

Standardization of Handover Practices among Caregivers in Low-and-Middle-Income Countries Hospitals: A Scoping Review

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Abstract

This scoping review aims to provide an overview of clinical handover models and standardization practices in low- and middle-income country (LMIC) hospitals. Using the PRISMA-ScR framework to analyze literature from 2014-2024, the study identifies a limited evidence base on the topic. The key finding is that the Situation, Background, Assessment, and Recommendation (SBAR) model is the most frequently used tool for standardizing handovers, with its implementation being influenced by various institutional and individual factors.

Keywords

Standardization, Handover, Caregivers, Hospitals, Ouagadougou

1. Introduction

Healthcare activities are organized in increasingly complex environments and are exposed to risks of errors in patient care. Errors and omissions in information management during the delivery of care pose a threat to patient safety (The Joint

Commission, 2017).

Clinical handover is the term commonly used to describe the communication of relevant patient information between providers to ensure continuity of patient care (Australian Commission on Safety and Quality in Health Care, 2010a: p. 5). It is defined as the transfer of professional responsibility and accountability for some or all aspects of the care provided to a patient or group of patients to another person or professional group, on a temporary or permanent basis (British Medical Association, 2006: p. 7).

However, handovers are considered critical moments where errors are more likely to occur in the communication of information. They encompass a large number of daily activities that are particularly important for patient safety (Alcalá Minagorre et al., 2023: p. 186). Poor or inconsistent transmissions of information have contributed to errors, omissions in care, treatment delays or inappropriate treatments, and inefficiencies. This situation causes minor or major harm, increased length of stay, avoidable readmissions, and increased costs (Lawrence et al., 2008; Riesenberg et al., 2009; The Joint Commission, 2017).

Cases of medical malpractice often reveal multiple points in a patient's journey where the effectiveness and accuracy of clinical information communication were disrupted, or where missed opportunities for the healthcare team to clarify information and prevent harm were missed. Indeed, More than half (57%) of the cases analyzed revealed poor communication between two or more healthcare providers (A Division of The Risk Management Foundation of the Harvard Medical Institutions Incorporated, 2015: p. 4).

Improving communication between caregivers and information sharing among members of the care team helps optimize patient care (The American College of Obstetricians and Gynecologists, 2012: p. 1).

Effective communication, including conflict management and the systematic sharing of urgent concerns, allows obstetric care providers to stay informed about the rapidly evolving condition of patients. Well-defined roles, clear leadership, and a common protocol and language for assessing, making decisions about, and communicating clinical emergencies are essential for consistent communication within care teams (A Division of the Risk Management Foundation of the Harvard Medical Institutions Incorporated, 2015: p. 10).

Standardization has been widely recommended in the literature as a strategy to ensure the transmission of essential and reliable information on patient care (Halm, 2013; Holly & Poletick, 2014; Riesenberg et al., 2009; The Joint Commission, 2017).

Communication is particularly important in hospitals, where shift handovers may occur at various times depending on the organization of each department. However, this period of communication, exchange, and handover of instructions, essential for patient care, is often insufficiently observed by healthcare professionals. This results in a loss of information related to optimal patient care, as well as errors that can lead to adverse events (AEs), which can contribute to increased in-hospital morbidity and mortality.

The implementation of standardized handover models is a measure applicable at all levels of care to address safety issues related to patient management. A growing number of these standardized models have been validated and applied with conclusive results (Farhan et al., 2012; National Institute for Health and Care Excellence, 2018; Randmaa et al., 2014; Shahid & Thomas, 2018). However, there is no evidence that one transfer mnemonic is better, that is, more likely to guarantee patient safety, than another (Australian Commission on Safety and Quality in Health Care, 2010b: p. 29).

Standardization of handover has been reported in the literature as essential for rapid and effective communication, and it allows for the development of a team-oriented approach (Dorgahm & Obied, 2021; Holly & Poletick, 2014; Huth et al., 2018). To this end, several handover models have been developed and applied in hospitals with adaptations according to contexts. These models use structured checklists including mnemonics to ensure efficient management of essential information, thus avoiding the omission of essential care data.

In Burkina Faso, the authorities' commitment to improving the quality of care and patient safety has resulted in the development of a national strategy for quality of care and integrated, person-centered services and patient safety, as well as a guide for managing adverse events associated with care (Ministère de la Santé, 2021; Ministère de la Santé et de l'hygiène Publique, Burkina Faso, 2019). However, the normative documents on quality of care and patient safety do not take into account harmonized communication procedures between caregivers during shift changes.

Furthermore, while studies on the quality of care exist, we did not find any specifically relating to the standardization of handover.

This scoping review aimed to compile available data to obtain an overview of clinical handover patterns for standardizing healthcare practices in referral hospitals in low- and middle-income countries. Furthermore, it described how these patterns have clinical handover contributed to improving the quality, efficiency, and safety of care provided by caregivers in these healthcare facilities?

This provides a starting point for research aimed at developing and implementing standardized communication tools for clinical handover in hospitals.

2. Methods

This report was prepared using the scoping review methodology. In addition to synthesizing existing research findings, the scoping review also helps to identify research gaps (Levac et al., 2010: pp. 1-9).

Thus, this study enabled a review of available data to obtain an overview of clinical handover styles for standardizing healthcare practices in referral hospitals in low- and middle-income countries. It also aimed to demonstrate how these handover models have contributed to improving the quality, efficiency and safety of care provided by caregivers in these facilities.

The PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines were followed to facilitate rigorous drafting of the pro-

tocol and presentation of the results (Page et al., 2021). The protocol for this review was registered on the OSF (Open Science Framework) platform (<https://doi.org/10.17605/OSF.IO/V4QPD>). The study received ethical approval from the National Health Research Ethics Committee of Burkina Faso under protocol number 2023-03-065. To ensure a rigorous approach, the study was conducted following the methodological framework developed by Arksey O'Malley (Arksey & O'Malley, 2005).

2.1. Identifying the Research Question

This phase consisted of a discussion among the authors (MC, NP, and GMK) to identify relevant research questions arising from the gaps in the existing literature on low- and middle-income countries (LMICs) regarding the topic of this literature review. These questions were formulated to address the purpose of this study. The main research questions identified by the authors to guide the literature review process were: First, what are the different handover models currently used for standardizing healthcare practices in hospitals in low- and middle-income countries? Second, how have these handover models contributed to improving the quality, efficiency, and safety of care provided by healthcare workers in these hospitals? These questions stemmed from a preliminary literature search using keywords on Google Scholar.

During this stage, the authors (MC, GMK, SZ, PN) exchanged ideas to identify relevant research areas, drawing on gaps identified in the existing literature on the review topic. The main questions that guided their work were as follows:

What are the different handover models currently used for standardizing healthcare practices in hospitals in low- or middle-income countries?

How have these handover models contributed to improving the quality, efficiency, and safety of care provided by caregivers in these healthcare facilities?

These lines of thought come from an initial exploration of publications on Google Scholar in order to better understand the issue of handover.

2.2. Identification of Relevant Studies

The literature review was conducted by consulting both scientific databases and non-academic sources to identify all relevant information on the topic. To structure this research, the research team used the elements of the PCC (Population, Concept, and Context) framework (Table A1) from the Joanna Briggs Institute (JBI) for scoping reviews (Peters et al., 2020). The identified keywords were “healthcare workers, handover, standardization, hospitals.” Relevant synonyms for these keywords were identified to construct a search equation. Given the nature of the research topic, five relevant databases—MEDLINE, EMBASE, CINAHAL, and GLOBAL HEALTH—were identified. Additional searches were conducted on Google Scholar to further explore the grey literature on the research topic. The search strategy was developed for one of these databases, Medline, and is presented in Table A2.

2.3. Selection of Studies

The criteria for selecting studies were established in collaboration with all members of the research team. This involved a systematic literature search for articles that met the defined criteria.

The search strategies for this scoping review were tested in August 2024 in each of the selected databases and search engines.

▪ Inclusion criteria

The review included primary quantitative, qualitative or mixed studies published in English and/or French between 2014 and 2024. All references that deal with models or tools for handover (service handover) for standardizing healthcare practices in low or middle income countries (LMICs) were included.

Sources meeting the inclusion criteria were included in this review, namely: primary data, systematic reviews, and grey literature. Meta-analyses, guidelines, and guides published during the period and written in English or French that address handover models for standardizing healthcare practices in hospitals were consulted.

▪ Exclusion criteria

Websites, blogs, conference abstracts, and protocols were excluded because the reviewers felt they were unlikely to contain information relevant to answering the research question.

There are also references that are not related to communication between healthcare providers or that focus solely on communication between healthcare professionals and patients, communications outside the patient care process, and summaries and titles not written in English or French.

The selection of articles was carried out in two phases. Initially, two reviewers independently examined the titles and abstracts to determine their relevance in accordance with established methodological recommendations (Aromataris et al., 2024).

Next, potentially relevant articles underwent a detailed full-text analysis by two reviewers with particular attention to inclusion and exclusion criteria.

In the event of differing opinions on an article, a consensus is sought and, if necessary, a third reviewer is consulted to make a decision.

Our searches in the five databases Embase, CINHALL, Medline, Global Health, and Google Scholar identified 2074 references. There were 122 duplicates. After removing the duplicate articles, 1952 references were included. An initial selection based on titles and abstracts excluded 1874 references. After a complete review of titles and abstracts, 78 articles were selected for full-text review. Sixty-nine (69) articles were excluded because they did not meet the inclusion criteria.

The selected studies (10) were thoroughly analyzed by two reviewers, with a third being consulted in case of disagreement.

The articles selected for this scoping review are presented in a PRISMA-ScR flowchart illustrating the reference selection procedure and the various sources used in our research (Figure 1). Data from grey literature were not included in the flowcharts, but they proved very beneficial in terms of information on harmonized transmission models for standardizing healthcare practices. To this end, two

documents that met the inclusion criteria were used (Humphries, 2020; Lemma Teshome & Worku, 2020).

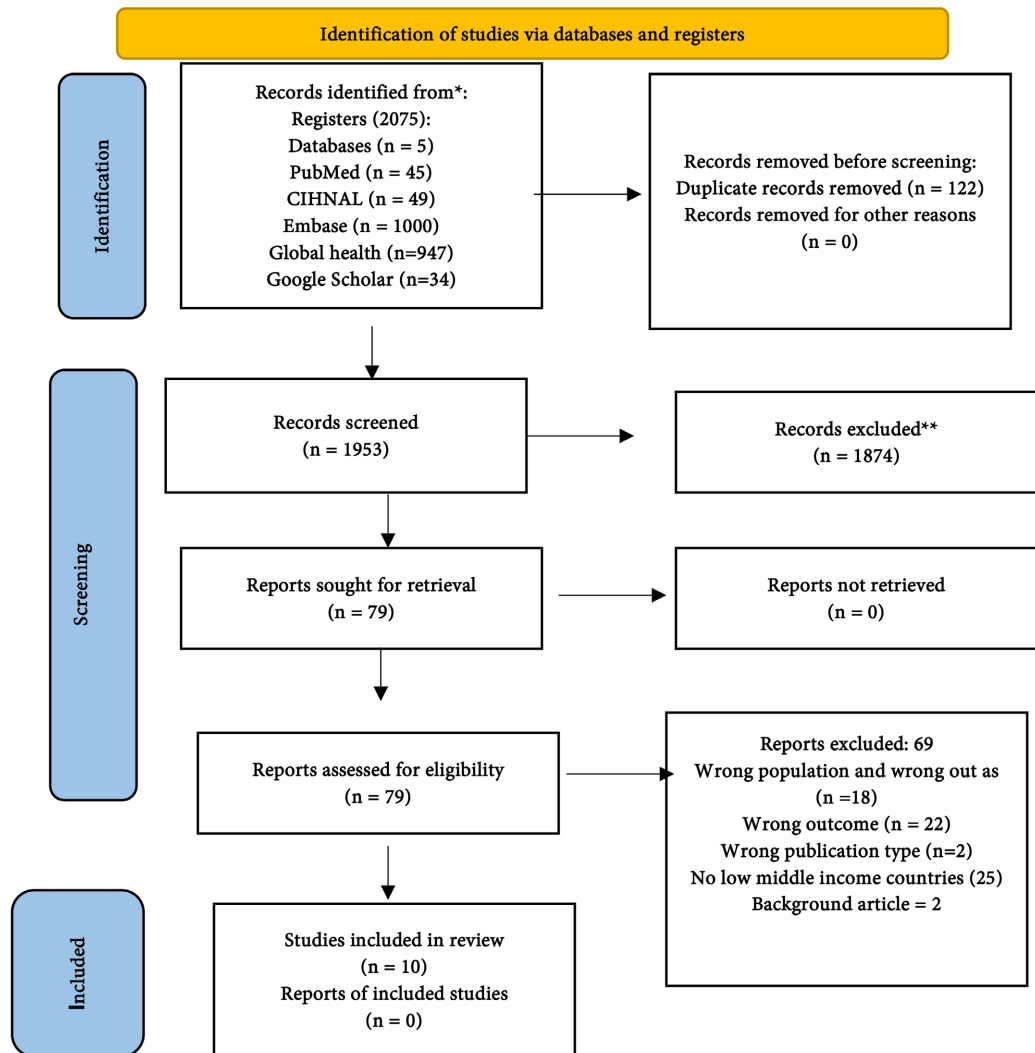


Figure 1. Adapted PRISMA flow chart.

The flowchart below summarizes the selection process and the reasons for exclusions (Page et al., 2021).

3. Results

Our searches in the five databases: Embase, CINHAL, Medline, Global Health, Google Scholar identified 2075 references, including CINHAL 49, Medline 45, Embase = 1000, Global Health = 947, Google Scholar = 34. All the extracted literature was imported into Rayyan (<https://www.rayyan.ai/>) which allowed reviewers to collaborate remotely, to work independently.

During export to Rayyan and Zotero, 122 duplicates were resolved, and 1953 references were retained for reading titles and abstracts. Given the language barriers, the translation website “DeepL” was used to understand journals published

in English.

The review considered references dealing with models, tools and strategies for transmitting patient information between caregivers and care teams for standardization of practices.

The grey literature data concerned a philosophy thesis and a specialty certificate in internal medicine that met the inclusion criteria.

Almost all (9/10) of the articles retrieved from databases and references to grey literature were published from 2019 onwards. Only one article included was published in 2014 in South Africa (Raymond & Harrison, 2014). However, it is important to note that the literature remains sparse on the issue of standardizing clinical handover. No scoping review or systematic review was conducted on the standardization of clinical handover in low- and middle-income countries during our study period (2014-2024). Furthermore, the concept of clinical handover is not widely understood by healthcare professionals. This study was therefore relevant and timely in addressing this gap. It allowed us to explore the extent of the literature on handover, to map and synthesize the evidence, and to clarify the concept of handover. It will also serve as a guide for future research.

3.1. General Description of the Included Studies

Approximately 3/4 of the selected articles (70%) were published between 2020 and 2022.

The majority were cross-sectional studies ($n = 7$). Half of the studies were quantitative ($n = 5$), and the remainder were qualitative ($n = 2$) and mixed-methods ($n = 3$). There were three interventional studies, three descriptive studies, and two analytical studies.

Of the 10 articles selected, the majority ($n = 9$) were produced in middle-income countries, including four in Africa (Adam et al., 2022; Nyikuri, 2020; Raymond & Harrison, 2014) and one in a low-income African country achieved (Rickard et al., 2022). For articles produced outside the African continent, there is a predominance of Asian studies (Aris Payung et al., 2022; Mellawani et al., 2019; Pilcher et al., 2022; Tun et al., 2019; Yetti et al., 2021). The countries in which the different studies were carried out are represented in **Table 1**.

Table 1. Representation of the countries in which the different studies were carried out.

Country	n	%
Indonesia	3	33.33
India	1	11.11
South Africa	1	11.11
Gambia	1	11.11
Myanmar	1	11.11
Sudan	1	11.11
Kenya	1	11.11
Egypt	1	11.11

All studies were conducted in hospitals and involved only nurses in more than half ($n = 6$) of the cases, while one study involved only physicians. The principle of multidisciplinary was considered in four studies ($n = 4$). These studies included nurses plus other healthcare professionals such as physicians, midwives, and obstetricians (Pilcher et al., 2022; Raymond & Harrison, 2014; Rickard et al., 2022).

The data from the literature were based primarily on the standardization of clinical handover and the factors that could influence its effective implementation in all the articles.

Two articles were selected, although they did not contain standardization models; these articles provided useful information on handover and recommended the implementation of a standardized Handover model (Mellawani et al., 2019; Nyikuri, 2020).

3.2. Identified Clinical Handover Patterns

The results revealed that the “Situation, Background, Assessment and Recommendation” (SBAR) model was used in almost all articles featuring a standardized tool in the selected journals (Adam et al., 2022; Aris Payung et al., 2022; Elbastawisy Elbastawisy Ahmed et al., 2022; Pilcher et al., 2022; Raymond & Harrison, 2014; Rickard et al., 2022; Tun et al., 2019; Yetti et al., 2021). One study combined the SBAR model with the mnemonic COLD (Connect, Observe, Listen, Delegate) for postoperative handovers in the intensive care unit, in order to take into account the specific context of the department (Tun et al., 2019) and another used the ISBAR method (Identify, Situation Assessment, Recommendation) derived from the adaptation of the SBAR (Elbastawisy Elbastawisy Ahmed et al., 2022).

This comparative study evaluated the application of the ISBAR tool during written, oral and bedside handover of patients. The results of the study show a better compliance (95.5%) of the practice of caregivers on the ISBAR procedure during transmissions carried out at the “patient’s bedside”.

3.3. Factors Associated with the Implementation of Clinical Handover

Factors associated with the onset of handover were also discussed in all articles (Adam et al., 2022; Aris Payung et al., 2022; Elbastawisy Elbastawisy Ahmed et al., 2022; Mellawani et al., 2019; Nyikuri, 2020; Pilcher et al., 2022; Raymond & Harrison, 2014; Rickard et al., 2022; Tun et al., 2019; Yetti et al., 2021).

Institutional, team-related and individual factors were identified by all the articles.

Regarding institutional factors, insufficient human resources, inadequate training, workload, unavailability of guidelines and protocols on handover, insufficient documentation, and management were all factors mentioned by participants in the analyzed studies. Individual factors included insufficient skills among

healthcare professionals and a lack of motivation. Indeed, the results of one study highlighted deficiencies in knowledge of the Situation, Background, Assessment, Recommendation (SBAR) method (15.9%) and in standardization practices (62.4%) (Lemma Teshome & Worku, 2020: p. 19). One study identified motivation as a factor that can influence the implementation of TC (Rickard et al., 2022: p. 10).

Three studies have taken into account bedside communication in the evaluation of healthcare professionals' professional practices regarding handover (Elbastawisy Elbastawisy Ahmed et al., 2022; Mellawani et al., 2019; Rickard et al., 2022). Multidisciplinary/pluridisciplinary is a fundamental principle of care transfer. It enables care transfer to be implemented by a team composed of all the disciplines involved in patient care at the time of handover. Its importance was highlighted by half of the studies as a condition for successful and effective handover (Aris Payung et al., 2022; Nyikuri, 2020; Pilcher et al., 2022; Rickard et al., 2022; Tun et al., 2019).

For the intervention studies, healthcare professionals were trained in clinical handover during the intervention following a diagnostic assessment. The results highlighted statistically significant relationships between healthcare professionals' skills and the implementation and quality of handovers (Adam et al., 2022; Raymond & Harrison, 2014; Tun et al., 2019). All studies have suggested taking these factors into account when implementing effective handover.

Regarding grey literature, we have the results of a doctoral thesis in philosophy on handover and continuity of care for patients with chronic diseases in India (Humphries, 2020). These results were the subject of a published article on handover and communication in healthcare for outpatients with chronic diseases in India (Humphries et al., 2018). This publication was not included in our review because it did not meet our inclusion criteria. The systematic review conducted for this study highlighted an urgent need for training and insufficient patient information during clinical handovers. It also identified organizational, cultural, and individual factors affecting the quality of communication among healthcare professionals.

The second source is a cross-sectional study on the knowledge, attitudes and practices of interns regarding handover during patient care (Lemma Teshome & Worku, 2020). The results of this study showed a low level of knowledge among respondents regarding standardized transmission models, with only 15.9% of respondents familiar with the SBAR method. Their attitudes toward standardization of transmission methods were favorable (87.6%). However, their actual practices were largely in line with these standards (62.4%). Although service providers lack knowledge of standardized models, they are well aware of poor transmission practices and their consequences. They are also willing to undergo training and implement appropriate standardized models. Training and standardization were recommended by these two thesis findings as prerequisites for successful transmission.

3.4. Data Mapping

Data from the ten selected articles were extracted independently by two reviewers into an Excel file, covering demographic information. Information such as the first author's name, year of publication, country, objectives, participant characteristics, study setting, and methodology was extracted and analyzed. These results are presented in **Table A3**.

This data made it possible to map articles that may contain useful tools or information on standardizing handover.

4. Discussion and Conclusion

4.1. Discussion

This scoping review aimed to map available data to obtain an overview of TC styles or models for standardizing healthcare practices in PRFI reference hospitals. This practice was recommended as a patient safety improvement practice by the joint commission for the first time in 2006 (Halm, 2013: p. 158).

However, the results reveal a lack of data on handover models in the LMICs literature. Indeed, only ten (10) articles that met the inclusion criteria were identified.

Among these articles, a standardization tool was implemented or evaluated in eight (8) of them as a standardization procedure for clinical handover. This is despite WHO recommendations on implementing a "standardized approach to communication between healthcare professionals during clinical handovers" through the use of the SBAR technique (Abdellatif et al., 2007: p. 2). Clinical handover remains an under-observed professional practice among healthcare professionals in hospitals in developing countries. Given this observation, it is therefore essential that healthcare facilities have clear operational procedures for clinical handovers (Siemsen et al., 2012). Indeed, it allows healthcare professionals, in addition to handing over instructions, to exchange information, discuss professional practices, evaluate care, adapt treatment protocols, and strengthen their skills and ensure job satisfaction. Inadequate transmission of clinical information poses significant risks for patients, healthcare professionals, and healthcare facilities alike.

Of the 10 articles selected for this scoping review, eight (8) had evaluated the application of a standardization model for handover. The SBAR (Situation, Background, Assessment, Recommendation) model was used throughout these articles, with adaptations in two studies (Elbastawisy Elbastawisy Ahmed et al., 2022; Tun et al., 2019). Similar results were obtained in a systematic review of mnemonics for handover standardization (Riesenberg et al., 2009, Systematic Review of Handoff Mnemonics Literature.pdf, nd).

It is noted that most mnemonic devices, particularly SBAR/ISBAR, are classified as problem-oriented standardization tools, structuring communication around the patient's condition (National Clinical Effectiveness Committee, 2014: p. 121).

As a reminder, the SBAR model originated from the US Navy's nuclear security

communication tools. It was developed by Michael Leonard for use in the healthcare sector (Nagammal et al., 2016: p. 105). Several adaptations have been used in the literature. This tool was translated into French using the acronym Saed: “situation, antecedents, evaluation, demand” by the French National Authority for Health (HAS) in 2014 (Haute Autorité de Santé, 2014).

Statistically significant relationships were established between the implementation of a standardized reporting framework (SBAR) and the quality of handover in two intervention studies in Sudan and Myanmar, involving 48 physicians and 52 nurses, respectively. Pre-intervention audit results showed unsatisfactory levels of compliance before the implementation of the SBAR tool and satisfactory levels during the follow-up audit. In both cases, the interventions consisted of training participants on the tool, its implementation, and its evaluation (Adam et al., 2022; Tun et al., 2019). However, the sample sizes used in these studies do not allow for generalization of the results. The results of two studies showed statistically significant relationships between healthcare practices and the implementation of clinical handover at the patient’s bedside (Elbastawisy Elbastawisy Ahmed et al., 2022; Mellawani et al., 2019). In one of these studies, the transmission time varied depending on the number of patients and the complexity of their pathology (Mellawani et al., 2019). Also, this study, although it recommended the standardization of practices, did not use a model.

A qualitative study assessed the structure, process, and barriers to TC (Yetti et al., 2021: p. 3). In this study, the clinical handover process was divided into three periods: activities before, during, and after the handover. Regarding the structure, the SBAR tool was used to measure the conformity of nurses’ practices. The results highlighted a deficiency in the structure of clinical handovers. The information transmitted was insufficient, and the content varied depending on the nurses’ knowledge of the patients and the complexity of their situation.

Another qualitative study in Kenya on transmission among nurses working in certain neonatal units focused on the purpose and structure of the TC (Nyikuri, 2020). According to those surveyed, the transmission aimed to ensure continuity of care for newborns, and three types of transmission were identified. However, this process does not follow a standardized model.

In India, the results of a comparative multi-site study conducted in three hospitals in Kerala using the SBAR tool highlighted shortcomings in the application of all elements of the model. Furthermore, clinical handover was less common among physicians compared to nurses in all three hospitals. Handovers were primarily conducted for serious cases and occasionally by telephone when necessary (Pilcher et al., 2022: p. 9).

The results of a comparative study of clinical handover between senior nurses and registered practical nurses at Lakipadada Tana Toraja Regional Hospital in India showed a higher level of performance in implementing handover based on the SBAR tool for senior nurses than for registered practical nurses. This difference could be explained by a lack of competence among registered practical nurses

in standardizing handover through the use of a specific tool (Aris Payung et al., 2022: p. 215). In addition to standardization, bedside handover was recommended by three studies (Elbastawisy Elbastawisy Ahmed et al., 2022; Mellawani et al., 2019; Rickard et al., 2022). Bedside telemedicine is a good practice that promotes patient-centered care. However, bedside telemedicine can be marred by interruptions and raise confidentiality concerns. Therefore, it is necessary to identify an environment conducive to its implementation. Self-transmission has been identified as one such transmission method (Nyikuri, 2020: p. 3). This method of transmission was used when there was no overlap or interaction between the shift teams. The transmission was then limited to the incoming team reading the care materials. Despite the existence of several due to standardization mnemonics, no comparative studies have been conducted to determine the most effective tool for adequate transmission. The tools identified in the literature have been adapted to each context, making comparison difficult. However, the SBAR tool has been recommended by the WHO, with possible adaptations (Haute Autorité de Santé, 2014: p. 22). Handover using an electronic tool can improve compliance in the implementation of the handover (Elbastawisy Elbastawisy Ahmed et al., 2022; Yetti et al., 2021). Indeed, digitizing the transmission process will reduce the risk of losing crucial information about patients' situations.

Beyond the recommendation of a standardized model of clinical transmission, several factors could influence the implementation of effective handover.

Factors influencing the TC process were identified by all the sources analyzed.

A study used the Ishikawa analysis method to identify factors that could influence the implementation of effective handover (Yetti et al., 2021). Based on this quality tool, six (6) factors were identified: labor, method, equipment, financial resources, machinery, and the environment. This method enabled a holistic analysis of the factors associated with achieving effective technical certification.

Individual factors such as caregivers' knowledge, attitudes, and perceptions about TC must be taken into account when evaluating their practices (Adam et al., 2022; Mellawani et al., 2019; Rickard et al., 2022; Tun et al., 2019; Yetti et al., 2021). An improvement in healthcare practices has been noted in the results of interventional studies (Adam et al., 2022; Tun et al., 2019). In both cases, these interventions consisted of training participants on the tool, its implementation, and its evaluation. Indeed, a large majority of the articles (7/10) mentioned these factors as essential indicators for the implementation of a standardized handover.

The way teams operate is a key indicator to consider when analyzing the challenges of handover. Interactions between multidisciplinary teams are essential for the transmission of vital information. Despite the fact that more than half (6/10) of the studies focused on nurses, the issue of multidisciplinary was raised by only half of the authors (5/10) (Aris Payung et al., 2022; Nyikuri, 2020; Pilcher et al., 2022; Rickard et al., 2022; Tun et al., 2019). Multidisciplinary is a fundamental principle of handover. It would ensure the completeness of information transmitted between care teams.

Organizational, environmental, and managerial factors were also assessed by all authors. These include workload, insufficient training, inadequate supervision, the unavailability of protocols and guidelines, and lack of motivation. These factors constitute obstacles to achieving optimal clinical practice. The implementation of standardized clinical practice tools requires an institutional and political environment conducive to improving the quality of care and patient safety.

4.1.1. Implications for Research and Practice

Standardizing professional practices is a means of improving the quality of care. The results of this scoping review identified standardized clinical handover models applied in long-term care facilities. However, the analyzed studies also highlighted shortcomings related to institutional factors, the dynamics of care teams, and individual factors. These factors constitute major obstacles to observing this professional practice. Improving these factors will provide an environment conducive to the implementation of handover by healthcare professionals. The application of a standardized protocol remains a key recommendation to ensure the smooth transfer of duties and responsibilities between healthcare professionals through the dissemination of essential information for continuity of care. The results of this study will serve as a reference for implementing guidelines to improve the handover process. The aim will be to identify a standardized, evidence-based tool to improve communication between healthcare professionals during shift changes. Our results also have implications for reducing morbidity and mortality due to the occurrence of adverse events associated with care

4.1.2. Strengths of the Study

This scoping review was conducted in accordance with the principles of scoping review as much as possible. Our scoping review is both unique and important, as it provides a basis for developing communication tools for patients in primary care after their discharge from the hospital. We examined a wide range of databases and numerous diverse sources of grey literature. While no literature review can ever be exhaustive, we believe this scoping review is particularly thorough and provides an excellent foundation for our future work. Three-quarters of the articles implemented or evaluated a standardization model for communication therapy. The “SBAR” model was used by all of these articles for harmonized and standardized practices.

4.1.3. Limit

Based on our inclusion criteria, this review considered only articles published in French and English. Several articles published in other languages could have contained information useful for this review.

A review that used a Likert handover *évaluation* scale (HES) was included because of the essential information it contained on communication between healthcare professionals. This scale is not a standardized model of clinical handover, but rather a tool for assessing the quality of handovers. In addition, another review that aimed to describe the relationship between nurses' behavior and the

implementation of bedside clinical handover was considered. This review did not consider the use of a standardized tool. However, the results of this study contained relevant information that could contribute to understanding the issue of clinical handover.

Our search strategy may have limitations, and some synonyms for keywords may not have been considered. Furthermore, the search was restricted to LMICs. The study period spanned 10 years (2014-2024), and other studies may have been published after this period. Also, previous studies may contain important information. Given the paucity of literature on handover in LMICs, the review contained only ten (10) articles that met the inclusion criteria.

4.2. Conclusion

This review included 10 published articles and two sources from grey literature that met the inclusion criteria.

More than three-quarters of the authors state that the SBAR tool improves communication between healthcare professionals during shift changes. The effectiveness of this tool has been highlighted in the literature, although none have been able to conduct a comparative study of the effectiveness of all standardized handover tools. Intervention studies for the implementation of the SBAR tool are needed to further demonstrate the benefits of its application in improving patient safety. The SBAR tool could be adapted to the local context to ensure optimal use by healthcare professionals. The use of electronic patient management and clinical handover tools could also be explored. The results of this scoping review constitute a starting point for the implementation of a standardized handover model in hospitals in low- and middle-income countries. Future studies should take our findings into account. While no study has determined the model most likely to improve the quality of clinical trials, it is essential to remember that the SBAR model was the most commonly used in the articles included in this review. However, it must be tested and adapted to each context.

Authors' Contributions

CM designed and supervised the study. CM, GMK and SZ drafted the manuscript. CM, GMK and ZS developed the search strategy. CM and SZ selected the studies and extracted the data. CM, SZ and NMN synthesized the results. CM, ZS, GMK, HT and NWZ extensively reviewed the manuscript. All the authors read, provided feedback, and approved the final version of the manuscript.

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Appendix

Table A1. Development of the PCC.

PCC	KEYWORDS	Strategy
Population	Healthcare workers	"nurses" [Mesh] OR "Nurse Midwives" [Mesh] OR "Midwifery" [Mesh] "Caregivers" [Mesh] OR "Health Personnel" [Mesh] OR "midwives" OR "healthcare practitioners" OR "Healthcare Workers" OR "perinatalnurses" [Mesh] "doctor", "physicians" [Mesh], "care provider*"
	Handover	"Hand off" [Mesh] "patient handoff", "Handover", "Patient Handover", "Communication" [Mesh], "shift-to-shift", "bedside handover", "Clinical Handover",
Concept	Standardization	("Standardization" OR "Reference Standards" [Mesh] OR "efficiency" [Mesh] OR "Meaningful Use" [Mesh] OR "Effective" OR "Improve" OR "enhance" OR "efficacy" OR "structured")) AND ("models" OR "Styles" OR "Practice patterns" OR "template" OR "strategies" OR "methods" [MeSH] OR "technique" OR "process")) AND ("models" OR "Styles" OR "Practice patterns" OR "template" OR "strategies" OR "methods" [MeSH] OR "technique" OR "process"))
Context	Hospitals	"Delivery Rooms" [Mesh] OR "Birthing Centers" [Mesh] OR "Maternal-Child Health" [Mesh] OR "Health Facilities" OR "Hospitals" [Mesh] OR "Obstetrics and Gynecology Department" [Mesh] OR "maternity" OR "maternity services" OR "Labor ward" OR "Obstetrics department" OR "delivery suite"

Table A2. Research strategy.

(((((("nurses" [Mesh] OR "Nurse Midwives" [Mesh] OR "Midwifery" [Mesh] "Caregivers" [Mesh] OR "Health Personnel" [Mesh] OR "delivery of health care" [Mesh] OR "Healthcare Workers" OR "doctor" OR "physicians" [Mesh] OR "gynecologists" [MeSH] OR "obstetrics" [MeSH]) AND ("patient handoff" [Mesh] OR "Patient Handover" OR "Communication" [Mesh] OR "Clinical Handover" OR "shift-to-shift" OR "Health Communication" [Mesh])) AND ("Standardization" OR "Reference Standards" [Mesh] OR "efficiency" [Mesh] OR "Meaningful Use" [Mesh] OR "Effective" OR "Improve" OR "enhance" OR "efficacy" OR "structured")) AND ("models" OR "Styles" OR "Practice patterns" OR "template" OR "strategies" OR "methods" [MeSH] OR "technique" OR "process")) AND ("models" OR "Styles" OR "Practice patterns" OR "template" OR "strategies" OR "methods" [MeSH] OR "technique" OR "process")) AND ("Delivery Rooms" [Mesh] OR "Birthing Centers" [Mesh] OR "maternal-child health centers" [MeSH] OR "Health Facilities" [Mesh] OR "Hospitals" [Mesh] OR "Obstetrics and Gynecology Department hospital" [Mesh] OR "maternity" OR "Obstetrics department" OR "delivery suite"))

Table A3. Overview of studies on handover standardization models included in this scoping review.

N ^o	Names of the first authors	Year and country of publication	Objective	Participants	Design	Study site	Results	Type of tools or models used	Strengths of the study	Limitations of the study
1	Krisna Yetti (Yetti et al., 2021)	2021 Indonesia (MIC)	Describe the structure, process, and obstacles to clinical nursing handover in an Indonesian hospital	76 nurse managers, nursing staff, team leaders and team coordinators	Qualitative observational case study	Medical and surgical services of a leading hospital in Indonesia.	There is a statistically significant relationship between nurses' care behavior and the implementation of clinical handover at the patient's bedside.	SBAR	Evaluation of the process, structure and obstacles to handover through a standardized model Consideration of success factors Using the Ishikawa diagram	The study only involved nursing staff.
2	Mellawani (Mellawani et al., 2019)	2019 Indonesia (MIC)	Examine the relationship between nurses' behavior and the implementation of clinical handover at the patient's bedside.	153 nurses from the hospital	Descriptive study Cross-sectional Quantitative	three hospitals in the province of Kepu-lauan Bangka Belitung Indonesia	A statistically significant relationship exists between nurses' caregiving behavior and the implementation of bedside communication. Assessments of the incommunication rate showed an average implementation rate of 81.9% across the three hospitals. The average score for the information quality dimension was highest (85.4%) in the implementation of bedside communication by nurses across the three hospitals.		Transmission to the patient's bedside Use of a Likert scale for evaluating the handover of care (HES Handover Evaluation Scale) Evaluation in three hospitals and comparison of results Recommends the standardization of HANDBOVER Taking into account the factors that influence HANDBOVER	The study only involved nursing staff. No standardized model
3	Faith Rickard (Rickard et al., 2022)	2022 Gambia (LIC)	Examine clinical handover practices between caregivers during team changes in maternity wards in Gambia.	60 nurses, 58 midwives, 42 doctors	A cross-sectional study Observation Mixed-methods study	three public hospitals in the Greater Banjul urban area of The Gambia	a prevalence of 50% of the transmission elements, with a 95% confidence interval and a 5% margin of error The HANDBOVER in maternity were inconsistent, hampered by contextual obstacles, including lack of communication and guidance within the team, and delays. All transfers were carried out at the patient's bedside. The HANDBOVER was not effective among doctors	SBAR	The study involved nurses, midwives, and doctors. Transmission to the patient's bedside Use of a standardized model to assess HANDBOVER The duration of the HANDBOVER and the periods were evaluated. Assessment of obstacles and enabling factors	Quantitative data limited to the observation of practices

Continued

4	Mary Nyikuri (Nyikuri, 2020)	2020 KENYA (MIC)	To understand, from the nurses' point of view, the objective and structure of transmission in three newborn care units in the health sector in Nairobi.	44 Nurses	Ethnographic, qualitative	Three different newborn care units in the health sector in Nairobi.	Three types of transmission were identified: transmission at the patient's bedside, transmission at the nurses' station, and self-transmission. The structure and content differ from hospital to hospital, and from nurse to nurse. The shift system, the time available for handover, familiarity with babies, medical emergencies, and the use of notes are factors that have influenced the structure of handover from one hospital to another.	Evaluation of the objective and structure of the transmission. Advocates for the standardization of HANDOVER in bed in some places. Consideration of success factors	Failure to use a standard evaluation model. The study only considered nursing staff.
5	Lucy Pilcher (Pilcher et al., 2022)	2022 India (MIC)	to establish the proportion of women transferred, the content of clinical transfers and communication between teams in three different obstetrics units in Kerala, India, and to describe the environment of the transfers.	56 Nurses, doctors, obstetricians	A cross-sectional observational study. Mixed-methods design.	Three hospitals in Kerala, India	The criteria were met for all observed transfers. The logistic regression model for a distraction-free transfer accounted for 53% of the variance (Nagelkerke $R^2 = 0.53$). Across all hospital settings, the categories "situation" and "context" had a higher median number of items included in patient transfers than "assessment" and "recommendation".	SBAR	Consideration of Nurses, Doctors, Obstetricians. Consideration of factors influencing the quality of HANDOVER. Using a model for performance evaluation. Recommendation to use a harmonized tool.
6	Khin Sanda Tun (Tun et al., 2019)	2019 Myanmar (MIC)	"Improve postoperative transfer practices within the local context of an orthopedic surgery department by implementing best practices."	52 Nurses	Quantitative cross-sectional interventional study	a post-operative hospital in an orthopedic center in Myanmar	The intervention to implement a standardized HANDOVER tool significantly improved nurses' practices between the diagnostic audit phase and the follow-up audit.	SBAR, COLD	Combination of two standardized tools (SBAR, COLD). The study only considered nursing staff. Reduced factors contributing to the success of the transmission.
7	Mosab H. Adam (Adam et al., 2022)	2022 Sudan (MIC)	verify the use of the SBAR (situation, background, assessment and recommendation) communication tool in the transfer process.	48 doctors	Prospective and interventional quantitative audit	Department of Pediatrics, Sudanese University Hospital	Regarding adherence to the transfer protocol using the SBAR form during the first cycle, the results were unsatisfactory for all items. The post-intervention (second cycle) evaluation revealed a remarkable improvement in the documentation of patient-related information during the transfer process.	Use of a standardization model for intervention. Pre-intervention and post-intervention evaluation. Taking into account the success factors of the HANDOVER	The study only involved doctors. Reduced sample size. Online data collection.

Continued

8	Aris Payung (Aris Payung et al., 2022)	2022 Indonesia (MIC)	Evaluate the transfer of responsibilities based on the SBAR by comparing its implementation between senior nurses and associate nurses in the Lakipadada inpatient ward.	124 Nurses	Cross-sectional analytical observational randomized quantitative	Hospital ward of the Lakipadada Tana Toraja Regional Public Hospital	The implementation of the SBAR-based care transmission assessment by primary care nurses is better than that of licensed practical nurses.	SBAR	Evaluation based on a standardized HANDOVER tool Consideration of the success factors of HANDOVER	Nurses
9	Mr. Raymond, MC Harrison (Raymond & Harrison, 2014)	South Africa (2014)	To determine the effectiveness of adopting the SBAR communication tool in an acute care clinical setting in South Africa.	21 nurses and 17 doctors	Interventional mixed methods	Neonatal unit of a CAP hospital	The telephone audit demonstrated a 29% increase in SBAR usage. % before training to 70% after training. Qualitative data demonstrated that SBAR facilitated more effective care rapid patient assessment and evaluation by those in charge.	SBAR	Evaluation based on a standardized HANDOVER tool Staff training on the tool Consideration of the success factors of HANDOVER The study involved doctors and nurses Development Posters and stickers were placed nearby phones to remind staff to use the structure during communications. A laminated SBAR neonatal chart has been developed for encourage the standardization of information by phone	The tool was not used during shift handovers between teams.
10	Warda Elbastawisy Ahmed (Elbastawisy Ahmed et al., 2022)	Egypt (2022)	to examine the influence of three different styles of information transmission between nurses on certain patient safety indicators.	130 nurses and 6 head nurses	Comparative cross-sectional quantitative study Analytical	Intensive care units at Mahalla General Hospital,	In the "oral" group, 60% of nurses correctly applied the information transmission procedure, compared to 87% in the "written" group and 95.5% in the "bedside" group. The most appropriate practice among head nurses was observed in the "bedside" group (100%), and the least appropriate in the "oral" group (33.3%).	ISBAR	Multi-site study Evaluation of three styles and a tool	The study only involved nurses