

BMJ Open Quality 'Every patient, every day': a daily ward round tool to improve patient safety and experience

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ABSTRACT

Introduction Many essential interventions are required to ensure in-patients receive safe and effective care with a good experience. In addition, healthcare organisations are assessed on numerous performance indicators, including the aforementioned interventions, where underperformance can lead to lower publicly reported ratings, loss of income and reputational damage. Most importantly, underperformance can lead to compromised patient experience and outcomes. We created a prompt card as a service improvement tool to be used on the daily ward rounds at the bedside of every patient, entitled 'every patient, every day' to improve documentation, antibiotic prescribing, venous thromboembolism (VTE) prophylaxis, coding and patient communication.

Method Preimplementation data around these interventions and patient experience factors were collected by shadowing ward rounds. The 'every patient, every day' tool was then implemented. The ward rounds were shadowed by the same individual to collect post-implementation data. Effect of implementation was assessed via Poisson regression models conducted on the documentation, antibiotics and VTE measures, and logistic regression models conducted on the communication and coding measures.

Results The corresponding rate ratios for the effect of the implementation of the service improvement tool were found to be 1.53 (95% CI 1.38 to 1.69) for improved documentation. Antibiotics prescribing improved by 1.44 (95% CI 1.06 to 1.94). VTE prescribing and documentation improved by a rate ratio 1.25 (95% 1.04 to 1.50). For communication, the effect of the implementation was significant at the 5% significance level ($p < 0.001$), with an OR of 18.6 (95% CI 8.41 to 41.09). Coding effect was non-significant at the 5% significance level ($p = 0.113$) but was substantive. Implementation of the tool resulted in substantive improvements in all outcomes and shows corrected significance with the documentation and communication outcomes.

Conclusion The 'every patient, every day' ward round prompt card is an extraordinarily simple tool shown to increase compliance with a number of safety and quality indicators to improve an organisation's performance, and hopefully be a facet contributing to enhanced patient experience and outcomes.

INTRODUCTION

To ensure the provision of compassionate, effective, safe care, healthcare organisations are assessed on patient experience and safety

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ While checklists are embedded for patient safety in various areas of clinical practice, we were unclear on evidence and effectiveness of their utility on in-patient ward rounds to assist across multiple facets of care.

WHAT THIS STUDY ADDS

⇒ This study was undertaken to determine if a simple ward round prompt tool used for 'every patient, every day' could improve aspects of patients care and experience.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ We feel this study shows this simple, easily applicable tool contributes to improving parameters which are, in part, likely to reduce risk, improve patient outcomes and experience. This tool can be quickly and easily implemented across any specialty to address essential elements of patients care on a daily basis to ensure delivery of high-quality care. This tool can be adapted to local priorities and for an electronic or paper-based medical record.

quality indicators alongside local monitoring measures, this is in addition to national guidance from organisations such as the General Medical Council,¹ Care Quality Commission (CQC) and National Institute for Health and Care Excellence (NICE). This guidance can be very specific, as with National Antimicrobial Stewardship.² There is also an organisational and regulatory pressure to ensure the income and expenditure is accurately monitored and recorded.³ In a surgical environment, with the potential coexisting time pressures of consenting patients for theatre, attending theatre briefs and clinics in a timely manner, the in-patient ward round can be a fast-paced entity.⁴ We wanted to ensure holistic assessment of 'every patient, every day' at their bedside to reduce the risk of adverse events, poor contemporaneous medical notes, and importantly, any patient distress by a perceived lack of empowerment in their own care. A simple ward round check



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list tool was therefore created to be used as a prompt during the ward round at the bedside of 'every patient, every day'.

We identified priorities around documentation standards, patient safety essentials such as venous thromboprophylaxis and antibiotic prescribing, accurate recording of comorbidities for risk stratification and income purposes through coding, and importantly, clear communication with the patient and involving these individuals in their care with the ethos of shared decision-making.

Accurate medical notes are imperative to allow safe continuity of care, and to produce a contemporaneous legal record of events including identifying those taking treatment decisions, following a discussion with the patient. Clarity of these notes are essential on a daily basis, if the ward nursing team, or visiting clinical teams, need to understand the patients' pathway or contact the parent team. The clarity can also be required retrospectively as part of clinical audit and governance processes, or legal reviews. If records of the consultations are not present or clear, this could lead to delays or errors in patient care.⁵ There are clear standards relating to maintaining medical notes through numerous organisations, such as the CQC,⁶ Academy of Medical Royal Colleges,⁷ General Medical Council and Royal College of Surgeons England.⁸ These state baseline requirements around hospital records containing patient identifiers, that each entry should be attributed to a traceable professional via a name, signature, GMC number and contact number, and the name of the most senior surgeon seeing the patient at each visit.

That need for accuracy extends in to antibiotic prescribing, where Public Health England's Antibiotic Stewardship tool kit⁹ suggests a 'Start Smart, Then Focus' approach. These guidelines state that, as a minimum, indication and intended length of treatment or review date must be documented on every drug chart when commencing antibiotic therapy. This is to ensure focused treatment based on culture and sensitivities to improve effective treatment, reduce side effects¹⁰ and reduce evolving bacterial resistance to antibiotics.¹¹

This risk management of potential in-patient complication extended to venous thromboembolism (VTE) can be a potentially fatal, with an estimated 25 000 deaths per year.¹² The need for VTE risk assessment with mechanical or pharmacological prophylaxis is well established, with NICE clinical guideline CG92 specifically stating the need to: assess patients' risks of bleeding and VTE within 24 hours of admission and whenever the clinical situation changes to ensure that the methods of VTE prophylaxis being used are suitable. Due to the importance of this safety assessment, there is a national target monitored by National Health Service (NHS) Improvement of hospital assessment of over 95% of the appropriate in-patient cohort.

This performance data of VTE compliance, among other measures, can contribute to organisational income. This income and other factors, such as risk stratification

to generate accurate published organisational mortality measures are dependent on comprehensive clinical coding.¹³ Outside of income generation and performance measures coding also contributes to capacity planning, research and development, and service reconfiguration work.

Outside of performance measures, which ensure patient safety, and income generation, a critical aspect of the care we deliver is patient experience and dignity. A systematic review¹⁴ summarised data from 55 studies demonstrating a relationship between patient experience and objectively measured health outcomes; adherence to recommended clinical practice and medication; preventive care and resource. Patients should consistently be involved in shared decision-making around their care and empowered with knowledge, and therefore, it is important to check patients' understanding for reasons of empathy, building trust and rapport, and compassionate care. Standards of communication are assessed in trust-level real-time monitoring of patient feedback.

Checklists have been used effectively and fully embedded in surgical practice by the WHO Safe Surgery checklist.¹⁵ We considered that we could implement a short service improvement tool, a checklist for the ward round, based on the above describe guidance and documents, to be used at the bedside for 'every patient, every day'.

The aim of the study was to evaluate if implementation of this ward round-based checklist improved the quality of documentation, antibiotic prescribing, VTE assessment, recording and coding of comorbidities, and communication with patients.

METHOD

There are clearly defined surgical teams within our organisation, with the colorectal, orthopaedics, vascular, urology and upper gastrointestinal teams conducting daily morning ward rounds. The ward rounds are led by the consultant or middle grade surgeon, accompanied by the nursing staff, junior surgical team and other health-care professionals.

At the time of this study, patient records were paper based with specific defined sections within the universal drug chart for VTE assessment and antibiotic prescribing. There was also a section of preprinted comorbidities, within certain clerking proformas, which could be checked to record the presence of these pathologies.

For the documentation, VTE and communication outcomes, a score was derived corresponding to the count of items in each category for which a positive response was reported. Maximum possible scores were thus equal to the number of items in the category: 11 for documentation, 3 for VTE and 1 for communication. A positive communication interaction was defined to be the patient asked if they had any questions for the clinical team. Although it is difficult to test what constitutes effective communication for each patient, as they will all

have individualised perceptions, expectations and understanding. We felt that if that, whatever the length of the consultation, if the clinician has checked if the patient has any questions, this open-ended question will have allowed the patient the opportunity to clarify any aspect of their care and gain the information they specifically feel is important at that time. For the antibiotics and coding outcomes, the score derived corresponded to the number of items in each category for which a positive response was reported, subject to a positive response given to a differentiator item (receiving antibiotic treatment; or having a coding sheet in patient notes, respectively). The response to differentiator items did not form part of the score. Maximum possible scores were thus 3 for antibiotics and 1 for coding.

Scores were derived for each patient assessed preimplementation of the service improvement tool in all categories; and post-implementation of the service improvement tool in the same categories.

Derived category scores were the outcome measures. Documentation, antibiotics, VTE and communication were determined a priori to be primary outcomes, with greater priority given to VTE and antibiotics. Alpha values for the two high priority outcomes were set at 0.02 a priori; alpha values for the lower priority outcomes were set at 0.005; for a total alpha level of 0.05. As this study was primarily focused on patient experience, coding was determined to be a secondary outcome a priori. The service improvement tool status (preimplementation or postimplementation) was the key predictor variable. Different patients were assessed preimplementation and postimplementation. No systematic differences between patient groups in terms of type of surgery were expected or observed: the groups could therefore be pseudorandomised.

The sample was summarised descriptively; as an entire cohort and with data partitioned by time point (preimplementation or postimplementation). The extent of missing data as a result of not applicable responses given in the antibiotics and coding categories was examined.

Generalised linear models were conducted on all outcomes. Poisson regression models were conducted on the documentation, antibiotics and VTE measures; all of which were derived as count data. All Poisson models were assessed for overdispersion. Logistic regression models were conducted on the communication and coding measures; both of which were derived as binary responses. Due to the difference in the types of outcome variables represented in the analysis, and to avoid excessive loss of information from listwise exclusion of cases with missing values on measures whose validity depended on discriminator items, a multivariate treatment was not judged to be appropriate and univariate analyses were conducted on each outcome measure. Significance of key variables was interpreted in the context of multiple comparisons.

Prior to the implementation data collection on the attached proforma was undertaken by a single assessor

Speciality	_____	
Ward	_____	
WR lead	_____	
Documentation		
Patient name	yes	no
Hospital number	yes	no
Place	yes	no
WR lead	yes	no
Date	yes	no
Time	yes	no
Change in plan	yes	no
documenter	yes	no
GMC	yes	no
Signed	yes	no
Contact number	yes	no
Antibiotics		
on Abx	yes	no
indication	yes	no
length of Tx	yes	no
Rv'd	yes	no
Given	yes	no
VTE		
Admission	yes	no
Post 24hrs	yes	no
Given	yes	no
coding		
in notes?	yes	no
completed?	yes	no
Communication		
asked?	yes	no

Figure 1 Scoring sheet. GMC, General Medical Council; VTE, venous thromboembolism; WR ward round.

who was a clinician within the surgical directorate to establish a preimplementation baseline. They joined each surgical team's daily ward round, without disclosing their specific role but with the team being aware they were present as an observer, and assessed them using a scoring sheet (figure 1) in order to ensure explicit and specific assessment.

A campaign of education was initiated as part of the implementation process. Copies of the prompt card (figure 2) were emailed department wide and multiple laminated copies of the prompt card were provided to each ward in accessible places. It was also made available as a sticker to place in the patient notes.

Following a 4-month operational embedding period, the same teams were reassessed by the same assessor, to reduce interobserver bias, using the same tool, to gauge the effectiveness of the intervention. Individual doctor performance was anonymised, and no patient identifiable data were collected.

RESULTS

Data were collected from November 2015 to July 2016 at Huddersfield Royal Infirmary on 189 patients: 95 (50.3%) preimplementation of the service improvement tool and 94 (49.7%) postimplementation. A total 103 patients (54.5%) were undergoing general and vascular acute care; 24 patients (12.7%) were undergoing urological care; 62 patients (32.8%) were undergoing orthopaedic care.

Scores were obtained from all patients on documentation, VTE and communication with no missing data. Scores were obtained from 75 patients (39.7%) on antibiotics and 129 patients (68.3%) on coding; remaining patients were not receiving antibiotic treatment (and therefore were not coded for antibiotics) or had no

EVERY PATIENT, EVERY DAY	Pt details	YES	NO
		Documentation	Does the entry have legible date, time, place, name, GMC no, and contact details with a signature?
Antibiotics prescription	Is the patient on Antibiotics?		
	If yes, is there a documented indication and review date?		
VTE prescription	Has the VTE prescription been appropriately completed?		
	Is the VTE being appropriately given/omitted?		
Codingsheet	Has the co-morbidity coding sheet been completed/updated?		
Communication	Has the patient been asked if they have any questions?		

Figure 2 Prompt card. GMC, General Medical Council; VTE, venous thromboembolism.

coding sheet in their notes. Separate variance t-tests revealed no evidence that missing values on antibiotics or coding data were not missing at random; imputation was not attempted on these measures.

The sample is summarised descriptively in [table 1](#) (partitioned by time point) below.

Hence scores on all measures were generally higher postimplementation of the service improvement tool.

For Poisson and logistic regression models, the effect of the implementation (as measured using the time point variable) was significant at the uncorrected 5% significance level for all primary outcomes ($p < 0.001$ for documentation; $p = 0.019$ for antibiotics; $p = 0.015$ for VTE; $p < 0.001$ for communication) and also for the secondary coding outcome ($p = 0.019$). No evidence for

overdispersion was observed for any outcome tested under the Poisson model.

Postimplementation, at best estimate, incidences of general patient documentation compliance improved by about 50%; antibiotic documentation compliance improved by about 40%; VTE compliance improved by about 25%; communication compliance improved by about 18 times and coding compliance improved by about 2.5 times. All four primary outcomes were considered significant according to the a priori alpha distribution. The evidence for significance in the documentation and communication outcomes was such that these variables would be considered significant under the application of a more conservative Bonferroni correction for multiple comparisons.

Table 1 Descriptive summary of sample: predocumentation and postdocumentation

Numerical variable (median (range))	Preimplementation (n=95)	Postimplementation (n=94)	All patients (n=189)
Documentation	7 (0–9)	11 (5–11)	9 (0–11)
Antibiotics	3 (0–3) (n=36)	3 (1–3) (n=39)	3 (0–3) (n=75)
VTE	2 (0–3)	3 (0–3)	3 (0–3)
Categorical variable (frequency (valid %))			
Coding	(n=74)	(n=55)	(n=129)
No	34 (45.9%)	14 (25.5%)	48 (37.2%)
Yes	40 (54.1%)	41 (74.5%)	81 (62.8%)
Communication			
No	65 (68.4%)	10 (10.6%)	75 (39.7%)
Yes	30 (32.6%)	84 (89.4%)	114 (60.3%)
Type of surgery			
General	49 (51.6%)	54 (57.4%)	103 (54.5%)
Urology	13 (13.7%)	11 (11.7%)	24 (12.7%)
Orthopaedic	33 (34.7%)	29 (30.9%)	62 (32.8%)

VTE, venous thromboembolism.

Table 2 Poisson regression model parameters

Outcome	P value	Rate/OR	95% CI
Documentation	<0.001	1.54	(1.40 to 1.71)
Antibiotics	0.019	1.42	(1.06 to 1.89)
VTE	0.015	1.26	(1.05 to 1.51)
Communication	<0.001	18.2	(8.30 to 39.9)
Coding	0.019	2.49	(1.17 to 5.32)

VTE, venous thromboembolism.

P values, rate/ORs and associated 95% CIs for all included variables in all Poisson regression models are given in [table 2](#).

DISCUSSION

Implementation of this simple service improvement tool results in substantive statistically significant improvements with respect to all outcomes measures of documentation, antibiotic prescribing, VTE prophylaxis, communication and coding. While patient outcomes and experiences are multifactorial, we believe that the impact the tool has on these facets of care will contribute to improvements in the quality and safety of patient care and their in-patient experience. The greatest substantive improvement shown in the communication variable.

While the sticker or prompt initially was perceived to be an increased workload, it quickly became accepted, as it was seen to supplement good surgical practice and benefit patients and the care that could be delivered. During ward rounds, the prompt card was referenced frequently at the beginning but then was used in a more focused manner only to highlight omissions as rounds progressed.

By demonstrating the effectiveness of the first cycle of Plan, Do, Study, Act (PDSA), we were able to gain the support of the senior clinicians at an early stage. This meant that it was widely publicised and supported by seniors—despite their initial concerns over increasing length of ward rounds and work loads of juniors. The relative simplicity, ease of replication and sustainability of this project are advantages of this approach, meaning that it can be used in any in-patient healthcare setting irrelevant of specialty, size of organisation, and location. We appreciate that there may be a study limitation of this being an intervention trialled in surgical specialties in a single organisation, but do feel the tool is entirely transferable.

In terms of confounders, or other contributing factors, we have not assessed the findings based on the seniority of clinician performing the ward round or related the findings to the patients' length of stay. We do feel this is a valid snapshot, however, of the practice and improvement the tool can bring.

The prompts can be adapted to suit local needs, priorities and performance measures, and these may evolve with time, given changing focus within institutions. We

have chosen to focus on these national priorities in terms of safety and quality, while understanding the absolute importance of patient communication and the ethos of shared decision-making. As described, the coding was also an important consideration for us. Although the prompt can be adapted, we would recommend that it remains focused on a limited number of high-impact topics to maintain a balance of being seen to have an easy positive effect but not to becoming too onerous.

This simple service improvement tool was used at a time of the organisation using paper-based patient records. This method can easily be replicated within an electronic patient record with pop-ups at the appropriate time of entering the patient record, documentation or prescribing being used as a prompt, with hard or soft stops. Hard stops require the clinician to respond to a specific pop-up—such as stating an antibiotic review date—before continuing in the notes or prescribing. In soft stops, a pop-up acts as a reminder to complete a task, but does not mandate completion, such as a reminder to reassess a VTE risk profile.

Therefore, these essentials and the concept of a prompt card can be incorporated in to an electronic patient record during a ward round entry or in the generic record. Alternatively, an electronic ward round template can be created, so for every ward round, and therefore every patient, every day. This structures the documentation so that all appropriate fields are completed and all prompts are responded to via a simple 'tick box'.

Nature of association between intervention and outcome

The introduction of both the sticker and prompt card interventions created a significant improvement in all quality indicators being assessed. There were no other concurrent quality improvement initiatives relating to these markers being implemented at the time, so it is reasonable to attribute the improvement to the 'every patient, every day' service improvement tool.

Impact

Thorough note-keeping allows for smoother handover between teams, facilitates the clarity around the plan of care, improves efficiency of care and can assist in comprehensive review should the patient be readmitted or be followed up following discharge in the out-patient arena. Unsafe and incomplete handover has an established mortality and morbidity risk.¹⁶ The higher proportion of adequately completed records in accordance with guidance reduces the trust and individuals' susceptibility to medico-legal action and decreases clinical risk.

During the education involved in implementation, it became very apparent that most people were unaware that the GMC advised that a clinician's GMC number should be included in note entries.¹ Inclusion of this information also reduces medicolegal uncertainty and increases accountability. Importantly, it makes the individual identifiable, should the nursing or medical team have any queries regarding the patient's care, and allowing them



to know to whom to direct their questions in what may be an emergency or acute situation.

The accurate completion of the checklist, which would prompt a review of the VTE risk profile and antithrombotic prescription, should contribute to reducing the risk of in-hospital venous thrombotic events. These events, such as a deep venous thrombosis, can lead to significant short-term and long-term morbidity, and also to life-threatening complications, such as a pulmonary embolus. Venous thrombotic events are the single most preventable cause of hospital death in the UK¹² and ensuring appropriate prophylaxis can help reduce the risk to the estimated 25 000 patients at risk each year.

By tight control and review of antimicrobials, we exposed patients to fewer side effects of these medications, while reducing local antibiotic resistance¹⁷ as discussed in the introduction.

Accurate completion of coding will allow better local assessment of healthcare needs, capacity and delivered care. This can lead to improved service planning, audit and research, and allocation of funding at a local level, but also have an impact on regional healthcare initiatives. This will in turn lead to a higher level of patient care.¹⁸

The limitation of this service improvement tool is a very modest cost of printing the stickers or laminated sheets where required. With the rotational training of junior staff, this prompt would also need to form part of the induction to embed the process as part of their daily working routine. The main limitation of the study is that this was conducted on surgical wards, but we anticipate that it would have an equally powerful effect on patient safety, quality of care and patient experience in other specialties.

While the paediatric patient should feel involved in their care, additional measures for communication with parents or guardians should be incorporated. The element of VTE prophylaxis would also need addressing.

During the data collection for each cycle, the same person collected data for baseline and postintervention. While this limited the effect of interviewer bias, for example, what constitutes active communication, it was not possible to blind the postintervention data collection, making it potentially subject to performance bias. As the intervention provided all the information that was being assessed, it was considered that this bias was limited to a possible increased uptake.

Patient and public involvement

The development of the project was entirely based on routine measures of patient safety, care and experience. The study was around assessing an intervention used by the surgical team themselves on optimisation of the delivery of holistic care on a ward round, rather than assessing direct patient outcome following an therapeutic change, for example. Therefore, it was not felt necessary to involve patients in the study design, recruitment and conduct. The study results were disseminated through a

series of presentations to the surgical teams as part of the regular clinical governance programme.

CONCLUSION

This simple and easily reproducible patient quality and safety improvement initiative has been demonstrated to be an effective tool, with results improving significantly from their respective base levels across documentation, antibiotic prescribing, VTE prophylaxis, communication and coding. The prompt card ensures that while on the ward round for 'every patient, every day' the teams are ensuring they deliver holistic, safe, effective care.

Most importantly, we believe that the improvement shown in these parameters will be one facet that can contribute to improved patient outcomes and experience while aiding compliance with national and local regulations, reducing clinical and medicolegal risk.

This tool can be easily replicated and instituted in a paper based or electronic patient record with very low time, training and resource investment to have a positive impact on patient safety, experience and quality of care in any clinical in-patient environment.

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