Review Article

Improving Patient Handover: A Narrative Review

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Abstract

Introduction: The clinical handover process has been directly associated with patient safety. Improving patient handover can improve patients' safety and ultimate outcomes; therefore, this review was conducted to examine the literature available on interventions that make handovers more effective. **Methods:** MEDLINE (EBSCO) was searched for interventions that improve the efficacy of clinical handovers. Studies were excluded if they were irrelevant, not published in peer-reviewed journals, not published in English, or were based on animal studies. A total of 1087 publications were retrieved and sorted by relevance. The eligibility of the articles was determined by reading through the titles and abstracts then full texts, and reference searching. Six studies were selected for this literature review. **Results:** A number of handover interventions were explored. One intervention was changing the handover location to patients' bedside; Bradley *et al.* found that bedside handovers decreased handover time and patient adverse events. Another intervention was providing education on handovers which Sand-Jecklin *et al*. associated with reductions in adverse events. Moreover, Lee *et al*. used simulation-based education and found that it significantly improved nurses' knowledge, performance competence, and self-efficacy. Another intervention was the transforming care at the bedside (TCAB) framework which incorporated multidimensional strategies and emphasized handover as part of patient centeredness; these strategies improved patient safety, yet the results cannot be attributed solely to handover modifications. Meanwhile, Hada *et al*. implemented a mixture of interventions and found that they improved patient safety and reduced adverse events. **Conclusion:** The interventions explored were bedside handovers, providing education and simulation-based education on handovers, emphasizing patient centeredness as part of TCAB strategies, and implementing a mixture of interventions. All interventions reduced adverse events, although some improvements were not significant. Due to the limited evidence available to support the efficacy of the interventions on improving clinical handovers, the results remain inconclusive.

Keywords: Bedside handover, clinical handover, effective, handover, interventions, optimizing

Introduction

Clinical handover entails communicating information about patient care from one health-care professional to another. It may be used in the context of a shift change, the transfer of patient care to another physician or health service organization, or the referral, admission, or discharge. Handover involves the transfer of the responsibility and accountability of care for a patient temporarily or permanently.[1] The handover process has been directly associated with patient safety. Moreover, suboptimal communication during the process leads to poor patient outcomes due to inaccurate knowledge of the patient's clinical status, which subsequently results in delayed investigations and treatments as well as medical errors and an increased burden on the health-care system.[2] Improving patient handover can improve patients' safety and ultimate outcomes; therefore, this review was conducted to examine the literature available on interventions that make handovers more effective.

Methods

Study design

The Best Evidence Medical Education review guidelines were used to conduct this literature review.

Search strategy

MEDLINE (EBSCO) was searched for interventions that impact the efficacy of clinical handovers. The search terms combined the handovers with the terms "tools" or "interventions" or "factors" or "optimizing" or "effectiveness"

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Table 1: Search strategy

Database: MEDLINE (EBSCO)		
Number	**Searches**	**Results**
S1	"handover" or "clinical handover" or "bedside handover" or "patient handover"	2575
S2	"handover" or "clinical handover" or "bedside handover" or "patient handover" Limiters-Scholarly (Peer Reviewed) Journals; English Language; Human	1852
S3	("handover" or "clinical handover" or "bedside handover" or "patient handover") and ("tools" or interventions" or "factors" or "optimizing" or "effectiveness" or "effective") Limiters-Scholarly (Peer Reviewed) Journals; English Language; Human	1087

or "effective" [Table 1 details full search terms and limiters]. In total, 1087 publications were retrieved. Studies were sorted according to their relevance to the topic. The eligibility of the articles was determined by reading through the titles and abstracts followed by full texts.

Inclusion and exclusion criteria

Articles addressing interventions aimed at improving the effectiveness of clinical handovers were included in the study. Studies were excluded if they deviated from the topic, were not published in peer-reviewed journals, were not published in English, or were based on animal studies.

Data extraction

After irrelevant articles were excluded, the remaining articles' titles and abstracts were read to ensure they were relevant to the studied topic. Moreover, reference searching of the selected articles was conducted to find other relevant articles that may have been missed in the original search. Then, the full texts of the first 11 articles, sorted in order of relevance, were read to determine their relevance to the topic and derive the factors influencing handover in clinical settings. From these, two articles were included and nine were excluded from the study. The remaining four articles were identified through reference searching the selected articles. The nine articles were excluded due to their lack of relevance to the review.

Results

Six studies were selected for this literature review. Different handover interventions were implemented by the selected studies [The interventions used by each study are outlined in Table 2 and The types of data collected and frameworks followed by all of the studies are detailed in Table 3].

Changing the location of handovers to patients' bedside

One modification that has been incorporated to improve handovers is changing the location where they take place to the bedside. Bradley *et al.* individually examined the effect of changing the handover approach from a closed-door handover to a bedside handover. The assessed outcomes were nursing satisfaction, the duration of handovers, and the incidence of adverse incidents. The authors found that the change in setting to the bedside resulted in a decrease in the time taken to hand over patients and a significant reduction in the occurrence of incidents such as patient falls and medication errors. In fact, the incidence of falls decreased from one to two falls in a month to one fall in 6 months. Hence, the authors deduced that this intervention had made handovers more effective and increased patient safety.[4]

Educating health-care professionals about handovers

Another intervention aiming to increase the efficacy of handovers is educating health-care professionals about how handovers should be conducted. Hada *et al*. and Sand-Jecklin and Sherman explored such interventions, whereby they provided nursing staff with an educational package emphasizing the "situation-background-assessment-recommendation (SBAR)" handover tool. The package was composed of video examples and written material outlining the SBAR handover format.[5,8] Hada *et al*. found that educating nursing staff about handovers improved patients' and nurses' satisfaction with the handover process ($P < 0.05$). Moreover, although they found that education resulted in a reduction in patient adverse events, with falls, pressure injuries, and medication errors decreasing by 9.7%, 75%, and 11%, respectively, these reductions were not statistically significant ($P > 0.05$). However, this lack of significance may be attributed to the small sample size, with only 58 patients included, which may not have been enough to establish statistical significance.[5] Meanwhile, Sand-Jecklin's and Sherman's results demonstrated a 35% decrease in the number of falls and a 50% decrease in the incidence of medication errors. Individually, the reduction of falls and medication errors was also not statistically significant ($P > 0.05$). However, the overall decline in the occurrence of adverse events was clinically significant.[8]

Using a simulation-based education program on handovers

Furthermore, the use of simulation-based education programs is another intervention that has been used to improve clinical handovers. Lee *et al*. studied this intervention to determine whether it improved the efficacy of patient handovers. This study's intervention took place in the following stages: a prebriefing of the scenario, putting the participants through the simulated scenario, a debriefing and reflection stage when nurses were also advised on how to improve their handovers, and an application stage. The authors found that nurses' knowledge, performance competence, and self-efficacy significantly improved following the program. Therefore, the simulation program was effective in improving the handover experience.[6]

Using transforming care at the bedside improvement strategies

Moreover, the 13 transforming care at the bedside (TCAB) strategies are a framework which aims to involve staff and managers in applying different strategies which aim to improve

Table 2: Interventions used to improve clinical handover

A group of interventions	Bedside handover	Education	Simulation-based education program	Patient-centered approach
Hada *et al*.(2021)[3]	Bradley and Mott (2012)[4]	Hada *et al*.(2018)[5] Sand-Jecklin and Sherman (2013)[8]	Lee and Lim (2021)[6]	Chaboyer *et al*.(2010)[7]

Table 3: Frameworks used or data management plan used by the studies

Study	Framework used or data management outline
Chaboyer *et al*.(2010)[7]	TCAB improvement strategies. The handover improvements were emphasized as part of the patient-centeredness themes. Initiatives added included: Bedside handovers Providing introductory letters at admission Writing the daily goals for each patient on the whiteboard near their bed Having a discharge checklist
Bradley and Mott (2012)[4]	A mixed-method design, incorporating quantitative data to report handover timings and adverse events frequencies and qualitative data to report nursing satisfaction
Sand-Jecklin and Sherman (2013)[8]	The educational components emphasized the SBAR handover tool Data were collected using surveys sent to patients and nurses before and after the intervention
Hada *et al*.(2018)[5]	The educational components emphasized the SBAR handover tool A mixed-method design, incorporating quantitative data to report staff satisfaction, patient satisfaction, and the incidence of adverse events (including falls, pressure injuries, and medication errors)
Hada *et al*.(2021)[3]	The OMRU which consists of three phases Phase one (preimplementation) Recognizing barriers to and facilitators of clinical handover Phase two (implementation) Developing interventions to enhance and monitor clinical handovers Phase three (evaluation) Evaluating the interventions placed and their efficacy in enhancing clinical handovers
Lee and Lim (2021)[6]	Simulation-based handover education program, with assessments of handover knowledge before and after implementing the program (pretest-posttest design) "The simulation-based handover education program comprised five steps: ADDIE based on the ADDIE model[6]"

TCAB: Transforming care at the bedside, SABR: Background-assessment-recommendation, OMRU: Ottawa model of research use, ADDIE: Analysis, design, development, implementation, and evaluation

patient safety. These strategies are composed of four pillars: "safety and reliability, care team vitality, patient centeredness, and increasing value."[7] Chaboyer *et al*. aimed to assess the effects of implementing the TCAB strategies to reduce the incidence of adverse events and enhance patient safety. Handover improvements were emphasized as part of patient centeredness and they included bedside handovers, daily goals for each patient written on a whiteboard at their bedside, and discharge checklists. However, as other changes related to the other pillars of the TCAB strategies were implemented simultaneously, the findings could not be attributed solely to the handover modifications. Overall, implementing the TCAB strategies resulted in reduced occurrences of medication errors, patient falls, and pressure ulcers, which indicated improvements in patient safety. There was an absolute reduction of medication errors by approximately one half.[7]

Combining a group of interventions

While interventions to improve handovers may be applied individually, it is also possible to implement a group of interventions simultaneously. Hada *et al*. implemented the "bundle of interventions" approach. They followed the Ottawa Model of Research Use (OMRU), which is composed of three phases: preimplementation, implementation, and evaluation.[3] During the preimplementation phase, they identified factors which impede and facilitate handovers;[3] this information was derived from a pilot study by Hada *et al*. which identified the barriers and facilitators of effective handovers according to the perceptions of nursing staff.[9] The barriers highlighted were inconsistent frameworks, a lack of patient inclusion, time constraints, and environmental obstacles. Meanwhile, facilitators of efficient handovers were thought to be documenting information in integrated electronic medical records, setting leaders who outline their expectations and support staff members, and providing education on how to conduct handovers.[9] Meanwhile, during the implementation phase, a number of interventions centered around the "Identify, Situation, Background, Assessment, Recommendation (ISBAR)" framework were applied. The interventions included the use of an integrated electronic medical record, role modeling by senior nurses, a briefing at the

nursing station about patients' sensitive information, and the provision of education about handovers. Furthermore, during the evaluation phase, the implications of the interventions applied on patient safety were assessed. The authors found that nursing compliance with handovers had improved. Moreover, patient safety was enhanced, as reflected by reductions in falls, pressure injuries, and medication errors.[3]

Discussion

Handovers are forms of communication during which the accountability and responsibility of a patient shift from one health-care professional to another. The impact of patient handovers on patient safety is well established.[2] This has led organizations such as the Australian Commission for Safety and Quality in Health Care (ACSQHC) to prioritize handovers and develop initiatives to provide guidance and help improve clinical handovers.[1] The ACSQHC recommends having a standardized and structured clinical handover process; this entails concisely transferring information, outlining the purpose of the handover, using a structured communication tool (such as the ISBAR), and explaining the nature of the transfer of responsibility and accountability.[1]

Communicating during handovers is a complex process that is subject to variability due to differences in situations, communication modalities, sites of handovers, and the involvement of different disciplines. Handovers are indicated in situations where there is a need for the transfer of care; this may be due to a need to transfer care to another health-care professional, department, or health organization or when a patient is temporarily transferred for investigations or appointments, or when a patient is discharged. The handover may be communicated using different methods such as face-to-face interactions, phone communications, and orders written physically or on an electronic integrated system. Moreover, the locations where handovers can take place can vary; they may occur in common staff areas, at the clinic or ward's reception, or at the patient's bedside.

In addition, different health-care professionals may be involved, and they can be from different organizations or disciplines. Therefore, this explains the need for the structure and standardization emphasized by the ACSQHC.[1] This review highlights improvements in patient outcomes in two studies[5,8] following the education of health-care staff using the ISBAR communication framework.

Furthermore, an important dimension of clinical handovers is ensuring the transfer of correct and accurate information. To ensure accuracy, the handover must be prepared in advance, and the person handing it over must possess adequate relevant information while also taking the patient's concerns and wishes into consideration. Involving patients in the handover process can allow them to express their perspectives and concerns, which can result in improved patient outcomes and fewer adverse events and readmissions.[10] This is congruent with Bradley's and Mott's finding of a decrease in the incidence of adverse events and improved patient outcomes following moving the location of handovers to the patient's bedside.[4]

Limitations

This review is limited by the use of a single database, MEDLINE (EBSCO), to search for eligible studies, which may have led to the omission of important articles within the literature. Moreover, only a small number of articles were selected. In addition, variations in study designs and assessment tools may have played a role in the differences between reported outcomes across different studies. Furthermore, differences in populations and population sizes may also have made the comparison difficult. Finally, the interventions used by the selected studies were all applied to nursing handovers, which limits their generalizability to handovers between other health-care professionals due to the differences in the nature of their jobs.

Conclusion

This review provides a preliminary outline of the effect of different interventions on the efficacy of handovers. At least one study was included to assess each intervention, which included changing the location of patient handovers to the bedside, providing education as well as simulation-based education on how to conduct handovers, emphasizing patient centeredness as part of TCAB strategies, and implementing a mixture of interventions. All studies demonstrated improved patient outcomes and a reduction in adverse events (falls, pressure ulcers, and medication errors) following the implementation of the different interventions, although in some cases the improvements were not statistically significant. However, due to the limited evidence available to support the efficacy of the interventions on improving clinical handovers, the results remain inconclusive. Further well-designed studies need to be conducted to establish robust evidence on the efficacy of the different interventions aimed at improving clinical handovers. Moreover, interventions aimed at improving clinical handovers should be applied to other health-care professionals, such as doctors.

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Conflicts of interest

There are no conflicts of interest.

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