

# Bring on the weekend - Improving the quality of junior doctor weekend handover

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## Abstract

While it is widely recognised that communication and handover are a fundamental component in providing safe clinical care for hospital patients (1,2,3). The Royal College of Physicians found that the majority of hospital doctors are dissatisfied with the standard of their handovers (4). These findings were mirrored by the junior staff at the Royal United Hospital, who felt that the weekend handover was inadequate, and detrimental to patient safety.

A group of eight junior doctors at the Royal United Hospital, Bath utilised The Model For Improvement to systematically analyse and improve various aspects of the weekend handover system. Handover sheets from a subset of wards were assessed to observe direct effects of staged interventions over a nine month period, allowing small-scale testing prior to widespread implementation of a standardised intranet-based weekend handover. The effects of interventions were evaluated using a predesigned scoring system and data was collected continuously throughout the project.

Over a nine month period the quality of handovers improved significantly from 76% to 93% ( $p < 0.01$ ): a success which was supported by a 100% improvement in formal feedback collected from hospital doctors and highlighted by the desire of senior staff and directors to implement the system throughout the trust. Using The Model For Improvement a group of junior doctors were able to introduce and develop a standardised weekend handover system that met their requirements. A structured, efficient and auditable system has been successfully produced which improves the quality and safety of patient care.

## Problem

Weekend handover of ward based patients at the Royal United Hospital (RUH), Bath, lacked structure and organisation. Under the original system it was the role of the junior doctors working on each ward to generate a list of jobs to be completed over the course of the weekend - ranging from routine blood tests to patient reviews. These lists would be left in the medical or surgical admissions unit on a Friday evening, ready for the doctor covering the wards to collect on Saturday morning. There was neither a standardised form to be completed or guidance on what details to provide, nor was there any backup or record of the jobs to be completed. As a result handovers varied significantly in format, detail, appropriateness and ultimately safety.

Every weekend junior doctors working on ward cover were met with the same problems: lack of patient identifiers, insufficient detail to allow appropriate prioritisation, illegible handwriting, poor description of the job to be executed, inadequate guidance on how to act upon certain findings, incorrect location of the patient and excessive pieces of paper to carry (Fig. 4). As a consequence, doctors were finding that they had insufficient time to review all their patients and complete all their jobs. Many critical jobs were missed causing the doctors a great deal of stress and putting patients' safety at risk.

## Background

Like any hospital, weekend ward cover shifts at the RUH are difficult and intense with three foundation year one (FY1) trainees and two senior house officer's (SHOs) providing ward cover to 25 wards and over 500 patients. Issues and concerns previously raised regarding the structure of weekend cover have been identified: insufficient number of doctors, inaccurate and inappropriate handover of patients and the suggestion that patient safety was compromised.

Both informal and formal questioning carried out revealed that all doctors working at FY1 level felt that a well structured, standardised handover to weekend staff would improve their ability to manage these difficult shifts and improve the level of care they could provide. Implementation of a structured proforma for weekend handover was previously attempted at the RUH with little success. Unfortunately we were unable to analyse why this was unsuccessful due to the small scale of the project. As a group the need for change was identified after experiencing several weekend ward cover shifts first-hand. This quality improvement project was embarked upon with the support and guidance of a senior registrar and two SHOs.

## Baseline Measurement

Prior to making any change to the weekend handover system we agreed to take two baseline measurements. Firstly, a survey on all FY1 doctors, asking them how satisfied they were with the procedure for weekend handover, and how they felt it impacted on patient safety (Fig. 5 and 6). Secondly, a simple, standardised scoring system for each weekend handover job was constructed. (Fig. 1) The elements of the handover deemed most important in outlining a concise, manageable job in a manner that allowed the weekend doctor to safely and efficiently interpret the urgency of the job and execute task, were scored. These elements were: patient identifiers (name, date of birth, hospital number), patient location, the background of the patients' past medical history and management, a clear description of the job and a clear action plan.

Samples of handovers from five different wards were randomly selected and marked using our scoring system. This same scoring system was used to score handovers every weekend as interventions were gradually implemented.

See supplementary file: ds2326.docx - "fig.a"

## Design

The principle intervention was to design a standardised paper proforma for weekend handover. This was discussed as a team and the content and layout of our provisional proforma was decided upon before creating it using an Excel file. Multiple hard copies of the standardised proforma were produced and distributed amongst a cohort of both medical and surgical wards.

Following the implementation of the proforma, data was collected using the scoring scheme and informal feedback from colleagues before holding further discussions on how best to improve the proforma. This was then amended and the document re-distributed amongst the wards. This cycle was repeated several times until near perfect scores and excellent feedback from peers was being achieved (Fig. 7).

The aim was to then make the proforma available on the hospital intranet, thus making it accessible to any doctor at any computer within the hospital and allowing patient information to be typed or copied from ward list documents. This was again met with positive feedback.

Reflecting on the success of the intranet-available proforma, a plan was developed to achieve an entirely computer based handover system using the hospital's own electronic patient record system, Millennium. This would improve several aspects of the weekend handover: handovers would be typed and therefore legible, less paper would be needed making it more economical and less cumbersome. Up to date patient identifiers and location would be updated automatically, jobs could be instantly organised in order of the ward on which they were located. Also, handovers would be easily reproducible if lost or damaged and importantly there would be a record kept of handover jobs for audit and safety purposes.

The hospital's IT team assisted and the handover proforma was integrated into Millennium (the hospital computer system). This had

a huge number of benefits. Firstly it addressed all the issues listed above and in addition to this, allowed other doctors to view weekend lists; this was particularly well received by senior staff that are able to observe the proposed management of their patients over the weekend.

## Strategy

Cycle 1:

Plan: Assess the current handover system and identify areas in need of improvement.

Do: Focus group held to generate ideas on how to improve handover system

Study: Analysis of outcomes and opinions focus group.

Act: Formation of the components that were deemed essential to the safe handover of a weekend job and how to improve the efficiency and safety of the weekend handover system overall

Cycle 2:

Plan: Generate a way to collect baseline data.

Do: (1) A simple questionnaire was distributed to all foundation year trainees within the trust asking 2 questions: 'How do you rate the weekend handover system?' and 'How do you rate the weekend handover with regard to patient safety?' (2) A standardised scoring system was created which marked each handover job out of a ten with a point allocated for ten separate components including patient identifiers, location, background, a clearly defined job and a clearly defined action plan. This scoring system was tested on a small cohort of jobs handed over on a single ward.

Study: Baseline data revealed that the vast majority of doctors felt that the weekend handover system was not acceptable and that patient safety was compromised as a result. The scoring system failed to assess legibility of the handover.

Act: Include legibility in the handover score. Get baseline data from a cohort of wards.

Cycle 3:

Plan: Score all jobs handed over on ten wards - these ten wards will represent our cohort and this would give us the baseline data.

Do: Scored all jobs on five wards

Study: Scores obtained revealed a large area for improvement

Act: First intervention – standardised paper proforma.

Cycle 4:

Plan: Generate a standardised proforma

Do: A paper proforma was generated with headings to direct the author to the information we had assessed to be essential to a good handover job. We then distributed numerous copies among the cohort of wards we were testing.

Study: Noticeable improvement in scores. Handover proformas being used on wards where we had not distributed them. Informal feedback revealed that the text boxes were not large enough for certain fields. Still concerns about legibility.

Act: Improve the layout of the proforma and adjust size of text fields to reflect the amount of information that would be likely to be inserted.

Cycle 5:

Plan: Improve the layout of the proforma.

Do: By producing a landscape format we found that more information could be included without increasing the amount of paper required. Text fields were adjusted to reflect the necessary amount of space.

Study: Positive feedback regarding changes to the proforma. Further feedback reported that there were often no proformas to be found on the wards, exacerbated by the fact that they were finding their way onto other wards. Only a minority choosing to type their handover.

Act: Upload a copy to a computer on each ward to improve accessibility and allow jobs to be typed with the aim to achieve improved legibility. Encourage typed handovers.

Cycle 6:

Plan: Upload copy of the proforma to a computer on each ward.

Do: A copy was uploaded onto one or two desktops on each ward.

Study: Improved accessibility. Requests from other wards to have a copy on their desktop.

Act: Improve accessibility.

Cycle 7:

Plan: To make the handover proforma available on the hospital intranet and therefore accessible to everyone in the trust.

Do: Discussions with the IT department were held and the document was uploaded onto the intranet. This was then communicated across the hospital by distributing posters, sending mass emails and speaking at junior doctor teaching.

Study: Increased uptake of the improved weekend handover proforma throughout the hospital. Still concerns about legibility and lists being lost with no back up.

Act: Improve legibility, further improve accessibility, efficiency and provide back-up.

Cycle 8:

Plan: Incorporate handover proforma into the Hospital's electronic medical system 'Millennium' which contains patient details, live location, past medical history, allergies, their previous paper work including discharge summaries, copies of histology results and radiology reports.

Do: The IT team incorporated the handover proforma into the internal system allowing users to create a handover job for any patient from any hospital computer. These jobs are then automatically ordered by ward and organised into groups based on the doctor who is responsible for them.

Study: This system is due to go live in October 2013.

## Results

Using the standardised scoring system throughout measurements of the quality of the weekend handover were made across a range of inpatient wards over an eight month period to the point of implementation of the Millennium-based system (up to and including PDSA cycle 7). The quality of weekend handover improved significantly from 76% to 93% ( $p < 0.01$ ) (Fig. 8). At this stage a re-survey was carried out to assess the opinions of fellow foundation year one doctors revealed a stark improvement in the perceived efficacy and safety of the weekend handover (Fig. 9 and Fig. 10). The Millennium-based handover will go into circulation towards the end of October 2013, its success will be monitored and developments with the system will continue.

See supplementary file: ds2359.doc - "BMA\_Quality\_Improvement figb"

## Lessons and Limitations

This project was started as a group of new foundation doctors and under the guidance of mentors they developed an array of skills and learnt some important and useful lessons.

Initially, there were reservations about whether the structure of the hospital handover could be influenced and developed by a group of junior doctors. Over the course of the year skills have been developed with particular reference to identifying a key problem, assessing areas for improvement and most importantly implementing change. A greater understanding of hospital management and who is responsible for the implementation of change has been achieved and ultimately it has become evident that junior doctors can be a part of that change.

It is easy for junior doctors to accept the faults in the system and to adapt practice to accommodate for these. It seems daunting to challenge the practice of seniors and predecessors, however, it is important to challenge these faults and improve practice in order to

provide the best quality of patient care.

The value and importance of gaining constructive feedback from colleagues involved in the weekend handover in order to make useful changes was a key lesson learnt by carrying out this project. Involving colleagues early on helped to highlight potential problem areas with any changes made so these could be rectified before implementing further change.

This project has given us all the opportunity to develop our team working skills and our ability to work as a unit has driven our motivation and has been key to the success we have achieved.

There were several limitations encountered during the project. Data was collected every weekend by alternate authors and a system was required which could be accessed by all team members where data was kept and update from remote sites were possible. In order to do this Google account was used, however this was not accessible from hospital computers, which meant that data had to be updated from home. This also meant the data could not be viewed and discussed at meetings.

The authors own time was used to complete this project and with shift-based rotas it meant the team were not able to attend all focus meetings and inevitably some information may not have been communicated to the whole team. An attempt to overcome this was made by emailing up to date and accurate minutes of each meeting promptly after.

Time constraints meant that collection and analysis of data could only be done on a limited amount of wards. Although it may have been more statistically significant if data had been collected on a larger scale, the time constraints did not prevent identification of key areas of improvement with handover.

There is a possibility for measurement bias when the authors were completing the weekend handover proformas due to awareness of the scoring criteria. However, the authors were only a small proportion of the people completing the proformas so bias should be minimal.

The electronic integration of the proforma is specific to the electronic patient record system used at the RUH, however the key issues identified and the proforma created could be translated to other areas and trusts.

## Conclusion

This foundation doctor led project was embarked upon because a significant problem with the junior doctor weekend handover was identified and there was a strong desire to address this to improve communication and patient safety.

This has resulted in the creation of a robust and highly improved system of weekend handover at the RUH, Bath. A potentially harmful system has been successfully altered to a safer, more efficient and more accepted handover. The integration into the electronic patient record, which will be implemented Trust-wide, has

allowed it to be easily accessible to the on call team members from any trust computer, provided secure storage of data and will remain a permanent part of the electronic patient record. Its role is at the core of patient safety and good communication and its positive effect is certain to ensure its sustainability and success in the future.

The feedback received from all hospital staff has far exceeded our expectations. This project has the approval of the Quality Board at the RUH and further resources have been allocated to it to ensure the system was implemented in time for the arrival of new staff.

This project demonstrates how quality improvement projects undertaken by junior doctors can improve quality and patient safety and the efficient handover tool created will assist in providing excellent communication and ultimately a higher standard of patient care and safety.

## References

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## Declaration of interests

Nothing to declare

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