Need for a hands-on approach to hand-offs: A study of nursing handovers in an Indian Neurosciences Center

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ABSTRACT

Context: Standardized nursing handovers have been known to improve outcome, reduce error, and enhance communication. Few, if any, studies on nursing handovers have been conducted in the India.

Aim: The aim was to study nursing handover practices in a Neurosciences Center in India.

Subjects and Methods: This study was conducted in a 200 bedded public sector Neurosciences Center in New Delhi, to assess nursing handover practices across five wards, all shifts, weekdays, and weekends using a pretested checklist. Ten elements were observed under the categories of time, duration, process, nurse interaction, and patient communication.


Results: Totally, 525 nursing handovers revealed varying compliance levels among (63%) time, place (76%), process (82%), staff interaction (53%), and patient communication (44%) related elements. Poorer compliance was seen in morning shifts and weekends; the difference being statistically significant. Bedside handovers were more frequent during weekends and night shifts and were positively correlated with increased staff interaction and patient communication and negatively related to handover duration. Though nurses showed better adherence to process related elements, background patient information, and assessment was explained less frequently. Differences between wards were insignificant except in categories of nurse interaction and patient communication which was better in the neurosurgery than neurology wards.

Conclusion: Study revealed a need for a system change and standardization of handovers. Greater administrative commitment, use of technology, training, and leadership development will aid in continuity of care, promote patient safety, and ensure better outcomes.

Key words: Neurosciences Center, nursing handover, weekend shifts

Introduction

Nursing handover is a communication that occurs between two shifts of nurses where the purpose is to communicate information about patients under the care of nurses.[1,2]

Various researches have proven that standardized nursing handover protocols improve outcome, reduce error, enhance communication among nurses, and interaction with patients.[3,4] Some studies have observed a decrease in length of hospital stay and, therefore, the cost of individual medical visits and fewer referrals.[5]

Considering the heavier patient load in Indian public sector hospitals, the lack of standardized protocols, it was considered to undertake the study on nursing handover practices in the Neurosciences Center.

Subjects and Methods

This descriptive and cross-sectional study was conducted in a 200 bedded Neurosciences Center of an apex public sector Tertiary Care Referral Hospital in New Delhi, India from January 2014 to April 2014. The handover practices by the nursing staff during shift change in all five wards of the Neurosciences Center formed...
the sample for the process of nonparticipant observation time, duration, process, nurse interaction, and patient communication, through nonparticipant observation. Handovers in each ward were observed both during weekdays and weekends using a pretested checklist for a period of 1-week from the corresponding Monday of the week to the subsequent Monday. In each nursing shift, handover practices in relation to all the patients under the charge of one staff nurse was observed. Handover of all 30 beds was done over the week to overcome individual staff nurse variations. Administrative nurses, inter-hospital transfer handovers, Intensive Care Unit (ICU) to ward, and private ward beds handovers were excluded from the study.

The pretested checklist was adopted from the implementation toolkit: Standard Key Principles for Clinical Handover by the Australian Medical Association (2006) and the Safe Handover: Safe Patients’ Guideline by the United Kingdom National Patient Safety Agency (2004). A triple shift, 1-week pilot test was carried out in all the wards. This modified, validated checklist was then used to carry out the study.

The nursing checklist consisted of 10 elements under five categories with 10 boxes corresponding to the elements under each category [Table 1]. The mean value of all the handovers for that shift were taken as representative for that shift. Wards, shifts, and weekends were also analyzed independently and as groups. One-way and two-way analysis of variance (ANOVA significant <0.05), Z-test for difference of proportions (significant <0.01), and Spearman’s correlation was used to analyze the data using the SPSS software used was an Institute licensed, IBM SPSS- Version 22 software.

**Results**

The Neuroscience Center of the Tertiary Referral Center is a seven storied structure with 200 beds including general wards, ICU, and private wards. The inpatient wards which were included in the study comprised of five floors with 30 beds in each ward. Wards 1, 2, and 3 are Neurology wards and wards 4 and 5 are neurosurgery wards. The nursing shift handover occurs thrice in a day, morning shift (M), the evening shift (E), and the night shift (N) for the staff nurses.

Since each staff nurse is in-charge of five patients, in a 24 h period, 15 handover were observed. Thus, 105 handover (including 30 for the weekends) for a ward (corresponding to a week) and a total of 525 nursing handovers for the five wards were observed. Outcome was analyzed with regards to the parameters in each category against wards, shifts, weekdays, and over weekends:

**Time parameters**

These included whether handover occurred at specific predetermined time and if the duration was sufficient. Weekday revealed a lower compliance during the morning shifts (62% and 40%) than in the evening (74% and 60%) and night shifts (45% and 40%), for both time specificity and duration [Figure 1]. The weekend compliance was lower in all the shifts in both parameters than their corresponding weekdays. The overall adherence was 63%. One-way ANOVA post-hoc test revealed that statistical difference was due to the morning shift, when all three shifts in all wards were analyzed (ANOVA significant = 0.023). Z-test for difference of proportions showed highly significant statistical difference between weekdays and weekends (Z-test significant = 0.004).

**Place parameters**

During weekdays, in all wards and in all shifts, nursing staff handover their charges in the physical presence of their colleague. Part of the handover occurred at bedside (83%). Overall compliance was 76%. Handovers that occurred in bedside had shorter duration. In addition, weekend and night shift staff had a higher propensity to do bedside handover [Figure 2]. One-way ANOVA test did not reveal statistically significant difference. However, two-way ANOVA test revealed a significant difference between time and place elements (two-way ANOVA significant = 0.03).

<table>
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<tr>
<th>Table 1: Nursing handover checklist used as tool</th>
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<td>Category</td>
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SBAR – Situation, background, assessment, recommendation
Process parameters
Situation, background, assessment, recommendation (SBAR) process elements were followed the best among all the five categories studied (aggregate 82%). Among the four elements, in all wards and across all shift, situation (86%) and recommendation (82%) had higher adherence among nurses than background (79%) and assessment (80.4%) [Figure 3]. However, the difference between all five wards statistically insignificant (two-way ANOVA signification = 0.454).

Staff interaction
The overall interaction among all nursing staff during handovers was low (52.8%), however, it was higher in the neurosurgery wards (wards 4 and 5) [Figure 4]. The difference was statistically significant (Z-test significant = 0.006). The task of “read back” or “repeat back” by the incoming nurse was being followed less often during the night shifts and weekends, but were not statistically significant.

Patient communication
Among all categories, patient communication was given the least priority (44.4%). However, the nursing staff working in the neurosurgery ward fared significantly better than their colleagues in the neurology ward [Figure 4]. (Z-test significant = 0.004). Although, communication was observed to be higher in the weekends, it may have been a chance finding. Overall compliance with respect to all the categories between specialties offered similar trends over shifts and days [Figure 5].

Strong negative correlation was observed between weekend shift and elements related to time (Spearman’s coefficient of correlation: −0.764) and place (Spearman’s coefficient of correlation: −0.712). Strong negative relationship was also observed between bedside handovers and duration of handover (Spearman’s correlation coefficient: −0.689). Weak negative correlation was observed between weekend shifts and process (Spearman coefficient: −0.221) elements. Weekends and night shifts were found to be positively related to staff interaction (Spearman coefficient: +0.311) [Table 2].
Figure 5: Inter specialty comparison is shown in percentage, overall 10 elements of handover showed largely similar trends across both, neurology and neurosurgery wards with significant difference only the categories of readback and patient information

Table 2: Correlation between various variables and categories

| Statistical analysis: Spearman’s rank correlation coefficient (ordinal data) |
|-----------------------------|-----------------------------|-----------------------------|
| Category                    | Variables                   | Spearman’s coefficient of correlation |
| Time                        | Weekend shifts and time      | −0.764                      |
| Place                       | Weekend shifts and place     | −0.712                      |
| Time and place              | Duration and bedside handover| −0.689                      |
| Process                     | Weekend shifts and process   | −0.221                      |
| Staff interaction           | Night shifts and staff read back| +0.311                   |
| Staff interaction           | Weekend shifts and staff read back| +0.369                   |
| Staff interaction and patient communication | Read back and patient information | +0.362 |

Only variables with definitive are tabulated (negative or positive)

Positive correlation was observed with staff interaction and patient information (Spearman coefficient: +0.362). However, no correlation was observed between elements and wards.

Discussion

Nursing shift handovers are essential, not only for maintaining the continuity and quality of care but also are important in planning. The findings of a qualitative case study in two hospitals indicate that SBAR may aid in schema development that allows rapid decision making by nurses, provide social capital and legitimacy for less tenured nurses, and reinforce a move toward standardization in the nursing profession. A prospective interventional study reveals that SBAR improves communication and safety climate and decreases incident reports due to communication errors. However, our study revealed that although process based elements had an overall better compliance, nurses had a greater propensity to explain the situation and the recommendation and much less about the background and their own assessment of the patient, relying more or records. This ritualized handover

Besides the all important bedside handovers, several researchers have also identified the nursing station as an appropriate location of handovers, to avoid disturbance or interruption, but suggest caution in changing from office based to bedside handover. Bedside handover has been known to facilitate a partnership model in medication communication bring nursing team, together, promoting medication review, providing a patient centered dimension of handovers, with an additional advantage of patients providing key essential information, and an opportunity to participate actively in the process of their treatment. Our study revealed that bedside handovers were paradoxically more frequent during weekends and night shifts. Interestingly, bedside handovers had a negative correlation with the duration of handover this may be the reason for a subconscious nursing adaptation by nurses to save time on weekends and night shifts. This also validates the findings of other studies, which suggest that bedside handover takes less time. Bradley and Mott 2012 observed that in exclusive nursing station handovers, the mean total time taken was 0.44 h and after the implementation of bedside handovers, it was 0.22 h. No shift wise or ward wise variation was seen. Several authors have studied the content of hand over. The findings of a qualitative case study in two hospitals indicate that SBAR may aid in schema development that allows rapid decision making by nurses, provide social capital and legitimacy for less tenured nurses, and reinforce a move toward standardization in the nursing profession. A prospective interventional study reveals that SBAR improves communication and safety climate and decreases incident reports due to communication errors. However, our study revealed that although process based elements had an overall better compliance, nurses had a greater propensity to explain the situation and the recommendation and much less about the background and their own assessment of the patient, relying more or records. This ritualized handover...
The study had certain limitation including that of Hawthorne effect on the nursing staff performing handovers in the presence of the author. Further, the role of content of handover and patients and family members was not included in the study. Moreover, the large influence of extraneous factors, such as the type of clinical environment, experience, culture of leadership, specialty, case mix, technology, and local policies, cannot be underestimated.

**Conclusion**

This study was undertaken to assess the nursing handover practices in an apex Neurosciences Center in India. Relatively inferior weekend and morning shift handover practices across all wards, in all categories, except bedside handovers and patient communications, calls for a systems approach, and greater administrative commitment. Decreased interaction among nurses and poor communication with patients, needs to be addressed. Since the two showed a direct relation with bedside handovers, promoting the latter is likely to result in overall improvement. Better performance regarding process elements across the spectrum is encouraging. However, nurses continued to lay less emphasis on handing over their own patients and family members was not included in the presence of the author. Further, the role of content of handover and patients and family members was not included in the study. Moreover, the large influence of extraneous factors, such as the type of clinical environment, experience, culture of leadership, specialty, case mix, technology, and local policies, cannot be underestimated.

**References**


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