

Implementation of SBAR and EMR-Based Bedside Handover to Improve Service Quality and Patient Safety

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ABSTRACT

Background: Patient safety and service quality are strongly influenced by effective nurse-to-nurse communication during handover. SBAR-based bedside handover integrated with Electronic Medical Records (EMR) is expected to enhance communication effectiveness and documentation. Objective: To evaluate the effectiveness of SBAR-EMR-based bedside handover on nurse compliance, perception of communication, and completeness of EMR documentation. Methods: A quasi-experimental two-group pretest-posttest design was applied. A total of 157 nurses were recruited using proportional stratified random sampling, divided into intervention (n=78) and control (n=79) groups. The intervention included SBAR training, EMR template implementation, and 8 weeks of supervision. Data were collected using observation checklists, perception questionnaires, and EMR audits. Analysis used the Wilcoxon Signed-Rank Test. Results: SBAR-EMR implementation significantly improved handover compliance ($p<0.001$), nurse perception ($p<0.001$), and EMR completeness ($p<0.001$). Real-time EMR input increased to 73.2%. Conclusion: SBAR-based bedside handover integrated with EMR effectively enhances communication quality, nurse perception, and clinical documentation, supporting patient safety culture. Keywords: Bedside handover, SBAR, EMR, clinical communication, patient safety, quality of care

ABSTRAK

Latar Belakang: Mutu pelayanan dan keselamatan pasien sangat dipengaruhi oleh komunikasi antar perawat pada saat handover. Bedside handover dengan kerangka SBAR (Situation, Background, Assessment, Recommendation) yang terintegrasi dengan Electronic Medical Record (EMR) diharapkan mampu meningkatkan efektivitas komunikasi klinis. Tujuan: Menilai efektivitas implementasi bedside handover berbasis SBAR-EMR terhadap kepatuhan perawat, persepsi komunikasi, dan kelengkapan dokumentasi di sebuah rumah sakit di Pekanbaru. Metode: Penelitian quasi-eksperimen dengan desain two group pretest-posttest. Sampel sebanyak 157 perawat dipilih menggunakan proportional stratified random sampling, dibagi menjadi kelompok intervensi (n=78) dan kontrol (n=79). Intervensi berupa pelatihan SBAR, penerapan template digital SBAR di EMR, dan supervisi selama 8 minggu. Data dikumpulkan melalui observasi, kuesioner, dan audit EMR. Analisis menggunakan uji Wilcoxon. Hasil: Implementasi SBAR-EMR meningkatkan kepatuhan handover ($p<0,001$), persepsi komunikasi klinis ($p<0,001$), dan kelengkapan dokumentasi EMR ($p<0,001$). Input real-time EMR meningkat menjadi 73,2%. Kesimpulan: Bedside handover berbasis SBAR yang diintegrasikan dengan EMR terbukti efektif meningkatkan kualitas komunikasi antar perawat, persepsi positif, dan dokumentasi klinis. Intervensi ini memperkuat budaya keselamatan pasien dan dapat diadaptasi pada rumah sakit lain.

Kata Kunci: Bedside handover, SBAR, EMR, komunikasi klinis, keselamatan pasien, mutu pelayanan

INTRODUCTION

Background

Patient safety is a fundamental pillar of hospital service quality. The World Health Organization (WHO) reports that more than 60% of adverse events

in hospitals are related to communication failures, particularly during handovers or shift changes. In Indonesia, data from the Ministry of Health also indicate that miscommunication among healthcare workers is the dominant cause of patient safety incidents. These findings highlight that the quality of nurse communication during handovers plays a critical role in preventing medical errors and ensuring patient safety.

The bedside handover model is considered more effective than traditional methods as it allows direct interaction between nurses, patients, and families. By involving patients and families in the exchange of information, bedside handover fosters transparency, builds trust, and enhances patient understanding of care plans. Several national and international studies have demonstrated that bedside handover improves information accuracy and reduces the risk of incidents caused by miscommunication (Mulidan et al., 2024).

To ensure a more structured communication process, the use of the SBAR (Situation, Background, Assessment, Recommendation) framework has been widely recommended. SBAR enables nurses to convey critical information concisely, systematically, and clearly. Previous studies have reported that the implementation of SBAR not only improves the quality of clinical communication but also accelerates decision-making and strengthens interprofessional collaboration (Atik et al., 2022; Rahmatulloh, 2022). Therefore, SBAR-based bedside handover can serve as an effective strategy to improve nursing service quality.

In addition to verbal communication, information continuity also depends on accurate written documentation. The integration of SBAR into electronic medical records (EMR) allows patient data to be recorded in real time, comprehensively, and easily accessible to the entire healthcare team. However, the implementation of SBAR-EMR in hospitals still faces challenges such as time constraints, high workload, and limited training and supervision (Araujo et al., 2022; Atik et al., 2022).

Most previous studies in Indonesia have primarily assessed the effectiveness of SBAR in verbal communication without integration into digital systems. Yet, real-time documentation through EMR is essential to maintain the continuity of information among healthcare teams. International studies have shown that combining SBAR with EMR improves documentation quality and reduces the risk of clinical errors, but evidence in the Indonesian hospital context remains limited.

Therefore, this study offers novelty by examining the implementation of SBAR-based bedside handover integrated directly into EMR using a quasi-experimental design. This approach provides empirical insights into its effectiveness in enhancing nursing communication quality and patient safety within Indonesian healthcare settings.

Based on these considerations, this research was conducted to evaluate the effectiveness of SBAR-EMR-based bedside handover in improving nurse communication quality and patient safety in hospitals.

METHODS

This study employed a quasi-experimental design with a two-group pretest–posttest approach (Polit & Beck, 2021). The research was conducted at Eka Hospital Pekanbaru from May to June 2025. The study population consisted of 270 nurses, from which 157 respondents were recruited based on inclusion criteria. Participants were assigned into an intervention group (n=78) and a control group (n=79). The instruments used included: SBAR compliance observation checklist with 15 items. Nurses' communication perception questionnaire, consisting of 25 items on a Likert scale. EMR documentation audit form with 10 items. The intervention group received SBAR training, implementation of an SBAR template in the EMR system, and ongoing supervision by the head nurse for eight weeks (Damayanti et al., 2021). Data analysis was performed using the Wilcoxon Signed-Rank Test, with a significance level set at $p < 0.05$.

RESULTS

The study generated data on respondents' characteristics, nurse compliance in handovers, clinical communication perception, EMR documentation completeness, and EMR input time. A total of 157 nurses participated, divided into the intervention group (n=78) and control group (n=79). Comparative analyses were conducted between pre-intervention and post-intervention phases for both groups. Overall, the findings revealed a significant improvement following the implementation of SBAR-EMR-based bedside handovers.

1. Respondents' Characteristics

Most respondents were aged 31–40 years (50.3%), female (93.6%), held a Bachelor of Nursing degree (82.2%), and had more than 10 years of work

experience (45.2%). Details of respondents' characteristics are presented in the following table:

Table 1. Characteristics of Respondents (n=157)

KCharacteristic	Category	n	%
Age	20–30 Year	58	36,9
	31–40 Year	79	50,3
	>41-50 Year	19	12,1
	>50 Year	1	0,6
Gender	Female	147	93,6
	Male	10	6,4
Education	D3	28	17,8
	S1	129	82,2
Works Experience	<5 tahun	19	12,1
	5-10 Tahun	67	42,7
	>10 tahun	71	45,2

2. Pre- and Post-Intervention Outcome

The implementation of SBAR-EMR-based bedside handovers demonstrated improvements across all key variables.

Table 2. Changes in Compliance, Communication Perception, and EMR Documentation Before and After the Intervention

Variabel	Pre Interventio n	Pre Interventio n	p-value
High handover compliance	5,7%	33,8%	<0,001
Positive Communication Perception	4,5%	33,1%	<0,001
Complete Documentation	8,3%	36,9%	<0,001
Real-Time EMR Input	52,4%	73,2%	<0,001

3. Statistical Test Results

Since the data were not normally distributed ($p < 0.05$ on both Kolmogorov–Smirnov and Shapiro–Wilk tests), inferential analysis was performed using the Wilcoxon Signed-Rank Test. The results revealed significant differences between pre- and post-intervention scores across all variables.

Table 3. Wilcoxon Test Results Pre and Post Intervention

Variable	Z Value	p-value (Asymp. Sig. 2-tailed)	Interpretation
Observation Score	-6,741	0,000	Signifikan ($p < 0,001$)
Perception Score	-6,389	0,000	Signifikan ($p < 0,001$)
EMR Audit	-6,631	0,000	Signifikan ($p < 0,001$)

These results demonstrate that the implementation of SBAR-EMR-based bedside handovers significantly enhanced nurses' compliance in handover practices, clinical communication perception, and the completeness of EMR documentation. In addition, the proportion of real-time EMR input increased from 52.4% to 73.2%, underscoring the effectiveness of the intervention in promoting greater discipline in clinical documentation.

DISCUSSION

1. Compliance with Handover

The findings of this study indicate a significant improvement in handover compliance after the implementation of SBAR. The structured communication framework facilitated nurses in conveying essential information, thereby minimizing the risk of miscommunication. This result is consistent with studies by Elvi Zuhriyatul Wachidah et al. (2022) and Rahmatulloh (2022), which reported that SBAR improves clinical communication accuracy and enhances nurses' compliance in conducting handovers.

2. Nurses Perceptions

Nurses' perceptions of clinical communication also improved after the intervention. This improvement was influenced by nurses' involvement in training, systematic application of SBAR, and regular supervision by the head nurse. These findings are in line with Damayanti (2021), who emphasized that supervision plays a vital role in enhancing nurses' compliance and the quality of SBAR implementation in clinical practice.

3. EMR Documentations

The integration of SBAR into the EMR system improved the completeness of documentation and facilitated real-time input. This strengthened continuity of patient information, reduced the risk of data loss, and supported a safety culture. Sumail et al. (2022) also confirmed that EMR integration significantly improves the quality of nursing documentation and enhances accountability in clinical recording.

4. Real-time EMR Input

The increase in real-time EMR input from 52.4% to 73.2% demonstrates that the integration of SBAR into digital systems made it easier for nurses to record patient information promptly. Real-time documentation is essential to ensure continuity of information, particularly during shift changes or emergencies. This finding supports studies by Bardah et al. (2021) and Husna Sibarani et al. (2023), which highlighted that the use of EMR integrated with standardized communication improves efficiency in documentation and reinforces patient safety. Therefore, real-time EMR entry not only enhances the quality of documentation but also strengthens the culture of safety in hospitals.

CONCLUSION

This study concludes that the implementation of SBAR-based bedside handover integrated with EMR is effective in improving nurses' compliance, clinical communication perceptions, and the completeness of EMR documentation. This method can be recommended as a strategic approach to improve service quality and patient safety in hospitals.

As a follow-up, hospitals are encouraged to adopt SBAR-EMR-based bedside handover as part of their **Standard Operating Procedures (SOPs)** and to develop continuous training programs for nurses. Periodic evaluations are necessary to ensure compliance and to identify potential challenges in practice. Furthermore, future research with multi-center designs or longer intervention periods may provide stronger evidence regarding sustainability and long-term impacts on service quality and patient safety.

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