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Nursing Time Analysis in a Tertiary Hospital after ENR Introduction

Doh-Yeon Kim[a], Myonghwa Park[b]

[a]*Dongsan Medical Center, Keimyung University, Korea*
[b] *College of Nursing, Keimyung University, Korea*

Abstract and objective

The purpose of this study was to analyze the direct and indirect nursing time after introducing the Electronic Nursing Record (ENR) system in a tertiary hospital. This research used descriptive survey and the data was collected from 28 nurses from 14 wards in a general hospital. Each nurses recorded their day, evening, and night activities according to time order.

The study results reported reduction of indirect nursing time including recording & reporting and increase of direct nursing time and patient education. In general, they showed satisfaction with the system and revealed positive responses to the IT team's support. The nurses commented on changes to be needed such as computer speed and physical discomfort from computer using. This study identified the positive time effect of ENR and the need for user friendly nursing information system.

Keywords:

electronic nursing record, nursing time

Introduction

The electronic record system is increasingly being deployed within health care organizations to improve the safety and quality of care[1]. However, to achieve these goals, the electronic record system must be verified as effective by clinicians, and this remains a major challenge. Nurses spend the majority of their time providing direct care to patients and expect that an electronic nursing record system could increase the patient-interaction time and consequently the quality of care delivered [2]. Thus, nurses will consider a system to be efficient if the system reduces their indirect nursing time, even if the time savings do not translate into better patient care [3]. For this reason, in evaluating the impact of electronic nursing record on nurses' activities, some studies use activity time as a primary outcome. However, few studies have explored the effect of ENR on nursing staff' activity time.

Methods

This research was designed as a descriptive study and the data was collected from February to April, 2006. The subjects consisted of 28 nurses from the 14 nursing units who have experienced both paper nursing record system and electronic nursing system. The participants worked regularly at day, evening, and night shift. Nurses were requested to record their nursing time at each shift using the checklists provided by the researchers. Group interviews were done about their perceptions of nursing time changes after ENR introduction.

Results

1) During the day shift, direct nursing activities took 37.04% of the whole day time nursing, indirect nursing 40.74%, ward management 18.52%, and personal time 3.70% respectively. In evening shift, nurses used 29.41% of working time on direct nursing, 45.10% on indirect nursing, 19.61% on ward management, and 5.88% on personal time. In night shift, direct nursing time took 17.91% of working time, indirect nursing 46.27%, ward management 17.91%, and personal time 11.98%.

2) The total time of direct nursing was 200.57 minutes (37.04%) in day shift, 150. 71 minutes (29.41%) in evening shift, and 120.42 minutes (17.91%) in night shift. Among the direct nursing activities, observation and monitoring took the most of nursing time.

3) The total time for indirect nursing was reported as 220.28 minutes (40.74%) of the day shift, 230.07 minutes (45.10%) for evening shift, and 310.71 minutes (46.27%) for night shift respectively.

4) Ward management totally took 100.21 minutes (18.52%) of day shift, 100.85 minutes (19.61%) of evening shift, and 120.57 minutes (17.91%) of night shift. Ward meeting and patient reporting took the largest portion of the ward management time.

5) The personal time took 20.57 minutes (3.70%) for day shift, 30.42 minutes (5.88%), and 80.92% minutes (11.98%) for night shift.

6) The analysis of the group interview indicated the following results: improved work speed and convenience in job, the precise and fast recording, reduction of indirect nursing time including management of nursing record and other documents, and increase of direct nursing time and patient education. Along with these changes, the nurses commented about the problems such as computer speed and physical discomfort from using mobile laptop computer with standing position.

Table 1 - Nursing time by shift

Classification	Day	Evening	Night
		Mean (min) (%)	
Direct nursing	200.57 (37.04)	150.71 (39.41)	120.42 (17.91)
Min	168.23	138.58	115.71
Max	204.43	158.34	124.17
Indirect nursing	220.28 (40.74)	230.07 (45.10)	310.71 (46.27)
Min	202.75	218.21	304.59
Max	230.24	240.35	315.09
Ward management	100.21 (18.52)	100.85 (19.61)	120.57 (17.91)
Min	70.92	88.71	101.42
Max	106.74	108.14	126.01
Personal time	20.57 (3.70)	30.42 (5.58)	80.92 (11.98)
Min	10.21	16.04	70.43
Max	30.53	34.50	90.63

Discussion

The study results indicated the introduction of ENR system made a change on nurses' job and nursing time, increasing direct nursing time and decreasing indirect nursing time [4]. Time efficiency can be one of many benefits and especially electronic nursing record systems can generate time savings in activities, such as accessing a patient chart or maintaining patients' report forms [5], [6]. Next steps in our research will involve monitoring nursing time with direct measurement tool such as video-taping and observation.

Conclusion

Future research is required to examine whether the capacity of the electronic nursing record system to improve the overall care delivery process of patients. New methods to measure the impact of the ENR on time efficiency from an organization's level will have to be developed.

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