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Introduction of a new electronic medical weekend handover at Tunbridge Wells Hospital

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Abstract

Effective handover between shifts is vital to protect patient safety and assist doctors with clinical governance. Poor quality, or inadequate handover can lead to serious harm for both patients and doctors. The weekend medical handover system among junior doctors at Tunbridge Wells Hospital in Pembury, UK was cumbersome, inadequate and poor, restricting the ability to provide good patient care. 78.6% of doctors felt that the introduction of an electronic weekend handover system would address the issues in order to improve communication between the medical teams and thus improve patient care. A five week trial of an excel based electronic weekend handover system was conducted. 87.5% of the doctors surveyed felt that the new electronic weekend handover was better or significantly better than the old paper based handover system.

The effectiveness rating of the weekend medical handover, with 1 (least effective) - 10 (most effective), rose from 6.14 to 7.31 after introduction of the electronic weekend medical handover system. As a result, this project has become part of the junior doctors medical induction, ensuring permanence of electronic weekend medical handover. This project takes a step towards improved patient safety as well improving the working conditions for junior doctors in a busy acute medical unit. There is always a need to refine and optimise systems and though this project is not perfect, it is a step toward electronic handover that is available now and free of cost.

Problem

Experience of working at weekends and anecdotal discussion with colleagues helped us to determine that the weekend medical handover system amongst junior doctors at Tunbridge Wells Hospital in Pembury, UK was inadequate to provide good patient care. We then carried out a survey amongst the junior doctors to determine a general consensus on the quality of weekend medical handovers and methods to improve the handover to enable better patient care.

This survey revealed multiple problems. The medical handover system at Pembury consisted of an A4 paper sheet per patient to be handed over for the weekend. These sheets were ineffective and bulky to carry. Furthermore they could easily be lost or damaged, and being irreplaceable, this could lead to serious incidents affecting patient care. The handover format didn't help the medical staff prioritise weekend jobs based on urgency, mainly because of the layout; handover sheets didn't contain sufficient detail and were frequently illegible. This led to poor weekend handover and therefore poor management of patients during the weekend. 78.6% of doctors were very positive about the introduction of an electronic weekend handover system.

Hence we sought to address these issues by introducing a new electronic weekend handover system to improve communication between the medical teams and thus improve patient care.

Background

The National Patient Safety Agency (NPSA) defines clinical handover as "the transfer of professional responsibility and accountability for some or all aspects care for a patient, or group of patients, to another person or professional group on a temporary or permanent basis".[1] The increase in shift pattern working as a result of the European Working Time Directive (EWTD) has lead to a significant increase in "handovers".

Effective handover between shifts is vital to protect patient safety and assist doctors with clinical governance. Poor quality or inadequate handover can lead to serious harm for both patients and doctors. Achieving an effective handover is the duty of every doctor as part of the General Medical Council's good medical practice.[2]

The Royal College of Surgeons of England issued a Guidance from the Working Time Directive working party on safe handover.[3] It describes the minimum information required for safe handover:

- Patient name and age

- Date of admission

- Location (ward and bed)

- Responsible consultant surgeon

- Current diagnosis

- Results of significant or pending investigations.

Handover should also include:

- Patient condition

- Urgency/frequency of review required

- Management plan, including "what if..."

- Resuscitation plan (if appropriate)

- Consultant contact details/availability

- Operational issues (eg availability of intensive care unit beds, patients likely to be transferred)

- Any outstanding tasks.

Furthermore the guidance stipulates that handovers should:

- Begin with a short briefing to make all team members aware of the plan for the shift, and of what is expected of them - "situational awareness"

- Facilitate a structured team discussion, ensuring clarity from the outset

- Establish and develop contingency plans - "what to do if..."

- Encourage questions and communication within the team – there are no "stupid questions".

The Royal College of Physicians have provided an acute care toolkit to assist with weekend medical handovers comprising of the above details.[4] We used these components to form the basis of our new electronic weekend medical handover.

Baseline measurement

Observation: Initially through experience of working at weekends and on discussion with colleagues we determined that the weekend medical handover system was inadequate to provide good patient care.

We then carried out a survey among the junior doctors to determine a general consensus on the quality of weekend medical handovers and methods to improve the handover to enable better patient care.

Initial electronic survey (via SurveyMonkey)

Level of training -

On a five point scale:

- Strongly disagree

- Disagree

- Neither agree nor disagree

- Agree

- Strongly agree.

Please grade the following -

The current weekend medical handover system:

- Allows me to easily prioritise the urgency of handovers

- Are always legible

- Are laid out appropriately

- Can get lost/mislaid during the weekend on call

- Always include adequate patient details (name, DOB, Hosp No)

- Provides me with sufficient information to confidently review patients during a weekend on call

- Are an effective way to handover patients for weekend review

- Should include resuscitation status of the patient

- Aids continuity of care over the weekend period.

On the same five point scale the following would be useful:

- An electronic weekend handover system

- A verbal weekend handover system.

Overall, how effective (on the following scale of 1-10) do you think the current weekend handover arrangements are? Any other comments or suggestions regarding medical weekend handover?

Design

Our initial survey revealed that junior doctors perceived the current medical weekend handover as lacking, scoring 6.14 on an effectiveness scale of 10. Juniors stating that the handover didn't help staff prioritise weekend jobs based on urgency and often because of the layout; handover sheets were irreplaceable and didn't contain sufficient detail and frequently illegible. 78.6% of doctors were very positive about the introduction of an electronic weekend handover system compared to 39.3% who felt a verbal handover may be better. We presented our findings of the weekend medical handover survey at the clinical governance meeting, grand round, elderly care meeting, and at junior trainee teachings. We also sent an email across the medical directorate stating the results and our proposal to change the handover system. We received positive encouragement from the whole medical directorate from juniors to consultants and managers to introduce a new electronic handover system.

There was no funding available for expensive electronic programs. Hence we introduced an excel spreadsheet on the shared drive that all medical specialties could access. Each specialty had its own consultant-separated area in order to prevent conflict when several

specialties access the handover system at the same time. Key details such as patient location, demographics, DNR status, and level/priority of review were mandatory fields. The spreadsheet had filters to create a handover sheet containing all patients to be reviewed by grade level of staff (FY1/SHO/SPR).

We anticipated problems with IT, training juniors in using the new electronic system and most importantly not compromising patient safety during this period of transition. To counter this we ran several simulated sessions practicing weekend handover on the electronic system and working through minor bugs. We advertised the changeover at all the local meetings and teachings, encouraging juniors to part take in our demonstrations so that they would feel comfortable using the new electronic handover system. We also provided dedicated one-to-one support with uploading handovers for the first few weeks as well as downloading a reserve paper copy of the handover should the system crash.

The project was conducted over five weeks between June to July 2013, rolling out through all the general medical specialties at Tunbridge Wells Hospital to enable an electronic weekend handover system to replace the existing paper system. All junior doctors were actively involved in using the new electronic handover system (either as handing patients over or working on the weekend). The general medical consultants and managers were supportive of the change in the handover system.

At the end of the project we undertook a re-survey of the general medical junior doctors to evaluate the efficacy of the new electronic medical handover system. Based on the results we hoped that the new electronic medical handover system would be incorporated into the induction of new medical trainees (replacing the old paper handover system) hence ensuring permanence of our project long term.

Strategy

PDSA cycle 1: The electronic weekend medical handover system from Maidstone Hospital was adapted to use at Tunbridge Wells Hospital, Pembury. It was rigorously tested looking at its ability to handle multiple users on multiple computers.

PDSA cycle 2: The electronic weekend medical handover was trialled on a small group of SHOs and FY1s. The feedback from the testing was generally positive. A useful suggestion, which arose from the testing, was that the jobs list when transferred onto the appropriate F1/SHO/SpR tabs should be ranked by ward and not by by consultant, saving the weekend team having to go back to a previous location to go through all the jobs. They also feedback that the location details of each patient should include ward and bed number, not just ward.

PDSA cycle 3: In the third PDSA cycle, we incorporated the feedback from users that the exact location, ward and bed numbers should be included, this improved the user experience. However organising the handover by ward rather than consultant would have lead to deletion or mixing of patient data when the system was being used by multiple users, hence this objective was abandoned for the sake of patient safety. Another issue which arose from this PDSA cycle was that users were keen to introduce a priority ranking of handed over tasks.

PDSA cycle 4: All handover tasks were required to have a priority level (high, medium, or low), also trialed with positive feedback. We also added password protection to the file to ensure confidentiality of data.

PDSA cycle 5: The electronic weekend medical handover was rolled out across the medical directorate at Tunbridge Wells Hospital for a five week trial. Minor bugs with uploading tasks to handover or printing the handover sheet were dealt with on an ad-hoc basis. Post-measurement was carried out immediately at the end of the trial as junior doctors were imminently changing over jobs.

Results

In the pre-electronic handover survey: 28 doctors responded out of potential 74 (37.8%).

The results of the pre-electronic handover survey revealed that:

- 78.6% of doctors were very positive about the introduction of an electronic weekend handover

- On a scale of 1 (least effective) - 10 (most effective) the paper based handover was rated at 6.14.

In the post-electronic handover survey: 16 doctors responded out of potential 48 (33.3%). Eleven of the responders (69%) of doctors had worked a weekend since the introduction of the electronic weekend handover.

The results of the post-electronic handover survey revealed that:

- 87.5% doctors surveyed felt that the new electronic weekend handover was better or significantly better than the old paper based handover system

- On a scale of 1 (least effective) - 10 (most effective) the new electronic handover was rated at 7.31 (See tables and graphs).

See supplementary file: ds4877.docx - “Tables and Graphs to demonstrate the results of the Pre and Post Electronic Handover Survey”

Lessons and limitations

This was an essential prospective quality improvement project in light of the recent Francis review.[5] We learnt a number of lessons from carrying out this project:

- Small steps of change and repeat PDSA cycles are useful when testing an intervention

- When designing an intervention, consider the impact on healthcare professionals on the front line. Communication with these stakeholders and their support is critical for longevity of the intervention

- Even small, free, electronic systems based around software currently available in the NHS can be used for safe and efficient weekend medical handovers

- However, handover is only ever as good as the person handing over and no electronic system can compensate for that.

This project does also have limitations:

- The outcomes are subjective (doctors views) rather than objective audit data to prove that weekend handover has become more effective or safer

- The sample size of the survey is relatively small and is subject to reporter bias.

Although similar in effect to other handover quality improvement projects,[6,7] this project did not utilise any costly software for the implementation of an electronic weekend handover, using only the currently available on hospital computers (Microsoft Excel spreadsheet). Furthermore we conducted a purely subjective analysis of the user (junior doctors) opinions with no objective analysis of the handover, or Datix incidents.

Conclusion

Institution of the electronic weekend medical handover system was received very positively by the medical junior doctors at Tunbridge Wells Hospital. It has significantly improved legibility, permanence, and record keeping of the handover. The survey revealed that junior doctors feel that the electronic handover is more effective and provides better information to confidently review patients during a weekend on call. As a result, this project has become part of the junior doctors medical induction, ensuring permanence of electronic weekend medical handover. This project takes a step towards improved patient safety as well improving the working conditions for junior doctors in a busy acute medical unit. There is always a need to refine and optimise systems and though this project is not perfect, it is a step toward electronic handover that is available now and free of cost.

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Declaration of interests

Nothing to declare.

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