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A Quality Improvement Approach to Standardize Clinical Handover for Nurse s in Critical Care Units of Selected Tertiary Care Hospital, Dehradun Uttarakhand

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ABSTRACT

Introduction: The World Health Organization's priority for patient safety has been the driving force behind improvement in clinical handover and health communication broadly globally (WHO 2010). To provide high-quality treatment, health care workers need to communicate with other professionals. One of the most crucial communication transactions is the clinical handover. The Joint Commission has said that enhancing handover should be a national patient safety objective and has pointed to communication issues as a common source of medical mistakes. Effective communication, care continuity, error prevention, and patient safety are all enhanced by well-executed handover. **Purpose:** To assess the existing nursing clinical handover practice and develop & implement an evidence-based standardized framework in the critical care unit of a tertiary care hospital in Uttarakhand. **Methodology: Pre-Implementation**: A mixed-methods approach was employed to assess nursing clinical handover practices in a critical care setting. An audit of the existing handover checklist in the critical care unit aimed to ensure consistency and standardization. Nurses in the critical care unit participated in a focused group discussion, and their handover practices were observed using a self-structured observational checklist in 30 instances per shift. Descriptive and content analysis of the gathered data revealed shortcomings in the existing handover tool, prompting the development of a standardized ISBAR framework tool. **Implementation Process**: The ISBAR tool underwent validation by professionals, followed by a pilot study to assess feasibility. Subsequently, nurses in the critical care unit received training, and the ISBAR tool

was officially adopted. Quarterly audits were instituted to monitor progress and sustainability, and nurses provided feedback through Google Forms. **Results: Post-Implementation**: Following the implementation of the ISBAR tool, notable improvements were observed. Handover time decreased from 20 to 15 minutes, with enhanced note-taking (100% compliance), improved two-way communication (reaching 100% in February and May 2023), and a significant reduction in noise and interruptions during handovers. The ISBAR tool was well-received by nurses, with positive feedback indicating its relevance (90%), time-saving nature (90%), organizational effectiveness (89%), provision of comprehensive information (90%), and easy comprehensibility (93%). Nurses reported that the ISBAR tool significantly increased efficiency, saving time and improving completeness in patient information reporting. Communication-related incidents showed a marked decrease from 0.47% (Jan-Aug 2022) to 0.017% (Aug 2022-May 2023). **Conclusion:** In conclusion, the implementation of the ISBAR framework proved highly effective in addressing the shortcomings of the pre-existing handover practices. The standardized tool not only streamlined the handover process but also contributed to a significant reduction in communication-related incidents, ultimately enhancing patient outcomes.

Keyword: Identification, **S**ituation, **B**ackground, **A**ssessment, **R**ecommendation ***(ISBAR)***

1. INTRODUCTION

1.1 Background

Clinical handover involves transferring professional responsibility and accountability for certain or all aspects of a patient's care, or a group of patients, to another individual or professional team, either temporarily or permanently. (**British Medical Association, 2012).**[1] Handover of care is one of the most perilous procedures in critical care unit, and when carried out improperly can be a major contributory factor to subsequent error and harm to patients. **(National Patient Safety Agency).**[2] Clinical handover is the temporary or ongoing effective transfer of professional duty and accountability for any or all parts of patient care to another professional or expert group.[3]

As healthcare settings need to work around the clock to provide care, shift changeovers are inevitable. However, the problem is that staff changes can present a huge risk to service users. The new nurse may not be able to properly pick up where the previous person left off. Failure to provide a good handover is a significant preventable cause of patient injury, and it is also the most crucial step in assuring the patient's safety. Patient handover is a beneficial event that is a vital aspect of hospital systems and workflows.[4] The establishment of a systematic nursing handover procedure improves patient satisfaction and nurse acceptability. This research can be used as a future reference because it focuses on standardizing the handover procedure to increase its quality.[5]

The literature identifies three basic components of good practice in nursing handover styles: bedside, verbal, and nonverbal. Handovers at bedside are located at the patient's bedside, which

promotes patient and nurse face-to-face interaction and encourages patients' verbal participation, thus making the patient central to the information exchange process.[6]

Inadequate clinical handover raises morbidity and mortality, hospital length of stay, healthcare expenditures, and patient satisfaction.[7] The World Health Organization's emphasis on patient safety has been the driving force behind improvement in clinical handover and health communication globally (WHO 2010). According to the WHO 22% of mistakes were caused by communication issues while nurses were handing off and taking over. Lack of standard processes might cause the loss of crucial data and clinical mistaken assumptions and fatal health care errors might result from poor communication in hospitals.[8]

Standardization of handoff reporting has been shown to improve information quality and patient safety.[9] ISBAR, I-PASS are the trustworthy and verified communication tools that has been proved to increase communication among healthcare professionals, decrease adverse occurrences in a hospital context, and promote patient safety.[10]

ISBAR (Identification, Situation, Background, Assessment, and Recommendation) is acknowledged by the Joint Commission, the Agency for Healthcare Research and Quality (AHRQ), the Institute for Health Care Improvement (IHI), and the World Health Organization (WHO) as an efficient communication tool for patient handoff.[11]

1.2 Need of the project

According to The Joint Commission Sentinel Event Data 2022 Annual Review, sentinel events increased 19% in 2022, which can be attributed to a 27% increase in patient fall events. Consistent with previous years, patient falls were the leading event type reviewed (42%). Patient outcomes from reported sentinel events were death (20%), permanent harm (6%), severe harm (44%), and unexpected additional care/extended stay (13%). Failures in communication, teamwork and consistently following policies were leading causes for reported sentinel events.[12]

In 2006, the Joint Commission established a National Patient Safety Goal that addressed hand-off communication, making the standard a requirement in 2010. The standard, Provision of Care Standard PC.02.02.01, element of performance 2, requires that: The organization's process for hand-off communication provides for the opportunity for discussion between the giver and receiver of patient information (The Joint Commission, 2017, September 12).[13]

Medication-related harm affects 1 out of every 30 patients in health care, with more than a quarter of this harm regarded as severe or life threatening. Half of the avoidable harm in health care is related to medications. [14]

Data from a clinical review at our hospital showed that ineffective nurse handovers accounted for 23.5% (59 of 251) of all clinical occurrences. The reported incidents included medication errors (15), phlebitis (17), identification errors (7), absconding patients (17), and missing patient records (3).

Thomas MJW et.al. In a review paper “barriers to patient handover” found that there were several communication challenges, such as unorganized reporting, interruptions, inability to identify the patient's prognosis, language difficulty, and confusion concerning team member responsibilities. According to an investigation of clinical review reports, misunderstanding at the transition point or during the handover of care may be to blame for up to 70% of adverse occurrences[15]

Lack of communication in a healthcare setting can result in mild, moderate, or severe medical mistakes. In order to update the non-standardized nursing clinical handover to a structured and standardized framework, quality improvement initiatives are required. It's crucial to follow an organized and uniform handover procedure to make sure all relevant information is transferred without reducing processes. Therefore the use of a pre-prepared handover sheet that is passed to the next shift in conjunction with a verbal handover almost entirely eliminates the loss of patient data during handover**.** [16]

Structured clinical handover has been shown to reduce communication errors within and between health service organizations, and to improve patient safety and care, because critical information is more likely to be accurately transferred and acted on.[17]

Above given evidences support the claim that using organized, standardized handover framework enhances information transmission and patient outcomes. One of the most used and well researched frameworks is the ISBAR framework, which is intended to provide accurate, clear communications and a consistent strategy to communicate in a variety of practice situations.[18]

Clinical handovers that are structured have been found to enhance patient safety and care by lowering communication mistakes within and across health service organizations as well as by increasing the likelihood that crucial information will be correctly conveyed and responded appropriately.[19]

1.3 Objectives

1. Assess the pre-existing clinical hand over practices among nurses in critical care unit in a selected tertiary care hospital.
2. To develop a standardized nursing clinical handover tool using ISBAR framework.
3. To evaluate the effectiveness of the nursing clinical handover practices post-implementation of ISBAR tool.

2. Methodology

The project took place in 54 bedded critical care unit of a tertiary care hospital, Uttarakhand. Project participants included 30 nurses of the critical care unit. The project involved implementation of a standardized handover tool to improve reporting between critical care nurses.

A mixed-method approach was used by combining both qualitative and quantitative methods to comprehensively address the objectives of the project. The PICO model was adopted to structure the approach systematically. The PICO framework in Fig.1, which stands for Problem, Intervention, Comparison, and Outcome, provided a structured guide for formulating the research question and designing the project.

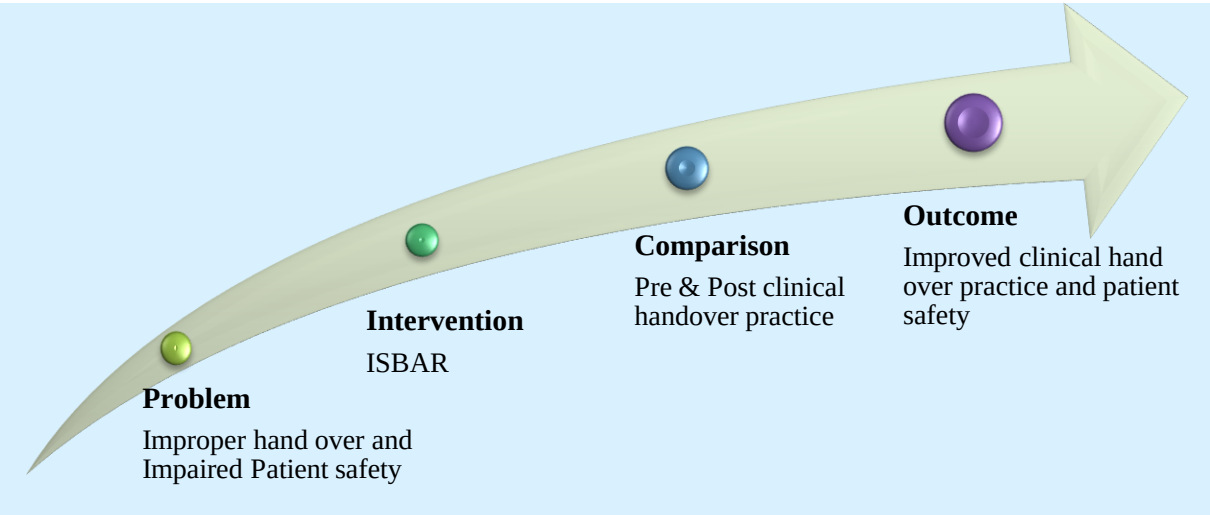


Fig. 1 PICO Model for implementing Evidence Based Practice

Firstly, the problem was identified, specifying the non-standard nursing clinical handover in critical care units. The intervention involved the development and implementation of a standardized handover tool, which was then compared to existing handover practices. The Outcome measures included improvements in communication efficiency, patient safety, and overall quality of care.

The project took place in 4 phases: Phase 1 (February to March 2022) - Assessment of pre-existing practice, Phase 2 (April to May 2022) - Developmental Phase, Phase 3 (June to August 2022) - Implementation Phase and Phase 4 (September-22 to February-23) - Evaluation for sustainability. The project took total one year to be fully implemented.

Phase-1: Assessment of pre-existing practice (February to March 2022)
Phase-1 took almost 8 weeks. Leaders in the critical care unit were identified in order to motivate the nurses for change. The vision of the project was explained. Administrative approval was taken to start the project in the critical care unit. A concurrent audit was done for pre-existing nursing clinical handover checklist used in the critical care unit by nurses. Afterwards an observational checklist was developed to assess the existing clinical handing over practice of nurses. After the content validity was ensured and pretesting of the tool was

done necessary modifications were done based on expert suggestion. The reliability of the tool was established upon administering the tool to 5 samples. Total 30 nursing handover observations were collected (10 observation in each shift) followed by a focused group discussion with critical care nurses (n=30). Both a descriptive analytic approach and a qualitative content analysis were used to analyze the data.

Phase-2: Developmental Phase (April to May 2022)

Phase-2 took 8 weeks. The finding of the stage-1 (Pre-existing clinical handover) were analyzed qualitatively and quantitatively and a Multidisciplinary team worked together to develop evidence based standard tool (ISBAR) for nursing clinical handover. The handover tool using ISBAR was validated by the experts in the areas and necessary changes were done after the expert suggestions.

Phase-3: Implementation Phase (June to August 2022)

Phase-3 took 12 weeks. Prior to implementation, teaching and training sessions were held for the unit's designated leaders. The leaders received both theoretical and practical instruction on how to utilize the ISBAR tool. After the needed training sessions, pilot study and training the nurses of the unit standardized handover tool was implemented in the critical care unit of the tertiary care center.

Phase-4: Evaluation for sustainability (September-22 to February-23)

Phase-4 took 24 weeks. After the implementation of the evidence-based handover tool a quarterly audit was done to check the sustainability and effectiveness of the tool. Following implementation, nurses reported in their feedback that using the ISBAR handover tool increased completeness in reporting patients' overall information and generated a full report of the patient. The rate of Incidences relate to communication was seen to be reduced after the implementation of the standardized handover tool. Incidences related to communication from Jan-22 to Aug-22 were 0.47%, and after the implementation from Aug-22 to May-23 the incidence rate was decreased to 0.017%.

3. Results

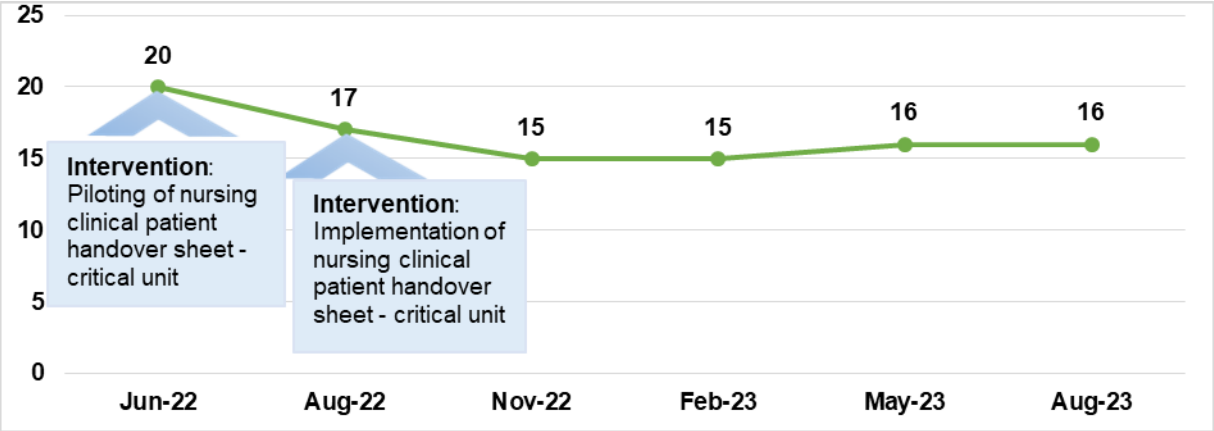
The existing nursing clinical handover tool was inadequate for providing comprehensive information about the intensive care unit patient. It was discovered to be insufficient and to contain incomplete information required for the shift change. The existing handover tool provided information in a checklist format rather than a comprehensive format. Because the existing handover checklist was a non-standard framework, a standard handover tool was necessary to be developed and implemented.

The results of pre-existing clinical handover practice showed 100% handovers were happening bedside. The face-to-face and verbal type of nursing clinical handovers were being used in critical care units. After the implementation of ISBAR tool in nursing clinical handovers, Nursing shift handover time decreased from 20 minutes in June 2022 to 15 minutes in November 2022, February 2023 and 16 min in May & August 2023 respectively because nurses had complete information written in a single page during the handover process. It was noticed that only 43.3% initially took patient notes (which was improved to 100%), 63.3% initially engaged in two-way conversation with other nurses (which was improved to 100% in February as well as in May 2023), and 47% of the time there was noise and interruptions during

handover. Overall improvements in handover procedures have been noted as a result of the implementation of standardized patient handover sheet, ultimately lessening the written work burden of the nurses in critical care unit.

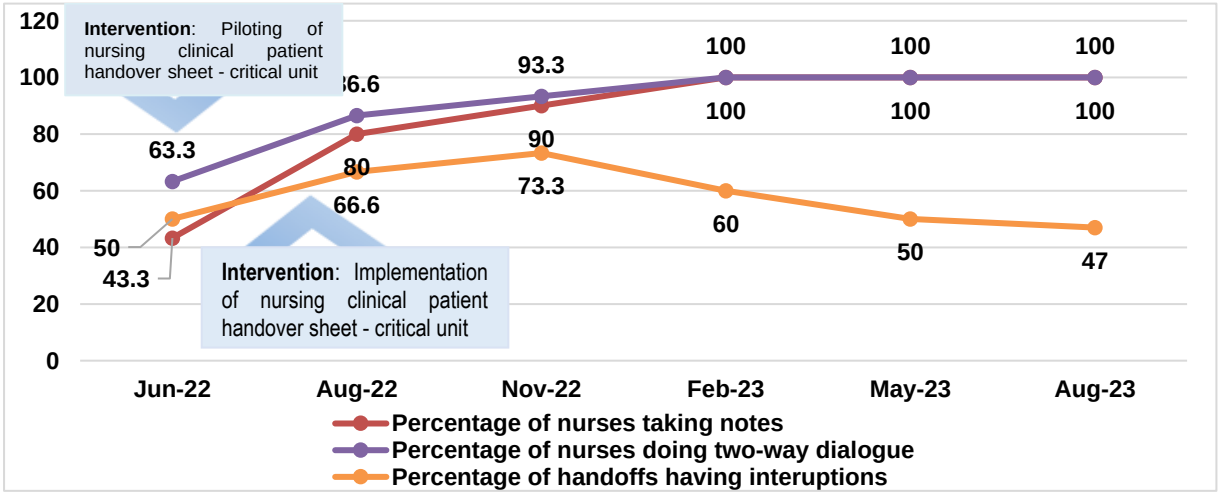
The target group provided feedback, which revealed that ISBAR tool was relevant (90% nurses agreed), time saving (90% nurses agreed), organized (89% nurses agreed), comprehensive information (90% nurses agreed) and easily understandable (93% nurses agreed). Upon asking the nurses regarding "How the ISBAR tool saves time?" they stated that it is easy to fill and contain all information in one form which saves their time.

Graph 1: Time series showing average time taken for nurse's handover



Graph 1 depicts the average handover time for nurses from June 2022 to November 2022. Initial handover time was 20 minutes, however once the critical area nursing clinical patient handover sheet was implemented, that time was reduced to 16 minutes respectively May and August 2023.

Graph 2: Distribution of percentage of nurses taking notes, two-way communication and interruptions during handoffs in time series



Following the implementation of a standard handover tool in a critical area, namely the nursing clinical patient handover sheet, Graph 2 demonstrates an improvement in percentages for the distribution of nurses taking notes, two-way communication, and interruptions during handoffs.

4. Major findings

i. Nursing shift handoff times decreased from 19 minutes in June 2022 to 15 minutes in November 2022, February 2023 and 16 min in May & August 2023 respectively.

ii. 100% of nurses asked questions during patient handovers resulting in complete communication feedback response.

iii. It was noticed that only 43.3% initially took patient notes (which was improved to 100%), 63.3% initially engaged in two-way conversation with other nurses (which was improved to 100% in February as well as in May 2023), and 47% of the time there was noise and interruptions during handover.

iv. The majority (100%) of nurses who were handing over patients were cordial with one another.

v. Overall improvements in handover procedures have been noted as a result of the implementation of standardized nursing clinical patient handover sheets in key areas.

vi. Improved communication and documentation post-implementation of ISBAR tool where we can get total patient information in a single page.

vii. The nurse's feedback regarding the ISBAR handover tool was, "It is now easy to take and give handovers as we have a structured format now where we find all the patient information in a complete and organized manner."

5. Discussion

The handover process in healthcare settings, particularly in critical care units, plays a pivotal role in ensuring the continuity and quality of patient care. This research report delves into a comprehensive quality improvement initiative aimed at standardizing clinical handovers for nurses within selected tertiary care hospitals. The significance of effective handovers cannot be overstated, especially in critical care environments where timely and accurate information transfer is essential for patient safety and outcomes.

The current project illustrated existing nursing shift handover practice of nurses in critical care units. After conducting the pre-existing nursing clinical patient handover practice in between shift, it was concluded that there is need of an evidence-based nursing handover criterion for inpatients during shift changes as the present nursing handover checklist didn't comprise of an overall comprehensive information of the individual patient.

A prospective quality improvement project concluded that knowledge and focus on the verbal handover influence communication, team effectiveness, and quality of handovers. The ISBAR structured approach reduced disturbances to handover because everybody involved had a clear expectation of the different items to be reviewed and were less likely to interrupt to question

or clarify. Using ISBAR as a structured tool can improve the quality of patient handover and thereby improve patient safety.[20]

Thomas MJW et.al. In "Failures in Transition: Learning from Incidents Relating to Clinical Handover" stated that the importance of a standardized approach to handover to help ensure that critical information is transferred and patient safety is not compromised.[21]

Moss S et.al. In "The key to improving clinical handover practices" mentioned Standardized approach (SBAR) to handover can lead to a decrease in adverse patient incidents and improve nursing engagement in the process. [22]

MacFawn L. G concluded an overall improvement in provider perception on handoff reporting as well as improvement in completeness of report with the use of SBAR handoff reporting tool. Use of standardized handoff reporting is recommended to improve provider satisfaction and patient safety. Ward-based teaching sessions and visual aids may offer effective and scalable methods of increasing awareness and understanding of the SBAR communication tool for handovers. Ultimately, strengthening communication requires engaging senior staff members to promote good handover culture. [23]

In the present project the average handover time for nurses from June 2022 to November 2022, Initial handover time was 19 minutes, however once the critical area nursing clinical patient handover sheet was implemented, that time was reduced to 15 and 16 minutes respectively in May and August 2023 resulting in provider satisfaction.

Pakcheshm M. concluded that transition of information based on standard checklists with a specific framework can increase the frequency of information provided during clinical handoff. Therefore, it is recommended to train nurses and nursing students about standard handoff and related tools such as ISBAR in hospitals and universities.[24]

In the present Quality Improvement Project following the implementation of a standard handover tool in a critical area an improvement was seen in nurses taking notes, two-way communication, and less interruptions during handoffs. The qualitative information gathered from the nurses has shown overall improvements in handover procedures as a result of the implementation of standardized nursing clinical patient handover sheets in key areas. Nurses concentrated on improving communication and documentation post-implementation, with everything written on one page in a uniform manner.

6. Conclusion

A standardized handoff process between providers has been shown to reduce loss of pertinent patient information. In 2006, the Joint Commission recommended healthcare providers to utilize a standardized process during patient handoff to improve safety (The Joint Commission, 2006). The Joint Commission also supports the standardized SBAR format to be used to improve communication. ISBAR (Identification, Situation, Background, Assessment, and Recommendation) tool was found to be effective in enhancing overall nursing clinical handover practice as well as the nurse's experience with handovers. It's a structured

communication technique that's often used in healthcare settings, especially for clinical patient handovers and nurse-to-nurse communication during shift changes. It has enhanced the clarity, efficiency of patient information, reduced miscommunication resulting in decreased incident rates and improved patient safety, standardized communication tool increased nurses' confidence, and resulted in a better handover experience. The ISBAR is an essential tool for nurses and healthcare workers during clinical patient handovers. It improves communication, lowers the chance of mistakes, increases patient safety, and helps to an overall satisfying nursing experience by offering an organized and efficient approach to information exchange.

7. Strengths

a. All the stakeholders were involved in the implementation of the project.
b. Focused group discussion was done to identify the handover practice of nurses.
c. All 3 shifts staff were included in the project.
d. All category staff were included in the project.

8. Limitations

a. The project was limited to clinical handover practice of nurses.
b. The standardized handover is limited to information related to patient.

9. Recommendations

a. Developing clinical handover tool for nurses in specialized units using ISBAR.
b. Audit to be conducted at regular time interval to assess the sustenance.

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