, 7 CMT/ACCS trainees and 16 Foundation trainees.

The overall performance of EHS rated better than that of BHS, both for evenings and weekends. 74% and 70% of participants rated the out of hours and weekend EHS respectively as having good and very good quality and just 48% and 43% did so for the BHS (Figure 2).

78% participants rated EHS as being safe and very safe for patient care while only 43% applied the same rating for the BHS. The other improvements highlighted for the EHS were increased clarity of tasks, mentioning of the resuscitation status and escalation plan as well as of consultant responsible for care.

More participants (91%) appreciated that the EHS was easy and

very easy auditable, as opposed to 17% considering the same for the BHS. Most users felt that the new system improved accountability.

Small improvements were also noted in the clarity of the management plan and patient information. Participants perceived that it is equally easy to handover tasks in EHS and BHS.

We also received valuable information in the form of open feedback. Some of the participants felt that the electronic system prevented asking pertinent questions or reject inappropriate referrals and that it could benefit from a prioritization system to highlight urgent jobs. Some participants found the system harder to use at start, but that improved with practice. Other doctors found the EHS clearer and more efficient and a great improvement from the old system.



Figure 2: Survey outcomes for the Bleep handover system vs. the Electronic Handover System

References

- Royal College of Physicians Handover Toolkit. <https://www.rcplondon.ac.uk/resources/acute-care-toolkit-1-handover>
- McEwan JR, Atkinson S, Cadigan P, Ingham J. Handover – the need for best practice. Report to RCP Council, 2010

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