

## Comparative study of SBAR- based handover evaluation from primary and associate nurses at the regional public hospital lakipadada Tana Toraja

Aris Payung<sup>1,2,\*</sup>, Blacius Dedi<sup>3</sup> and Rita Dewi Sunarno<sup>3</sup>

<sup>1</sup> Magister Program of Nursing Departement, Karya Husada College of Health Sciences Semarang, Indonesia.

<sup>2</sup> Nursing Diploma Program, Toraya Nursing Academy, Tana Toraja, South Sulawesi, Indonesia.

<sup>3</sup> Departement of Nursing, Karya Husada College of Health Sciences Semarang, Indonesia.

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### Abstract

Situation, Background, Assessment, Recommendation (SBAR) is one of the methods applied in implementing handover. This study aimed to evaluate SBAR- based handover by comparing its implementation between the primary and associate nurses at the inpatient hospital room Lakipadada. The research design used analytic observational. One hundred and one nurses involved in the sample were chosen using the random cluster technique. The research instrument used an observational sheet. The comparison test results showed there was one dimension of handover implementation that was not significantly different between the associate and the primary nurses, which was at the dimension assessment ( $p>0.05$ ). It was evidenced by a nearly similar observational mean between the group of nurses, 11.83 for associates and 11.98 for primary nurses. Meanwhile, other dimensions (situation, background, recommendation) and the handover implementation showed a significant difference between associate and primary nurses ( $p>0.05$ ). It was supported by the mean value of observation results in which primary nurses were higher than associate nurses. Therefore, it can be interpreted that the implementation of SBAR- based handover evaluation by primary nurses is better than that of associate nurses. However, the nursing fields still entail optimizing supervision activities, monitoring the implementation of SBAR- based handover, and scheduling effective communication training that could facilitate all nurses.

**Keywords:** Handover; SBAR; Primary Nurses; Associate Nurses

### 1. Introduction

The nursing care quality embarks from the handover implementation because 80% is the cause of medical error problems in the hospital [1]. The handover is effective communication between nurses during shift changes to convey some information, including questions, clarifications, and confirmation of the patient's clinical condition, needs, as well as personal and social circumstances [2–4]. SBAR (Situation, Background, Assessment, Recommendation) is the most popular method to document the handover process. The situation includes a concise statement of the patient, while the background depicts the pertinent and brief information related to the patient's situation. Assessment is the test of patients' current condition. Finally, recommendations are the nursing interventions that should refer to the situation, background, and assessment data.

Some studies have found that 45% of hospitalized patients have experienced medical mismanagement in drug distribution, and about 17% require a longer length of stay or encounter serious side effects. This is because the handover between shifts is unclear, and there is no validation of patients' data or lack of communication, which poses a threat to patient safety and care quality [5, 6]. Patient safety is a fundamental principle that symbolizes the right of each patient to health services [7] and it is an indicator to measure nursing quality services [8]. According to the Hospital

\* Corresponding author: Aris Payung

Master student of the Nursing program, Karya Husada University Semarang, Central Java, Indonesia.

Accreditation Commission [9] hospital orientation assessment is based on patient safety services centered. The patient safety (SKP) at point 2.2 in the National Hospital Accreditation Standard [10] states that hospitals should implement "handover" communication. The communication will be effective if the implementation concentrates on timeliness, accuracy, and completeness of the information and can be accepted by the recipient to reduce intervention errors [10].

The implementation of handover in Indonesia is inadequate. The condition can be seen in various studies in some hospitals, which show there are still inadequate handover implementations of 46.8% in Sidawangi Lung Hospital, West Java province [8], 46.2% of handover implementation is classified as poor in Sukoharjo Hospital [11] 65% of the implementation handover at the Jambi Regional Hospital is still a poor category. Nadifah et al [12] stated that 66% of sentinel events reported were caused by communication issues, particularly lack of communication during the handover (45%). Handover that is not done correctly will negatively affect nursing services and patient safety [13]. Widyaswana et al [14] argued that the pros and cons of handover are supported by the existence of Standard Operating Procedures (SOP). The SOPs should reflect 4W+1H (What, Who, When, Where, How); hence they can lead to continuity in providing precise and accurate information about patients' conditions and the provided treatment process.

The implementation of handover requires effective communication improvement to enhance the International Patient Safety Goals (SIKP) [1]. The recording of communication received in SBAR form is documented by primary and associate nurses in the changing shift. A qualified primary nurse is a clinical nurse specialist with a master's degree qualification. A primary nurse is responsible for making decisions related to patient care [15] while an associate nurse is an authorized and assigned nurse providing care to patients with responsibility, noticing to balance the physical, mental, and spiritual needs of patients, preparing the patient physically and mentally to face treatment and cure, diagnostics, and reporting everything related to the patients' condition both verbal and written forms. Ironically, less than half of the nurses did the handover with good SBAR communication. At the same time, some nurses implement handover with an excellent level of SBAR communication [16]. SBAR communication implementation, which is still lacking during the handover, is possible because of the workload. Thus, nurses are tired, and the communication is also not optimal.

Handover implementation is determined by many factors, such as head of nurses' leadership, peer support, and resource availability [11, 17, 18]. Head of nurses' leadership in the handover implementation has a critical role. Thereby, the better leadership skills, the better process of handover implementation will be [11]. When participating in the handover, adequate information from nurses is required to make information delivery more accurate and clear hence the responsibilities and duties of each nurse can be carried out correctly. Istiningtyas (2016) opined that all infrastructure and facilities are beneficial for handover implementation, and there is a significant relationship between resources and handover implementation.

The preliminary study results at the Lakipadada Hospital, through interviews with the Head Service and Nurse Practitioner Division, revealed that a team conducted effective communication training for nurses from Hasanuddin University, Makassar. The communication training is connected to nurse communication between shifts and communication documentation in the SBAR form. However, its implementation has not been as expected. In every shift change, it was found from the observation that the nurses will refer the patients based on the nurses' records, but not all of them are documented uniformly, and some do not write completely. In addition to notes in medical record files with the SBAR method, the nurses also have a log book and personal medical notes to write important things related to the intervention plan, care continuity, and patient treatment. This record is one of the adequate supporting resources in the handover implementation. The situation underlies the researchers to evaluate the SBAR-based handover by comparing handover implementation from primary and associate nurses in the inpatient room at the Regional Public Hospital Lakipadada Tana Toraja.

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## 2. Material and methods

### 2.1 Research design

The research design was analytic observational using a cross-sectional approach. It is an approach used to observe and measure research variables simultaneously.

#### 2.1.1 Population

The research population was all nurses assigned in the inpatient room at the Regional Public Hospital Lakipadada Tana Toraja, with a total of 124 nurses consisting of 18 primary and 106 associate nurses.

### 2.1.2 *Sample*

The sample was calculated using software sample size determination in the health study. The size was 18 for primary nurses and 83 for associate nurses. The sampling technique used probability, namely cluster random sampling. It was used to obtain a proportional size of samples required for each room in the hospital with the following sample criteria: 1) Primary nurses or team leader with nurses' educational profession, 2) associate nurses with a minimum of 2 years of experience, 3) Men and women, 4) working in an inpatient room, 5) having nurses' registration certificate.

## 2.2 **Data collection**

The collection data tool in this study utilized an observational sheet for handover implementation, which was a development of the SNARS on SBAR- effective communication at the hospital.

### 2.2.1 *Instrument validity*

The instrument was designed about the aspects observed by referring to the effective communication theory, especially handover. The observation sheets that have been compiled were validated using experts test involving practitioners, Head Nurse Division, and Head Nurse Section at the Regional Public Hospital LakiPadada Tana Toraja. The expert test results suggested improvements in some SBAR sub-dimension in the observation sheet. After revising and consulting, the instruments were all valid.

### 2.2.2 *Data collection procedure*

The data collection process was carried out through direct observation and a checklist to witness the handover implementation performed by nurses based on the statement on the observation sheet. Through observation, the researchers gave a check mark (V) in the available column with a score of 3 for an appropriate choice, slightly inappropriate with a score of 2, and inappropriate with 1 score. The results were then summed and tabulated.

## 2.3 **Data analysis**

Data analysis was conducted using SPSS v.26 software which consisted of univariate analysis by displaying the distribution of frequency, proportion, ratio, the measure of tendency (mean, median), and the size variation of data characteristics and the research variables. Bivariate analysis was applied to compare the SBAR- based handover between primary and associate nurses using the Mann-Whitney statistical test.

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## 3. **Results and discussion**

The study was conducted on 18 primary and 83 associate nurses for 3 weeks, from 25th July to 13th August 2022. Primary and associate nurses as the sample in this study performed as the nurse practitioners. Primary nurses were assigned as team leaders, while associate nurses performed as nurse practitioners. Primary and associate nurses provided direct patient care and shared similar roles in the handover implementation. The educational level was mainly professional nurses and had the most work experience, around 11-15 years. They have acquired effective communication training related to the handover of the SBAR method.

### 3.1 **Univariate analysis**

The research results will be presented in this chapter, including univariate analysis, bivariate analysis, and discussion with the presentation as follows:

#### 3.1.1 *Nurse characteristics*

Table 1 shows that most nurses had obtained professional nurse program (87.1%) with the most length of employment 11-15 years (47.5%).

**Table 1** Nurse characteristics frequency distribution at the Regional Public Hospital LakiPadada Tana Toraja

Characteristics	Associate nurses = 83 n (%)	Primary nurses = 18 n (%)	Total = 101 n (%)
<b>Education</b>			
Diploma III	13 (15.7)	0 (0.0)	13 (12.9)
Professional nurse program	70 (84.3)	18 (100.0)	88 (87.1)
<b>Length of employment</b>			
0-5 year	7 (8.4)	0 (0.0)	7 (6.9)
6-10 years	24 (28.9)	2 (11.1)	26 (25.7)
11-15 years	38 (45.8)	10 (55.6)	48 (47.5)
16-20 years	11 (13.3)	3 (16.7)	14 (13.9)
>20 years	3 (3.6)	3 (16.7)	6 (5.9)

3.1.2 SBAR- based handover implementation by primary and associate nurses

**Table 2** The distribution of the SBAR- based handover implementation by primary and associate nurses based on their responses at the Regional Public Hospital LakiPadada Tana Toraja

No	Questions	Primary nurses (n=18)			Associate nurses (n=83)		
		D	SD	A	D	SD	A
<b>Situation (S)</b>		<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>18 (100)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>83 (100)</b>
1	The nurse explains the patient's identity by stating at least 2 (e.g., name and date of birth) when reporting the patient's condition.	0 (0.0)	4 (22.2)	14 (77.8)	0 (0.0)	38 (45.8)	45 (54.2)
2	The nurse states the patient's entry room date and the day of the stay.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	38 (45.8)	45 (54.2)
3	The nurse mentioned the assigned doctor that cares for patients	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	1 (1.2)	82 (98.8)
4	The nurse mentions the patient's current medical diagnosis	0 (0.0)	0 (0.0)	18 (100)	6 (7.2)	0 (0.0)	77 (92.8)
5	The nurse mentions objective data supporting the patients' current condition	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	22 (26.5)	61 (73.5)
6	The nurse mentions the complaints encountered by patients regarding patient's current illness (subjective data)	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	2 (2.4)	81 (97.6)
7	The nurse mentions nursing interventions that have been applied and those that have not been resolved.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	4 (4.8)	79 (95.2)
8	The nurse approaches the patient and clarifies the patient's current condition.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	1 (1.2)	82 (98.8)
9	The nurse reports a history supporting the current problem (medication, treatment, and recent test) concisely and clearly.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	5 (6.0)	78 (94.0)
<b>Background (B)</b>		<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>18 (100)</b>	<b>0 (0.0)</b>	<b>1 (1.2)</b>	<b>82 (98.8)</b>

10	The nurse conveys the therapy given, including its changes.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	0 (0.0)	83 (100.0)
11	The nurse explains the intervention given to the patients.	0 (0.0)	1 (5.6)	17 (94.4)	4 (4.8)	13 (15.7)	66 (79.5)
12	The nurse mentions the patient's clinical data, such as vital signs and the pain scale.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	8 (9.6)	75 (90.4)
13	The nurse explains the use of equipment in patients, such as infusion and urinary catheters.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	15 (18.1)	68 (81.9)
14	The nurse explains the drug used in patients, such as the type and administration method.	0 (0.0)	0 (0.0)	18 (100)	4 (4.8)	14 (16.9)	65 (78.3)
15	The nurse mentions allergies and medical history	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	12 (14.5)	71 (85.5)
<b>Assessment (A)</b>		<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>18 (100)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>83 (100)</b>
16	The nurse explains the patient's current problems and complaints.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	2 (2.4)	81 (97.6)
17	The nurse briefly and clearly reports the medical record supporting the current problem, such as medication, intervention, and other tests.	0 (0.0)	2 (11.1)	16 (88.9)	1 (1.2)	6 (7.2)	76 (91.6)
18	The nurse conveys the patient's current condition: improving or deteriorating	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	0 (0.0)	83 (100)
19	The nurse concludes the patient's current condition.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	4 (4.8)	79 (95.2)
<b>Recommendation (R)</b>		<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>18 (100)</b>	<b>0 (0.0)</b>	<b>1 (1.2)</b>	<b>82 (98.8)</b>
20	The nurse states suggestions/solutions for further intervention to overcome the problems	0 (0.0)	0 (0.0)	18 (100)	14 (16.9)	31 (38.6)	37 (44.6)
21	The nurse explains the following care plan to the patients.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	1 (1.2)	82 (98.8)
22	The nurse writes and conveys orders or messages from the assigned doctor.	0 (0.0)	0 (0.0)	18 (100)	1 (1.2)	4 (4.8)	78 (94.0)
23	The nurse conveys whether any interventions will be changed or modified.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	1 (1.2)	82 (98.8)
24	The nurse presents a collaborative intervention plan.	0 (0.0)	0 (0.0)	18 (100)	0 (0.0)	3 (3.6)	80 (96.4)
25	The nurse who implements handover checks the patient's medical record.	0 (0.0)	1 (5.6)	17 (94.4)	1 (1.2)	22 (26.5)	60 (72.3)
<b>Handover implementation</b>		<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>18 (100)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>83 (100)</b>

Table 2 shows that most items in the SBAR dimension have been appropriately conducted (completed, focused, clear, and concise), but some are slightly inappropriate. From the highest percentage, 3 items that are inappropriate consisting of

- 41.6% of nurses are slightly inappropriate in explaining a patient's identity by mentioning at least name and date of birth when reporting a patient's condition;
- 2) 37.6% of nurses are slightly inappropriate in mentioning patient's entry room date and the day of stay;
- 3) 31.7% of nurses are slightly inappropriate in conveying suggestions/solutions for further intervention to overcome the occurred problem.

The observation results were based on the SBAR implementation dimension, and it can be seen that all nurses (100%) have undertaken the handover implementation following the 2 dimensions, namely situation and assessment. Additionally, most nurses have performed handover implementation according to background and recommendation dimension, which is 99%. Mainly, the handover has been implemented, but some items have not been technically accomplished, which leads to an un conveyed patient's condition. The condition was affected by the communication skills and ability of the nurses. The training has been conducted but has not covered all nurses, and the human resources education of nurses has not been evenly distributed. Some nurses still require earning a professional nurse program. Furthermore, evaluation supervision and monitoring of handover implementation entailed to be conducted on schedule and continuous because this has not been optimally implemented at the Regional Public Hospital Lakipadada Tana Toraja.

The handover by nurses using the SBAR method at the Lakipadada hospital has been implemented well according to the theory in which the nurses briefly convey adequate information about patients' conditions to the next assigned nurses. Nurses' knowledge also affects the handover implementation. The result is in line with Ayuni et al.'s findings, which state that knowledge significantly correlates with handover implementation. It can be implemented well if supported by many factors such as good knowledge and nurses' perceptions about handover, improving human resources quality through training, the availability of necessary facilities and infrastructure, continuous supervision, monitoring, and evaluation. The availability of internal regulations related to handover at the Lakipadada is also expected to ensure that the implementation could administer well. Thus, nursing service quality can be enhanced to ensure hospitalized patients' safety.

Observation results show that the handover activity at the Lakipadada hospital should be optimally implemented with support from the leader to enhance nurses' knowledge and ability through training and providing necessary facilities and infrastructure. Moreover, human resources of nurses earned from professional nursing education and adequate working experience affect handover implementation. Support from colleagues such as the head nurses and team leader encourages nurse practitioners to participate in the handover activities. A conducive working atmosphere also supports nurses' proper handover implementation.

### 3.2 Bivariate Analysis

A different test was applied to analyze the comparison of handover implementation between nurses. After noticing the total score of data was not normally distributed, the Mann-Whitney test was chosen to analyze the difference between the associate and primary nurses in handover implementation. The results are presented in the following table:

**Table 3** Differences in the SBAR- based handover implementation between associate and primary nurses at Regional Public Hospital Lakipadada Tana Toraja.

No	Handover implementation dimension	Nurses	Mean±SD	Mean Rank	p-value*
1	Situation	Associate	25.5±1.27	45.75	0.001
		Primary	26.7±0.42	75.22	
2	Background	Associate	17.1±1.07	46.69	0.001
		Primary	17.9±0.23	71.81	
3	Assesment	Associate	11.8±0.43	50.67	0.689
		Primary	11.9±0.32	52.60	
4	Recommendation	Associate	16.8±1.09	45.57	0.001
		Primary	17.9±0.23	76.06	
	Handover implementation	Associate	71.3±2.68	43.78	0.001
		Primer	74.5±0.61	84.28	

\* Mann-whitney test

Table 3 shows that from 4 dimensions of the SBAR-based handover method, one dimension does not show a significant difference, namely the assessment dimension where p-value = 0.689. Meanwhile, the other 3 dimensions, situation, background, and recommendation, show significant differences where the p-value = 0.001. There is a difference in SBAR- based handover implementation between primary and associate nurses. Based on characteristics data, primary

and associate nurses should not have different abilities in handover implementation as most are previously attended professional nurse education and have 11-15 years average length of employment.

Patient safety is the most fundamental health service indicator for measuring and assessing service quality. One critical point regarding patient safety in inpatient services is the nurses' handover between shifts. Patient safety is a fundamental principle that symbolizes the right of each patient to health services [7] and is an indicator in measuring and assessing nursing service quality [8]. According to Rahayu et al. [20], handover training using the SBAR method aims to train nurses in enhancing the implementation of intervention based on standard operating procedures. Hence, it facilitates nursing care services and improves patient safety. Through SBAR method implementation in the offered shift, nurses can learn together and apprehend and improve communication in patient handover reporting and teamwork.

Relevant research results published by Nurlina [21] show an effect of handover training on nurses' compliance with the SBAR method implementation. The finding is aligned with the research results at the Lakipadada hospital, where the primary nurses were more compatible with the standard because they all admitted practical communication training. The research result conducted by Franisha et al. [22] at Banjarmasin Islamic hospital found that a relationship between supervision carried out by the head nurses with nurses' compliance handover had a significant effect. The results are aligned with the situation in the Lakipadada hospital, where the associate nurses play a role in implementing handover from the afternoon to the night services. The head nurses and team leader are not present. Hence, the head nurses role in supervising and advising is not working. Mairestika et al. [23] conducted a study at Idaman Hospital, Banjarbaru city, and obtained the results that there was a significant relationship between handover implementation and supervision ( $p=0.023$ ).

The difference in ability in the SBAR- based handover implementation between primary and associate nurses at Lakipadada is aligned with the theory presented by Rahayu et al. [20], that handover training aims to train nurses performing work based on a Standard Operating System. Primary nurses at the Lakipadada hospital have acquired training, while not all associate nurses have the opportunity to attend it. Additionally, some associate nurses only had diploma III nursing education. Hence, in terms of knowledge, not all of them share similar performance in handover implementation. The results align with the research conducted at Regional Hospital in Pariaman By Ayuni et al. [24] menemukan bahwa ada hubungan yang signifikan antara pengetahuan yang dimiliki oleh perawat dengan pelaksanaan timbang terima. Pelaksanaan supervise yang teratur pada saat dinas pagi di RSUD Lakipadada juga turut memberi kontribusi yang positif terhadap pelaksanaan timbang terima yang dilakukan pada dinas pagi, hal ini sejalan dengan penelitian yang juga dilakukan oleh Mairestika et al [23] which found a significant relationship between nurses' knowledge and handover implementation. Regular supervision during morning services at the Lakipadada hospital also positively contributed to the handover implementation. The results are supported by Mairestika et al. [23], showing a significant relationship between supervision and handover implementation. The significant difference in these three dimensions is determined by associate nurses' educational level and the opportunity to obtain effective communication training.

Information from the head nurses and the nurses in the inpatient room identified that the Head of the Nursing Division conducts supervision, and the direction the head nurses gave had an impact on nurses' compliance in handover implementation. The knowledge gained from training also assists nurses in handover implementation. The training is expected to facilitate all nurses and be sustainable. Thus, nurses share a similar understanding and perception regarding handover implementation. The handover implementation during the shifting service is usually led by primary nurses, especially during the morning service handover to the afternoon service. The head nurses attend handover activities for nurses in the morning and afternoon. Meanwhile, from afternoon service to the night service is only carried out by associate nurses as the assigned nurses of the shift without the team leader and head nurses.

Based on the observations and discussions results with nurses, we argue that the difference in handover implementation between primary and associate nurses is influenced by several factors, including associate nurses' educational level, where there are 15.7% only obtained diploma III of nursing, not all associate nurses had the opportunity to gain training. Thus, they did not fully apprehend the SBAR- based handover method.

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#### 4. Conclusion

It can be concluded from the evaluation that the SBAR- based handover implementation by primary nurses showed good value means handover implementation was implemented well. Meanwhile, the associate nurses did not perform well in implementing handover based on the SBAR dimension. It showed a significant difference in the handover implementation based on the SBAR method by primary and associate nurses. It is expected that hospitals can further

strengthen the implementation of SBAR- based handover through specific regulations and guidelines as a basis for enhancing patient safety and indicators for evaluating nursing services.

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## Compliance with ethical standards

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### *Conflict of interest statement*

The authors have no conflicts of interest to declare.

### *Statement of ethical approval*

The present research work does not contain any studies performed on animals/humans subjects by any of the authors.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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