

Analysis of Handoff Communication Using SBAR (Situation, Background, Assessment, Recommendation) in Emergency Department and Intensive Care Unit: A Scoping Review

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SCOPING REVIEW

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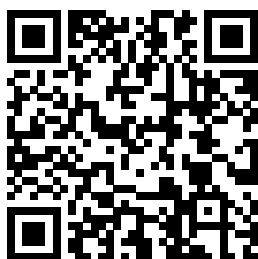
ABSTRACT

Communication between health workers is crucial in providing nursing care and improving patient safety. Communication problems can cause incidents that lead to disability or death. This study aimed to identify the implementation of handoff communication using sbar in the emergency department and intensive care unit. This review used a scoping review design that uses the Arksey and O'Malley framework. Article searches through two databases, namely Sciencedirect and Pubmed, and the search engine, Google Scholar. The keywords used were "Health workers or Healthcare professionals AND SBAR implementation or SBAR or Handoff Communication AND Emergency rooms or Emergency departments AND Intensive Care Unit". There were nine articles that fulfilled the inclusion criteria and were analyzed in this study. The results of the review showed that the description of the implementation of handoff or SBAR communication, studies showed variations in the effectiveness of its implementation in various countries and health settings. There are several factors that influence the implementation of SBAR and the implementation of handoff, namely work experience, attitudes, knowledge, and formal training. Implementation of handoff communication and SBAR still shows substantial challenges, both in terms of effectiveness and quality. Although SBAR has been widely recognized as an effective tool to improve communication, its implementation is uneven across countries and health settings. SBAR implementation is often disrupted by factors such as external interference, lack of training, or incomplete information conveyed during the handover process, which ultimately affects patient safety.

Key Messages:

- SBAR in ED and ICU is effective but not optimally implemented.
- Several factors that influence the implementation of SBAR and the implementation of handoff, namely work experience, attitudes, knowledge, and formal training

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GRAPHICAL ABSTRACT

Overview of Handoff Communication Using SBAR in Emergency Department and Intensive Care Unit: A Scoping Review

Communication between healthcare workers in the ED and ICU is crucial for patient safety. Although SBAR has been shown to be helpful, its practice still faces many obstacles. This study is important to understand the obstacles and strategies for improving SBAR implementation.



SBAR Communication

- SBAR implementation is not consistent in the ED and ICU.
- Training, experience, and attitudes of health workers affect its effectiveness.
- Disruptions during handover and inadequate documentation are major obstacles.



Health Professional

A review of 9 studies showed that SBAR is effective but not optimally implemented. Results vary depending on training, experience, and working conditions. Regular training and system support such as electronic medical records are needed to strengthen SBAR implementation.

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INTRODUCTION

Handoff communication is a crucial aspect in the medical world, especially in the Emergency Department (ER) and Intensive Care Unit (ICU). In this context, handoff serves as a critical point where information about a patient is transferred from one healthcare provider to another. An effective process can prevent medical errors, reduce treatment time, and improve patient safety (1). However, misunderstanding and ambiguity in communication can result in serious consequences for the patient. (2).

In the ED and ICU, the often urgent situations and high time pressure present challenges in ensuring effective communication (3). Previous studies have reported that factors such as lack of time, stress, and chaotic environments can contribute to errors in handoff communication (4). In this context, it is important to create a standardized communication system to improve the accuracy and efficiency of the information conveyed.

One important aspect of handoff communication is the use of tools and technology that can support the process. Tools such as checklists and electronic systems for sharing information can help reduce errors and ensure that all important aspects are communicated properly (5,6). In addition, training and education for healthcare workers regarding best practices in handoff can also improve the quality of communication and patient care outcomes (5). The SBAR method is a standard communication system used to communicate information about patient management in a structured manner (7). The steps in SBAR include: Situation, Background, Assessment, and Recommendation. This method is designed to improve the quality of communication between health workers, both in direct verbal communication and over the phone. The use of SBAR has been applied in a variety of situations, including communication between nurses and doctors, consultations between doctors, and changing of shifts (8).

Implementation of structured communication methods, such as SBAR, can improve the quality of handoff in the ED and ICU (3,9). This method allows healthcare providers to convey information in a consistent and systematic manner, reducing the likelihood of misinformation that could harm patients. However, despite the variety of methods and tools available, substantial challenges remain related to organizational culture and individual attitudes in the handoff process. Research shows that effective communication depends not only on the tools used, but also on the interpersonal relationships between members of the medical team (2,9). Therefore, building a culture of open and collaborative communication among health workers is very important.

However, even though SBAR has been proven effective, there are still challenges in its implementation. One of the main challenges is the lack of knowledge and understanding of this method

among health workers (10). In addition, differences in training and experience among healthcare workers can lead to uncertainty and confusion during handoff. (8). Another challenge faced in handoff communication is the difference in training and experience among health workers involved in the handover process. Research has shown that differences in knowledge and experience can lead to uncertainty and confusion during handoff (11). Therefore, it is important to ensure that all team members have the same understanding of the procedures and information that needs to be conveyed.

Thus, while SBAR has proven effective in many settings, its implementation faces significant barriers due to differences in training, understanding, and institutional support (12–15). Overcoming these challenges requires a comprehensive approach that not only focuses on the tools themselves but also addresses the cultural and interpersonal dynamics that shape communication within healthcare teams. This study aims to conduct a scoping review of handoff communication in the ED and ICU to identify the practical challenges, best practices, and strategies for improving handoff communication in these settings. The findings from this review will inform the development of targeted strategies for improving SBAR implementation and fostering a culture of effective communication in critical care environments.

METHODS

This scoping review uses the Arksey and O'Malley framework, which defines a scoping review as a literature synthesis method used to present and identify the scope of research on a particular topic (16). The scoping review framework includes five main stages, namely formulating review questions, identifying relevant research, selecting studies, mapping data, and summarizing and reporting findings (17).

Inclusion and Exclusion Criteria

The process of selecting articles for this review was carried out by three authors based on the PRISMA Extension for Scoping Review (PRISMA-ScR) (see Figure1) (18). Research questions and eligibility criteria for research articles using the PCC (Population, Concept, and Context) approach.

- P (Population) : Nurse or Health Care Worker
- C (Concept) : Handoff Communication
- C (Context) : Emergency Installation and Intensive Care Unit

In this review, full-text articles that were not accessible, publications not in English, and secondary studies were excluded. Inclusion criteria for this review were full-text articles that were accessible and published in English, articles with quantitative and qualitative designs that discussed handoff communication in the emergency department and intensive care unit. In this review, the year of publication of the article was not limited so as to maximize the literature search.

The three authors independently (NA, APP, and AN) screened the articles for inclusion, and a consensus process was used to resolve any disagreements. In cases where there were discrepancies in the selection of articles, the authors discussed the differences and reached a mutual agreement. This approach ensured that the selection process was both thorough and objective.

Search Strategy

Articles searched for October to November 2024. Article identification was carried out systematically using two main databases: Sciencedirect, Pubmed, and the search engine Google Scholar. The keywords used were “Health workers or Healthcare professionals AND SBAR implementation or SBAR or Handoff Communication AND Emergency rooms or Emergency departments AND Intensive Care Unit”. The author uses the Boolean operators “AND” and “OR” to narrow or expand search results.

Data Extraction and Analysis

In this review, data extraction from the studies analyzed using a table that can describe in detail all the results related to the topic discussed. The information presented in the extraction table is related to the characteristics of the study: author and year, country, design, sample, and research results. Then, data analysis was carried out thematically with an exploratory descriptive approach. The data analysis process begins with the identification and presentation of data obtained in the form of tables based on the reviewed articles. After obtaining the data, all authors analyzed and explained each finding based on the extraction results. Finally, the authors rechecked the articles analyzed to ensure and minimize errors during the extraction stage.

RESULTS

Literature Search Results

Based on the search results in Figure 1, it shows that the total number of articles found was 682, consisting of Sciencedirect (n=297), PubMed (n=85), and Google Scholar (n=300). After filtering based on title and abstract, 593 articles were selected, but 89 articles were removed due to duplication, and 577 articles were removed because they did not meet the title and abstract criteria. Furthermore, articles were filtered based on inclusion criteria related to population, intervention, and language, with a total of 16 articles eligible. After full-text assessment, only 9 articles were declared eligible for analysis in this review. The articles removed at this stage were 7, with 5 articles removed because the population was not appropriate (ward room setting) and 2 articles did not discuss the implementation of SBAR or handover communication in the emergency room and ICU.

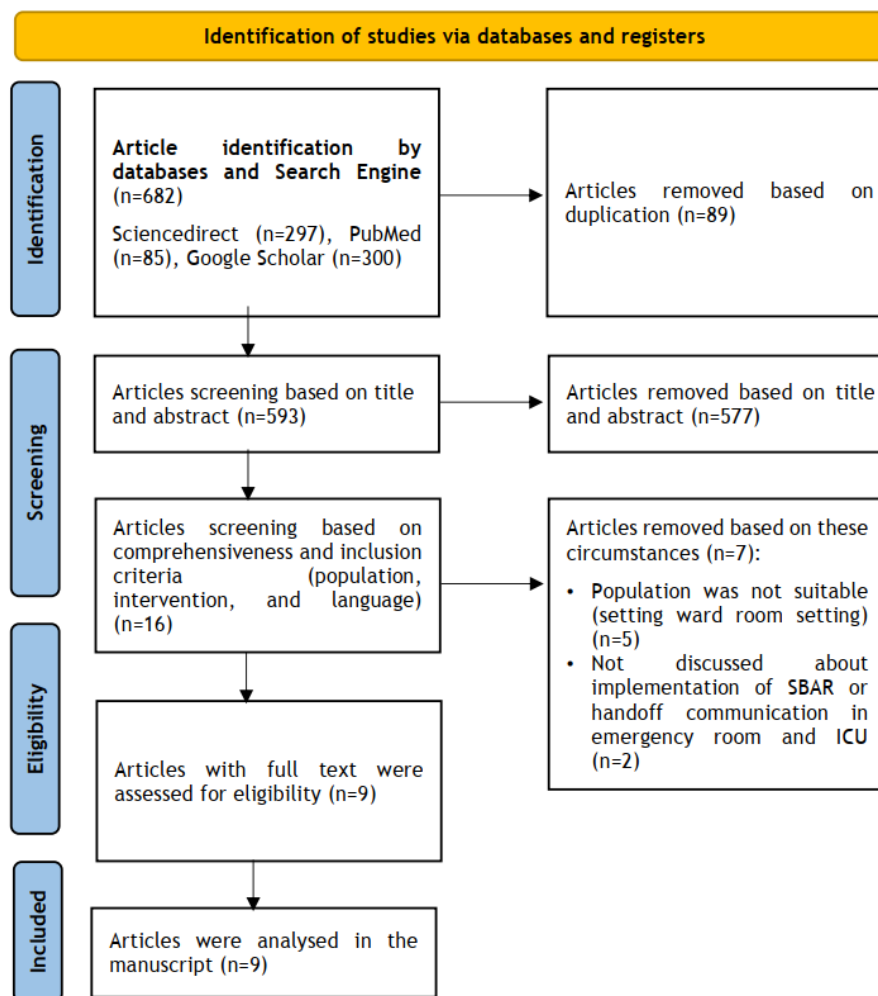


Figure 1. Article Search Flow Diagram

Characteristics of Studies

Table 1 shows a total of nine studies from various countries. These studies include Singapore, Switzerland, Iran, Kenya, Indonesia (with three studies), Hong Kong, and the United States. These studies were conducted in various health contexts, such as ICU, ED, medical-surgical wards, and cardiovascular units. Samples varied from 17 to 206 participants, most of whom were nurses and other health professionals. The studies included various designs, such as cross-sectional, observational, and qualitative studies, with most settings located in intensive care units or emergency departments.

Table 1. Data Extraction

Ref	Location	Design	Sample and Setting	Results
(19)	Singapore	Cross-sectional	Sample: Handover between 90 couples (180 participants) 50 nurses to nurses (100 nurses) and 40 doctors to doctors (80 doctors). Setting: ICU	1. The results showed that there were 1.26 (± 1.75) interruptions per handover. In 45 (50%) handovers, there were no interruptions. 2. There were more distractions in the morning shift. The more distractions, the longer the handoff time. 3. The information that was least often included was "Do not Resuscitation" (DNR). 4. Nurses spent significantly longer during handovers than doctors.
(20)	Swiss	Observational study	Sample: 99 nurses Setting: ICU	1. There were 290 phone calls made by 99 nurses. 2. The median SBAR quality score was 41% (interquartile range [IQR] 33–48). 3. Factors independently associated with higher SBAR quality were age, primary language other than French, lack of ICU expertise, and SBAR training in undergraduate nursing education.
(21)	Iran	Qualitative study	Sample: 17 nurses Setting: ICU	1. The results of this study indicate that many factors influence error communication, some facilitating it and some prohibiting it. 2. Organizational factors such as error communication culture and the consequences of error communication for nurses and patients, as well as individual and professional characteristics, including ethical characteristics and interprofessional relationships, influence this process.
(22)	Africa	<i>A pilot descriptive project</i>	Sample: 25 health professionals Setting: ICU	Implementation of SBAR training can improve group communication openness scores, timeliness of communication, and patient safety and frequency of reported events.
(4)	Indonesia	Qualitative study	Sample: 34 nurses Setting: ED	The most common situation communication was the sufficient category, with 18 respondents (52.9%); for background communication, the most common was the good category, with 16 respondents (47.1%); for assessment communication, the most common was also the good category, with 21 respondents (61.8%); and for recommendation communication, the most common was the good category, with 20 respondents (58.8%).
(23)	Hongkong	Quantitative survey	Sample: 206 nurses Setting: ICU, ED	1. High perception of ISBAR communication protocol, other factors significantly correlated with improved handover quality. 2. Nurse handover quality depends on nurses' level of understanding of the

Ref	Location	Design	Sample and Setting	Results
				patient's care plan. ISBAR communication protocol is considered to help nurses improve their communication skills
(24)	Indonesia	Cross-sectional	Sample: 102 nurses Setting: Cardiovascular unit (CVICU)	1. The results of the study indicate that there is a significant relationship between perception, knowledge, attitude, motivation, and the application of the SBAR method. 2. The dominant factor in the application of the SBAR method is the attitude variable.
(25)	United stated	Cross-sectional	Sample: 75 nurses Setting: ED	1. Of the 75 handoffs observed, only 13% were documented in the electronic medical record. 2. The mean handoff score based on the IMIST-AMBO protocol was 3.29 out of 9. 3. The "Patient Identification" category was consistently present in the handoff report, while other important information, such as medical history and allergies, was rarely conveyed.
(14)	Indonesia	Cross-sectional	Sampel: Nurses Setting: Medical surgical nursing wards, and ED	1. Work experience is significantly related to effective communication (p value = 0.006), while no correlation was found between gender or education level with effective communication (p value > 0.05). 2. Effective communication using SISBAR is related to work experience.

Factor Associated with Handoff Communication in ICU and ED

Factors that influence the quality of communication during handover include individual characteristics, training, experience, and organizational conditions. Research shows that factors such as age, experience, and training related to the SBAR protocol play an important role in improving communication quality, where ICU experience and educational background influenced communication quality. In Iran, organizational culture that supports error communication and interpersonal relationships also have a significant impact (21). In Indonesia, nurses' work experience is directly related to the effectiveness of communication using the SISBAR protocol (14). Overall, training, experience, and organizational culture are the main factors that determine the effectiveness of handover.

Effectiveness of SBAR in Different Settings

The effectiveness of the SBAR protocol varies depending on the setting in which it is applied. In Indonesia, studies in emergency departments and medical wards show that the effectiveness of SBAR communication is influenced by the nurses' work experience. In Switzerland, SBAR improves communication quality among trained nurses, but the quality is lower among those with less training. In Africa, SBAR training has been shown to enhance communication and patient safety. In contrast, in the United States, only a small portion of handovers are documented in electronic medical records, highlighting a gap in documentation. Meanwhile, in Hong Kong, the ISBAR protocol improved nurses' communication skills and overall handover quality. Overall, the effectiveness of SBAR depends on training, experience, and organizational support.

DISCUSSION

The use of SBAR (Situation, Background, Assessment, Recommendation) in handoff communication in emergency departments and intensive care units is increasingly recognized as an

effective method in improving the quality of communication between healthcare professionals. Research shows that the application of SBAR notably decreases communication errors, which are often the main cause of medical incidents. The clear structure of SBAR allows for the delivery of crucial information in a systematic way, thereby improving understanding among members of the medical team (22,24).

The implementation of handoff using the SBAR method in the ED shows varying results in various countries (see Table 1). In several studies, it was found that although SBAR is widely recognized as an effective method for improving communication, its implementation in the ED is often suboptimal. For example, a study in the United States found that only 13% of handoff processes were properly documented in the electronic medical record, indicating that there are still problems in the consistency of SBAR implementation (25). In Indonesia, a study in the ER showed better results, where 47.1% of background communication and 61.8% of assessment communication were categorized as good, indicating that most health workers in the ER were able to implement SBAR effectively (4). However, there are also aspects that still need to be improved, such as in terms of situational communication which is still considered sufficient by 52.9% of respondents (4).

While SBAR has been recognized for improving communication and reducing errors in healthcare settings, several limitations and potential biases must be considered in its implementation. One significant limitation is the variability in training and understanding among healthcare workers, which can affect the consistency and effectiveness of SBAR use (26–28). Additionally, the differences in the organizational culture and healthcare systems across various settings may introduce biases in how SBAR is applied and evaluated (29,30). For example, institutions with more hierarchical cultures may have less open communication, which could hinder the effectiveness of structured communication methods like SBAR. Addressing these biases and ensuring consistency in training is crucial for realizing the full potential of SBAR across diverse healthcare settings.

Implementing SBAR handoffs in the ICU also faces similar challenges to those in the ED, particularly in terms of consistency and quality of implementation. Several studies have shown that although SBAR is recognized as an effective communication method, its implementation in the ICU is often suboptimal. A study in Switzerland, for example, found that the quality of SBAR implementation among ICU nurses was only 41%, with many nurses reporting difficulty in maintaining a systematic communication structure during interactions with physicians (20). External distractions, such as frequent incoming phone calls or a busy ICU environment, are also major factors that hinder smooth handoffs and lead to information errors that are crucial to patient safety.

A study conducted in the ICU by (19) provides important insights into the challenges faced during the patient handover process, particularly in relation to disruptions that occur. The study reported that handover disruptions were more common among nurses and during night shifts. The most disruptive factors were people (including staff, family members and patients) (19). Although the study focused on the ICU, we can extrapolate the findings and consider how similar things might happen in the ED, which is also a busy and often unpredictable environment (19).

In the ED, patient handover is also a critical process that can be affected by a variety of distractions. These distractions include interruptions by other staff, phone calls, or the urgent needs of other patients (31). Factors such as high workload, urgency of the case, and the need to make quick decisions can increase the potential for disruption (32). Additionally, EDs often experience significant fluctuations in patient volume, which can exacerbate potential disruptions, especially during peak hours or when staffing is reduced, such as on night shifts (32).

Various factors influence the quality of handoff or SBAR implementation across different studies. One such factor, work experience, as found in Indonesia, is strongly associated with communication effectiveness (14). In addition, formal training on SBAR, as in Kenya, can improve openness of communication and patient safety (22). In Switzerland, variables such as a primary language other than French, as well as lack of experience in the ICU, influence the quality of SBAR communication (20). Nurses' attitude factors also play a dominant role in the success of SBAR implementation, especially related to their perception of the importance of this protocol. Overall, the study results indicate that training and

organizational factors, such as communication culture in the workplace, are very important in improving the effectiveness of handoff communication in the ED and ICU.

The effectiveness of SBAR depends largely on how well health workers are trained to use this communication tool. In countries where health education curricula explicitly integrate SBAR into clinical communication training, as may be the case in Indonesia based on (4), The results tend to be more positive. In contrast, in places where SBAR training is not emphasized, as may be the case in Switzerland based on the findings (20) its implementation may not be as effective.

The studies included in this review exhibit considerable diversity in terms of their designs, settings, and sample sizes, reflecting the varied healthcare contexts in which they were conducted. This heterogeneity is an important factor in understanding the variability in the findings. For example, the studies span across different countries with distinct healthcare systems, which may influence the implementation and effectiveness of SBAR communication protocols. Additionally, the range of sample sizes—from smaller, more focused studies to larger, cross-sectional surveys—adds to the complexity of interpreting the results.

Furthermore, the healthcare settings (e.g., ED, ICU, Cardiovascular Unit) in which these studies were conducted also differ in terms of the level of care, the nature of patient conditions, and the team dynamics involved. These contextual differences may explain why some studies report improved outcomes after SBAR implementation, while others show less significant effects. Cultural factors and the level of formal training provided to healthcare workers also play a role in shaping the success of SBAR as a communication tool. This variability highlights the need for further research to explore the factors that contribute to the success or limitations of SBAR in different environments, and to identify best practices that can be applied universally across diverse healthcare settings.

CONCLUSION

The implementation of handoff communication using the SBAR method in the ED and ICU shows varying levels of effectiveness across different countries. This review indicates that while SBAR is widely regarded as an effective communication tool, its quality is heavily influenced by multiple factors such as individual knowledge and perception, work experience, formal training, and the work environment. In countries like Singapore and Switzerland, the quality of SBAR implementation remains low, whereas in Indonesia and Kenya, improvements were noted, particularly after intensive training programs. However, key challenges such as environmental interference and inconsistent documentation persist.

To enhance the quality of SBAR implementation in the ED and ICU, it is recommended that health institutions provide continuous formal training for healthcare workers. Furthermore, future research should focus on strategies to address the factors influencing SBAR implementation, especially external interruptions during the handover process, such as disruptions from other staff or a busy work environment. Research could explore methods to minimize these disruptions, for instance, by creating a more conducive work environment or utilizing technology to facilitate efficient communication under pressure.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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