Making the ward a more efficient place: a qualitative evaluation of the impact of the Vista 90 trolley

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Abstract

A significant amount of professional time is wasted during a medical ward round retrieving patient notes from the ward trolley. If the efficiency of this non-clinical, non-functional interaction could be improved it would save time, maintain continuity and have financial implications.

One identified constraint was the structure of the traditional ward trolley; a stationary filing tray with vertical sleeves. During ward round, time is spent returning and retrieving each patients notes from outside the patient bay and additional time may be wasted if the notes are misplaced or in use elsewhere. To resolve this, the 'Vista 90' trolley with horizontal, transparent trays, is portable and has an ergonomic writing surface was selected as a potential second generation replacement.

An assessment of the impact of the Vista 90 trolley over the traditional trolley in the clinical setting was carried out on Erringham (medical) Ward, Worthing Hospital, West Sussex Hospital Trust, UK. This was by way of qualitative analysis performed by semi-structured interview of 12 doctors and other healthcare professionals who regularly interacted with the Vista 90 and traditional trolley in December 2012.

The audit found that those interviewed preferred using the Vista 90 trolley over its predecessor as it improved the efficiency of the ward round and subsequent clinical work. It's mobility allowed it to be easily transported with the ward round, reducing disruption during a consultation and between consecutives ones. The ergonomic writing surface was noted to improve legibility of documentation due to greater comfort and if placed appropriately, did not interfere with the doctor-patient interaction. The financial savings of this greater efficiency was found to be of significance and justify the cost of the Vista 90 within two weeks.

Problem

The traditional notes trolley is stationary and kept outside the patient bay during ward round (WR), it is therefore not uncommon for notes to be drawn by other MDT members during the round, leading to inevitable interruption whilst these notes are tracked down. During this time the rest of the WR team wait idly or wander off looking for the notes, potentiating further delay. Therefore if the trolley was re-designed to be portable and brought along on the WR it would theoretically reduce non-productive time and overall WR duration. It would also eliminate the time spent retrieving and replacing each patients notes from outside the bay.

Background

A joint statement released in October 2012 by the RCP and RCN entitled "Ward Rounds in Medicine Principles for Best Practice" called for the medical ward round (WR) to become the cornerstone of inpatient care [1]. The statement describes "a clear paucity of quality indicators and evidence guiding best practice for medical ward rounds."

Critical analysis of changes and innovations are required to guide improvements in Medical WRs. Any changes that improved efficiency whilst preserving effectiveness would be welcome, as this would free more professional time to complete any subsequent tasks.

The impact of better efficiency can be demonstrated in the paradigm of a 600-bedded hospital. Every weekday, each patient has a daily clinical review by at least one doctor on a WR, if each review could be conducted one minute quicker, whilst maintaining quality, safety and patient reported outcomes; this would release a minimum of 600 minutes of professional time. If there were two doctors on the round, 1200 minutes, or two doctors and a nurse 1800 minutes etc. 600 minutes is 10 hours of professional time. This would have substantial practical and financial implications.

Baseline Measurement

The problem of inefficiency secondary to ward trolley structure has been identified in previous literature and has been documented as a source of dissatisfaction by senior medical staff [3]. An audit performed at a district general hospital in West Sussex, UK found that up to 250 'doctor journeys' (trips from patient bedside to patient notes) were being performed on a single ward round of 25 patients per day by 5 doctors (see figure attached). The time spent on these journeys is not clinically useful and so any reduction in this would free up more time for subsequent clinical tasks.

The impact of the problem was difficult to quantitatively assess as many factors contribute to the extent of delay resulting from a stationary ward trolley. These include:

- the number of patients on a WR
- the number of doctors on the WR

- the number of notes absent from the ward trolley during WR

Therefore, we decided to assess the scale of the problem in a retrospective manner; as a comparison to the efficiency of a WR with the Vista 90. Therefore, we would be able to determine the relative scale of the problem by comparing a WR with one trolley versus another.

See supplementary file: ds1990.pdf - "Poster was accepted and presented at International Forum on Safety & Healthcare"

Design

The decision was taken to install a new ward trolley that would target these shortcomings. The decision was taken by Dr Gordon Caldwell, a senior Consultant physician at Worthing Hospital, West Sussex Hospital Trust. The issue was discussed with other team members working on Dr Caldwell's medical ward as well as other senior medical and managerial staff. After initially using an old electrician trolley, UK-based medical furniture designers, Sunflower Medical, were commissioned to create a trolley to fit Dr Caldwell's objectives.

The outcome was the Sunflower V90 trolley, which was implemented on Erringham Medical Ward in Worthing Hospital in 2011 (figure 1) [2]. Each V90 has 8 drawers for notes and one containing forms and instruments often required on the WR, a modification called for in previous work [3]. This re-design gave the opportunity for other modifications to be made to its frame, including an ergonomic writing surface- improving comfort and legibility during WR documentation and translucent horizontal note trays- allowing all folders to be seen at a glance. Even outside of WRs these modifications could be time saving.

On Erringham Ward there are 3 bays of 6 patients and a total of 5 cubicles. Therefore four V90s were implemented, one for each bay and one for the five patients in cubicles.

Strategy

It was important to determine whether these theoretically beneficial changes would translate to a practical improvement in efficiency. This was assessed by a qualitative evaluation. It is important to re-iterate that any improvement in efficiency is only valid if the effectiveness of the WR is preserved. Therefore this was assessed too.

The decision for assessment via qualitative evaluation was taken after conceding that quantitative evaluation would be unreliable and subject to significant bias (see Baseline Measurement). The format and flow of a WR varies from Consultant to Consultant, and their personality and style are reflected in the nature of their WR. Therefore we felt qualitative analysis was a better method for assessing the impact of the V90. As we also wanted to retrospectively determine a baseline measurement of the problem with the original ward trolleys, we felt it necessary to incorporate questions that directly compared the Vista 90 trolley with the

original ward round trolley.

The second decision was to identify the impacted cohort to interview. The initial decision was to interview only doctors as this discipline is most heavily involved with the medical ward round. However, it became apparent that the ward trolley had a greater role on the ward than simply on the ward round. Multi-disciplinary team members interacted with the ward trolley throughout the day and night and so the impacted cohort was much greater than initially anticipated. Therefore, the decision was taken to expand the interviewee cohort to all MDT staff interacting with the trolley and expand the interview to ascertain the impact on non-ward round medical activity too.

Results

A semi-structured interview was conducted with a variety of doctors who had regularly used the V90 trolley and had previously also used the standard medical trolley (table 1). The doctors interviewed ranged from senior registrar to foundation year 1 doctors. Senior, junior and specialist nurse interviews were also sought. As well as health care professionals (HCPs) based on the ward, we also interviewed those who served the hospital as a whole, i.e. consulted doctors and therapists (table 2). These members of staff accessed the V90 trolley to perform ward tasks and this was confirmed prior to interview. A framework questionnaire was used that can be found in Appendix A.

The responses to the semi-structured interviews can be divided into several common areas of impact. A full transcript of the interviews can be obtained from the author.

Impact on the ward round

Opinion regarding the impact of the V90 on the daily WR was positive across the interviewed cohort. Both junior and senior doctors felt the V90 helped improve efficiency by minimising disruptions both during a consultation and between consecutive ones. The latter was attributed by two doctors directly to the fact that one can "take the trolley into the bay, so there's no reason to leave the bay" thus making the transition from one patient to another more fluid. Another doctor directly contrasted this to the former system, which often involved a junior doctor "traipsing [wandering] around with 3 or 4 sets of notes and trying to write on them at the same time as hold them." All interviewees felt the WRs were "smoother and quicker" without the need to leave the bay to exchange notes.

All interviewed doctors felt the tangible accompaniment of the trolley at the bedside did not detract from the doctor-patient relationship as "one of you [doctor] is talking to the patient and one of you [another doctor] is writing." However, this was qualified by adding that it is only if "you position it [the trolley] in the right place, i.e. at the end of the bed." A nurse commented that it "makes you feel more involved as the nurses are on one side and the doctors on another and it gives you [both] somewhere to write." However another MDT member felt that "they [the trolleys] form a barrier and doctors can hide behind them" thus stressing the potential risk of

formalising the consultation if placed inappropriately.

The most significant limitation of the V90, which arose in three interviews, was their incompatibility with wards that have multiple teams providing “shared care for a single bay.” At Worthing Hospital, surgical wards have such a layout, with two or more teams sharing a single bay and were quoted as those that were unlikely to gain full benefit of the V90 during WR. Interviewed doctors speculated that “they’ll all be hunting for notes at the same time...[as] you can have up to half a dozen teams on the ward.” However, each interviewee recognized that “for a ward that has a dedicated team like Erringham, there aren’t any disadvantages.”

Ergonomic structure

The ‘portable’ writing surface was the most commended feature of the V90. It was utilized both, whilst note-taking during the WR and whilst working throughout the day, with the former function receiving greater appreciation. Two doctors commented how it was much easier than “trying to rest it on your arm or bending your back” and a third noted how “now you can hold the drug chart in your other hand, be much more efficient and be much more legible” whereas previously one would “write less because it was so difficult.”

These empirical benefits are in correlation with the expected benefits of having an ergonomic writing surface available throughout the WR. Facilitating the ease of writing was intended to improve the legibility of any documentation as well as to encourage a doctor to provide a more comprehensive written account due to both increased scribing speed and greater comfort.

However, one aspect that was questioned twice was the height of the surface. The surface is 122cm above the ground, which one HCP found “a bit high, so can’t [couldn’t] write on it as I’m [she is] a bit shorter.” The aesthetic impact of the V90 was contentious; whereas some staff described it as “cool” and “classy” others found it “chunky” and “a lot bigger.”

Extra-WR functionality

In a traditional in-patient care setting, the WR is followed by the completion of subsequent tasks throughout the rest of the morning and afternoon. HCPs require access to notes to identify patient needs and co-ordinate care. The input of both ward-based and visiting staff (therapists and consulted doctors) was sought to explore this important aspect of team working.

A repeated theme was the positive impact that the V90 had on efficiency in this context too. Almost half the interviewees made direct comparisons with the functionality of the V90 and the traditional ward trolley with one doctor commenting that generally “coming to Erringham ward seems a lot easier, and a lot less frustrating than being on [a ward with traditional trolleys].”

A quoted reason was the improved structural integrity. Whereas a traditional ward trolley has vertical note sleeves acting as dividers, the V90 has horizontally-stacked transparent plastic trays to hold notes. One doctor felt the V90 was “much, much better because

with the old trolleys, they [the sleeves] break all the time and notes are going everywhere.” Despite the hyperbole, this demonstrates an appreciation of the robustness of the V90 contrasting with “the old trolleys...[which are] completely disorganized, none of the tabs say what number bed it is and...wallets drop off and the notes fall down.”

Another explanation for the greater efficiency was the functionality of the V90 making it easier to find a specific set of notes. One doctor explained, “people know exactly where to put them [notes] back, therefore less time is wasted wandering round the ward, looking in different trolleys or round the wards.” One doctor compared this to the traditional trolleys “with old style notes, [where] you could spend 60 seconds trying to work out where to put them back.”

See supplementary file: ds1983.docx - “interviewed cohorts and quote selection and appendix A”

Lessons and Limitations

100% of interviewed HCPs stated that they prefer the V90 to the traditional ward trolley and would not switch back if given the option. Qualitative results are often measured by three parameters; effectiveness, efficiency and enjoyment. The results above demonstrate a subjective greater efficiency of WR and ward work as a direct result of the V90 without detracting from efficacy. Also, one doctor explicitly stated that the trolleys help create a “less frustrating” work environment which could be translated to an improved mood.

The V90 costs about £600. As per ‘Unit Costs of Health & Social Care’ an independent report commissioned by the Department of Health, a Consultant costs the NHS about £2 per minute, an SPR about £1, and a Nurse and Foundation Year One Doctor about 50p each [4]. Thus a WR involving a Consultant, a specialist registrar, an F1 and a nurse costs £3 per minute to run. If the round involves 20 patients, and it is half a minute quicker to find and replace each set of notes, the round would be completed 10 minutes earlier, releasing £30 of professional time, to be used productively elsewhere e.g. in writing the discharge summary and reducing length of stay. If each of the 20 sets of notes is handled 10 times a day by HCPs (200 ‘findings and replacements’ of notes a day) using the V90 would save 100 minutes of HCP time a day, or £50 per day of released resource. On a day with a Consultant WR the V90 would release at least £80 of professional resource. Thus using the V90 releases cost efficiency savings to cover the purchase cost within 8 working days.

The most frequently quoted limitation of the V90 was its’ incompatibility with multi-team wards. The V90 was implemented as best to compliment the anatomical structure of Erringham Ward; a single team ward. However, the V90 is versatile and can be adapted to such a situation too. A ward managed by multiple teams could choose to arrange their trolleys according to the functional structure instead i.e. one trolley per team. This would enable a team to take one trolley per WR without the need for interrupting other teams to get hold of notes.

The other issue that was raised was that for shorter individuals, the writing surface was too high. The height of 122cm was chosen with consideration of the average HCP. A lower writing surface may improve accessibility amongst this cohort but would cause backache and discomfort for taller people. 122cm was chosen as a compromise. However, the V90 has two additional foldout writing surfaces at a lower height that could be of used to overcome this problem (figure 1). Therefore the issue here may simply be one of unawareness.

A limitation of this audit was an inability to measure the quantitative impact of this referenced improvement in efficiency. Despite not being an aim of this piece of work, it could have added numerical support to this qualitative finding. We felt that to achieve significant quantitative results, the time saved by the trolley would have to be prospectively measured across multiple wards over multiple days to minimise intra- and inter-team variability. Therefore, if additional wards and hospitals take up the V90 trolley, we recommend this be performed, as any quantitative results can be more easily translated into financial implications and thus provide a more convincing argument to support their further use.

Conclusion

We feel the V90 is a significant improvement over the pre-existing notes trolley however larger prospective, qualitative analysis is required to identify any areas for further improvement. Implementing the V90 on additional wards would therefore have the additional benefit of enabling this by providing a larger cohort to interview. This audit strongly supports the implementation and use of the Vista 90 trolley to improve WR efficiency, saving time, money and notes.

References

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Declaration of interests

nothing to declare

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