

# A comparative study to assess the Time and Motion among nursing officers working in intensive care unit and general ward

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**Abstract:** A time and motion study of nurses workload can assist us in determining how and what nurses spend their time on during their working shift. Work processes can then be studied to allow for improvement and implementation of strategies to ease nurses workload.

## Objectives:

- To analyse the work activities of bedside Intensive Care Unit (ICU) nurses during the day shift.
- To analyse the work activities of bedside general ward nurses during the day shift.
- To compare the work activities among nurses working in ICU and in general ward.

## Methods and materials:

A non experimental comparative research design was used for this study, sample size were 20 nursing officer 10 from ICU and 10 from General ward nursing officer of Shri Swami Bhumanand College of nursing Haridwar. Sample were selected through non probability purposive sampling technique. Stop watch were used to record the activities of nursing officer.

## Result:

The study observed a total 144hr activity of ICU and general ward nursing officer, representing 12 working days including morning and evening shift. The activity was divide into 6 category including bedside care which include all the procedures and nursing care, documentation, medication, monitoring, health education and other activities like admission and discharge procedure, transfer in and out, rest, doctors round ect.

Result shows that the ICU nursing officer spending their maximum time to provide bed side care that is (34.72%), documentation (13.88%), medication (17.36), monitoring (24.30%), health education ((4.16%) and other activities (5.55%) whereas the general ward nurses spending their most of time in documentation (22.91%), bedside care (20.83%), medication (13.88%), monitoring (10.41%), health education (11.11%) and other activities (20.83%).

**Key words:** time and motion, nursing officer,

## Introduction

Today working within the complex healthcare environment, nurses need to provide care that is efficient and effective. The work of nurses is the multitasking and to understand multitasking nurses should know the aspects of patient care and other related work. As the largest workforce in the healthcare system, nurses can and must meet the demands for high quality, accessible and safe care, but faced with increasing cognitive and physical workloads, nurses are under significant pressure to allocate their time adroitly as they perform their recognized roles.

Working in the healthcare industry can be a challenging, but extremely rewarding career, becoming a registered nurse (RN) is one of the most common ways of breaking into the field. Nurses wear many hats on a daily basis in order to treat their patients. Nurses spending their time on lots of activities in their shift like talk to the patient and hear their concerns, then make a record of those concerns for the physician to see, evaluate patient health, both visually and by taking vitals, Nurses also spend a lot of time with records. During a shift change, they will read patient records and notes from the nursing team that was caring for the patient before them. They need to have a happy demeanor as they meet with and comfort patients. Paperwork is another important part of a nurse. When a patient is ready for discharge, a nurse helps with this process. This may include demonstrating how to change dressings or health education.

## Need for study

A study was conducted by **Abbey, Michael Peter**. On Understanding the Work of Intensive Care Nurses: a

A Time and Motion Study. The aim of this study was to describe and analyse ICU nurses' activities during the day shift. A non participant time and motion observation method was selected. The ten ICU nurses were observed for 76 hours 26 minutes. In total 3,081 activities were observed. The ICU nurses were observed performing two simultaneous activities for 43% of their time. The major work activity categories data indicated that the ICU nurses' time was divided up into direct nursing care activities (60.3%), indirect nursing activities (32%), personal activities (4.5%) and unit-related activities (3.2%). The schema of work activity findings

indicated that the ICU nurses' activities were predominantly 'routine' (94.2%), versus 'non-routine', requiring 'discretion' for 95.8% of their work activities. The 'discretion' category indicating the autonomy of the ICU nurse as they worked. In total, 95.6% of activities were 'not intense', and 41.2% of them required multiple activities ('multiplicity'). A total of 25.2% of the work activities that were 'complex' and 94.9% required nurses to use their knowledge as they worked ('accessibility'). This study identified that the ICU nurses spent approximately two thirds of their time involved in direct nursing care and almost a third of their time involved in indirect nursing care.<sup>(1)</sup>

A time and motion study was conducted by **Hendrich A, Chow MP, Skierczynski BA, Lu Z.** on A 36-hospital time and motion study: how do medical-surgical nurses spend their time. Total 36 medical-surgical units were invited and 767 nurses participated in this research. Results show that there were three subcategories accounted for most of nursing practice time: documentation (35.3%; 147.5 minutes), medication administration (17.2%; 72 minutes), and care coordination (20.6%; 86 minutes). Patient care activities accounted for 19.3% (81 minutes) of nursing practice time, and only 7.2% (31 minutes) of nursing practice time was considered to be used for patient assessment and reading of vital signs.<sup>(2)</sup>

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#### Hypothesis:

At the level of 0.005

- There is significance difference between work activities of ICU and general ward nurses.

#### Assumption:

- There is less time consumed to accomplish the procedure by ICU staff rather than general ward staff.
- Staff required less movement to provide care in ICU rather than general ward.

#### Delimitations:

- Study design limited to comparative research design.
- Nursing officer of day shift only.
- Nursing officer of Shri Swami Bhumanand hospital

#### Operational definition:

**Time and motion:** It is the evaluation the performance of nursing officer, analysis of the time spent in going through the different motions of a job or series of jobs.

**Intensive care unit:** a department of a hospital in which patients who are dangerously ill are kept under constant observation.

**General ward:** general ward is a common unit where patients who are admitted share the same room. The ward is equipped with health monitoring systems with one-to-one care assistance for patients as required.

#### REVIEW OF LITERATURE

A time-motion study was conducted by Mei L. L. Shin Y. A. A to measure and analysis clinical nursing workload in an acute care hospital in Singapore. Total sample was 18 registered nurses. Results show that the majority of registered nurse time spent on documentation (18%), medication administration (18%), patient care (12%), registered nurse also spent time (9%) on coordinating care, handover (9%), communication (9%), teaching junior staff (7%), rest (6%), making phone calls (6%), prepare and clear requisites (4%) and (2%) for other work. The registered nurse (in charge role) spent a lower proportion of time on patient care activities.<sup>(3)</sup>

A time and motion study was conducted by Ardhur R. Ardhia P. P. Arum P. A Time on Nursing Staff in Medical Unit a Hospital in Indonesia. Descriptive analytical method was used to conduct the research. Total 31 nurses were included in this study when applied nursing care to the 38 patients. Time calculation was done by stopwatch and recorded on paper containing a list of nursing actions. Result shows that most of the patients treated in the internal medicine room were dependent on intermediate care (86.6%). There were 30 types of direct nursing care actions that were carried out by the nurses. One of the nursing care actions is preparing diagnostic examinations that need the most average time was 21 minutes; on the other hand, the mean of shortest time is preparing oral medicine that need 1.5 minutes.<sup>(4)</sup>

A time motion study was conducted by Po-Yin Yen et. All. On Study to document nursing activities on communication, hands-on tasks, and locations and compared differences between different time blocks (7am-11am, 11am-3pm, and 3pm-7pm). Results found that nurses spent most of their time communicating with patients and in patient rooms. Nurses also spent most of their time charting and reviewing information in HER (electronic health record), mostly at the nursing station. Nurses' work was not distributed equally across a 12-hour shift. Researchers found that greater frequency and duration in hands-on tasks occurred between 7am-11am. In addition, nurses spent approximately 10% of their time on delegable and non-nursing activities, which could be used more effectively for patient care.<sup>(5)</sup>

A time and motion study was done by Meena. Stella. Nidagundi S. A on to study the activities of the staff nurses and the health centre auxiliaries in a secondary hospital for 46.5 hours and 32.5 hours respectively during their day shift work. The staff nurse spends 59.3% of their time in unit related activities. Staff nurses spent significant proportion of their time 11.12% of their time in non clinical activities, whereas the health centre auxiliaries spent 7.3% of their time in non clinical activities. The staff nurse were spending 17.6% of their time in documentation, admission procedure 13.9% and administration of medication 13.9%. Staff nurse

spent only 10.82% of their time in assessing the patients. Out of the total working hours 12.92% of the time spent by health centre auxiliaries was unproductive.<sup>(6)</sup>

A single-centre observational descriptive study was conducted by Olivia Michel. Alberto-Jose Garcia Manjon. Jerome Pasquier. Claudia Ortoleva Bucheron analysis of nursing activities in an internal medicine unit, total 21 health care workers during 46 complete work shifts included in this study. A total of 507.5 work hours were observed. Less than one third of registered nurses' work time was spent with patients. They allocated the most time to the dimensions of 'communication and care coordination' and 'care planning', whereas 'optimizing the quality and safety of care', 'integrating and supervising staff' and 'client education' were allocated the least time.<sup>(7)</sup>

A Time-Motion Study was conducted by Tang Z. Mazabob J. Weavind L. Thomas E. & Johnson T. R. on Registered Nurses' Workflow in Intensive Care Unit Remote Monitoring. Data were collected on seven nurses through 40 hours of observation. The results showed that nurses' essential tasks were centered on three themes: monitoring patients, maintaining patients' health records, and managing technology use. Nurses spent 46% of their time monitoring patients, 30% on maintaining patient records, 3% each on collaboration and technology-specific tasks, and the remaining 18% on miscellaneous tasks.<sup>(8)</sup>

## METHODOLOGY

**Research approach:** Quantitative research approach was adopted for this study.

**Research design:** Non experimental comparative research design

**Setting:** Study was conducted at Shri Swami Bhumanand Hospital Haridwar, Uttarakhand.

**Sample:** Nursing Officer working in ICU and general ward at Shri Swami Bhumanad Hospital

**Sample size:** Total 20 nursing officer was selected for the study, 10 from ICU and 10 from General ward nursing officer

**Sampling technique:** Non probability purposive sampling

**Data collection method:** data collection was done by the direct observation of nursing officer activities with the help of pen and paper. The timing was recorded by using the stopwatch.

**Instrument:**

**Tool 1:** Stop watch.

**Tool 2:** plain paper with pen

**Criteria for selection of sample:**

**Inclusion criteria:**

- Nursing officer working in ICU and general ward
- Who are willing to participate
- Both male and female nursing officer

**Exclusion criteria:**

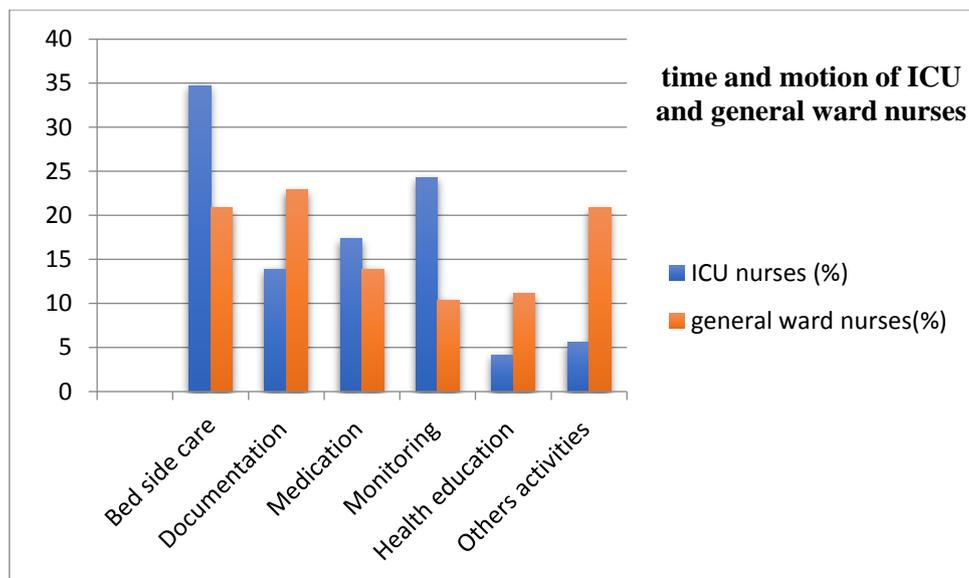
- Nursing officer who are not involve in direct and indirect patient care
- Nursing officer working other than ICU and general ward.

## RESULT

The study observed a total 144hr activity of ICU and general ward nursing officer, representing 12 working days including morning and evening shift. The activity was divided into 6 categories including bedside care which include all the procedures and nursing care, documentation, medication, monitoring, health education and other activities like admission and discharge procedure, transfer in and out, rest, doctors round etc.

**Table no.1 time and motion of ICU and general ward nurses**

s.no	Activities	ICU nurses (hours)	Percentage (%)	General ward nurses (hours)	Percentage (%)
1.	Bed side care	50	34.72	30	20.83
2.	Documentation	20	13.88	33	22.91
3.	Medication	25	17.36	20	13.88
4.	Monitoring	35	24.30	15	10.41
5.	Health education	6	4.16	16	11.11
6.	Other activities	8	5.55	30	20.83
<b>Total</b>		<b>144</b>	<b>100</b>	<b>144</b>	<b>100</b>



**Fig. No.1 time and motion of ICU and general ward nurses**

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#### Discussion

The ICU nursing officer were more involve in patient care as compare to general ward nursing officer and least time spent in other activities. Whereas in general ward the nursing officer spend more time in documentation then bed side care and other activities and least time spent in patient monitoring. The number of patient and the severity of illness also affect the time and motion of nurses in ICU and general ward.

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Informed consent: informed consent was obtained from all participating nurses

Ethical approval: ethical approval obtained from Shri Swami Bhumanad hospital and nursing college

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