

Effects of SBAR Utilization by Healthcare Providers on Patient Outcomes:

A Systematic Review of the Literature

Final Honors Thesis

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Abstract

Problem

Communication failures have been identified as a leading cause of sentinel events.

Communication failures have been shown to lead to patient management errors which include falls risk, medication administration mis-management or error, and delay in patient treatment.

Studies show that SBAR (Situation-Background-Assessment-Recommendation), a structured communication tool, helps guide communication among healthcare professionals and when used, can reduce the incidence of sentinel events and improve patient health outcomes.

Purpose

The purpose of this systematic review was to assess the literature evaluating the effectiveness of SBAR utilization by healthcare providers on patient health outcomes.

Search Strategy

The Cumulative Index of Nursing and Allied Health Literature (CINAHL), Cochrane Library Databases, PubMed, and non-indexed journals were searched for studies published from 2008 to 2019. Articles in English, with keywords SBAR, communication, patient/health outcomes, nurse, physician/doctor, interprofessional healthcare team or patient safety were eligible for inclusion. Studies conducted outside of inpatient settings or in simulated settings, and studies that did not measure patient outcomes were excluded.

Results of Literature Search

Out of 570 articles identified, eight articles met the inclusion criteria.

Synthesis of Evidence

Outcomes measured described in the articles include collaboration and perception of communication (n=6), incident reports related to poor communication (n=3), unplanned intensive care unit (ICU) admissions (n=1), decrease in unexpected deaths (n=1), Foley removal compliance (n=1), and warfarin therapy therapeutic values (n=1). Two overarching themes were noted: perception of collaboration and patient outcomes. There were significant improvements in perception of collaboration and communication, patient safety, number of incident reports, unexpected deaths, readmission rates, Foley catheter removal compliance, and warfarin therapy therapeutic values.

Implications for Practice

SBAR utilization among healthcare providers was found to have positive patient health outcomes as a result of clear, concise communication. Being at the forefront of patient care, registered nurses need to be educated in and encouraged to implement SBAR as a structured communication tool when speaking with healthcare professionals.

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Introduction

Communication failures have been identified as a leading cause of all sentinel events; more than two-thirds of sentinel events have been attributed to communication failures alone (The Joint Commission, 2015). Sentinel events are defined as “any unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof” (The Joint Commission, 2019, p. 1 of 3). Clear and concise communication among healthcare providers is essential to preventing sentinel events, as well as ensuring overall patient safety during hospitalization (Field et al., 2011).

The utilization of communication tools is critical in guiding communication among healthcare professionals. TeamSTEPPS is an evidence-based framework that identifies essential skills that ensure an optimal health care delivery system. The Agency for Healthcare Research and Quality (AHRQ) identifies five different communication strategies useful for practicing clear and concise communication: SBAR, Call-Out, Check-Back, Handoff, and “I PASS THE BATON” (AHRQ, 2013). SBAR (Situation - Background - Assessment - Recommendation) is a structural communication tool that was originally developed by the U.S. Navy and first used in hospitals in the 1990s to communicate critical information (O’Shaughnessy, 2015; Renz, Boltz, Wagner, Capezuti, & Lawrence, 2013). Today, this tool is one of the 5 basic communication tools espoused by the Agency for Healthcare Research and Quality in its TeamSTEPPS program (2013). SBAR is used by healthcare professionals to communicate critical information regarding changes in a patient’s condition that require immediate attention and action (AHRQ, 2013). The template for SBAR (AHRQ, 2013) is as follows:

Situation: Explain the situation. Identify yourself, the patient, and briefly state the problem.

Background: Give relevant clinical background information such as medical history, diagnoses, medications, etc.

Assessment: Provide pertinent assessment findings that may be useful in further evaluating and solving the problem. This may include vital signs, laboratory test results, or physical exam findings. The clinician describes their thoughts about the problem.

Recommendation: Provide a recommendation to the healthcare professional based on clinical judgment.

As a result of utilizing this tool, SBAR helps address communication barriers that healthcare providers face by creating a standardized framework that can be applied in any clinical setting. A few of these communication barriers have been identified as time constraints, respect, nurse training, and language barriers (Renz et al., 2013). Numerous research studies have been conducted to evaluate the effects of SBAR utilization on patient health outcomes. Health outcomes measured include incident reports related to poor communication, Foley catheter removal compliance, number of ICU admissions, number of unexpected deaths, number of cardiac arrest team calls, adverse events related to warfarin therapy, and readmission rates (Field et al., 2018; Velji et al., 2008; De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013; Randmaa, Mårtensson, Swenne, & Engström, 2014; Andreoli et al., 2010; and Townsend-Gervis, Cornell, and Vardaman, 2014). Compared to the time investiture organizations require to educate staff on the use of this communication tool, SBAR utilization aids in producing strong patient outcomes, improving patient safety, and improving team perception and collaboration.

Literature Review

Much has been written about the utilization of SBAR to improve communication by health care providers since it was introduced. The aim of this systematic review is to assess the most current literature on the effectiveness of SBAR on patient health outcomes, and the ways in which this tool helps guide interprofessional collaboration in the healthcare setting.

Implementing SBAR in the clinical setting aids in the effective delivery of critical information pertaining to a changes in a patient's health condition that require immediate intervention. Using this tool to structure clearer, more effective communication can result in positive changes in patient health outcomes.

For example, De Meester and colleagues (2013) noted a significant improvement in communication, collaboration, and critical thinking quality between nurses and physicians when SBAR was implemented in the clinical setting (De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013). In addition to improved communication and collaboration, positive changes in patient health outcomes were found. There was a significant decrease in the number of unexpected deaths, an increase in unplanned ICU admissions, and decreases noted in cardiac arrest team calls (De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013).

The literature reveals positive changes in healthcare team communication and collaboration. However, there is a need for a more comprehensive review of the various patient health outcomes studied.

Methods

Systematic Review Design

The central question driving this systematic review of the literature was “how does SBAR implementation affect interprofessional communication and collaboration, therefore patient health outcomes?” A systematic review of the literature was then performed to analyze

themes focused on perception of safety and collaboration, and patient health outcomes as a result of SBAR utilization among healthcare professionals in the clinical setting. White and Schmidt's (2005) systematic review protocol guided this systematic review of literature.

Search Protocol

A systematic search of the literature pertaining to the central question was conducted to determine the state of the literature on the effectiveness of SBAR utilization among healthcare providers on health outcomes. The electronic databases searched included the Cumulative Index of Nursing and Allied Health Literature (CINAHL), Cochrane Library Databases, and PubMed. Additionally, non-indexed journals were searched.

Keywords were used to search the databases using the Boolean terms “AND” and “OR”: [SBAR AND health outcomes OR patient outcomes], [SBAR AND physician OR doctor], [SBAR AND nurse OR physician], and [SBAR AND interprofessional healthcare team]. All 570 titles were reviewed for possible inclusion, and eight articles which met the inclusion criteria were obtained for further review.

Inclusion and Exclusion Criteria

Articles in English, published in 2008 to 2019, with keywords SBAR, communication, patient/health outcomes, nurse, physician/doctor, interprofessional healthcare team or patient safety were eligible for inclusion. Studies conducted outside of inpatient settings or in simulated settings, and studies that did not measure patient health outcomes were excluded. After inclusion and exclusion criteria were applied, all abstracts of articles were read, and only studies that aligned with the purpose of the systematic review were read in full. A hand search was also conducted. Reference sections of all articles that met the inclusion criteria were reviewed for additional articles not generated in the search.

Assessing Quality and Validity

The quality and the validity of the articles were assessed by determining study type, the size of the intervention group, study setting, and outcomes measured. The studies that were included clearly defined outcomes that were relevant to the authors' research question.

Assessments and reviews of each research article were documented in an excel spreadsheet. The methodology of each study was clearly stated and appropriate to the study's purpose, data collection was clearly described, and findings were presented appropriately.

Findings

The literature search using Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed, and Cochrane Library Databases identified a total of 570 articles.

Additionally, non-indexed journals were searched. Duplicates were removed and inclusion and exclusion criteria were applied to titles and abstract. This process led to 16 studies to be reviewed. Hand searching yielded one additional article that did not meet the inclusion criteria for SBAR used in the hospital setting. Eight articles were chosen for the final full text review.

Out of eight chosen articles, four focused solely on nurse to physician communication and two articles focused on nurse and interdisciplinary team communication. There were two overarching themes noted from the literature search: 1) perception of collaboration and 2) patient outcomes.

However, studies clustered in the theme "patient outcomes" measured different types of health outcomes. Health outcomes measured include unplanned ICU admissions, number of unexpected deaths, number of incident reports, and Foley catheter removal compliance by healthcare team members. Research methodologies represented in the studies selected for inclusion in the systematic review included one randomized controlled study (n=1), prospective intervention

studies (n=2), quasi-experimental studies (n=4), and one qualitative improvement study that used mixed methods including survey and interview (n=1).

Perceptions of Team Collaboration and Communication

Six studies reported evaluations of the effects of SBAR utilization on perception of collaboration and communication among the healthcare team; two were prospective intervention studies with comparison groups, three were quasi-experimental studies, and one was a quality improvement study. Communication was a key element that was found to improve as a result of the use of SBAR (Andreoli et al., 2010; Velji et al., 2008; Randmaa, Mårtensson, Swenne, & Engström, 2014; Beckett and Kipnis, 2009; Compton et al., 2012; and De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013). The use of SBAR to improve the level to which interprofessional team members were open with each other, also valued one another's contributions was also revealed in findings in two studies (Andreoli et al., 2010; and Randmaa, Mårtensson, Swenne, & Engström, 2014). A greater sense of collaborative teamwork and effective communication among the healthcare team contributed to increased perception of patient safety culture in the clinical setting (Beckett & Kipnis, 2009; Andreoli et al., 2008; and Randmaa, Mårtensson, Swenne, & Engström, 2014).

Andreoli and colleagues (2010) conducted a quasi-experimental design study on the utilization of SBAR among the interprofessional team on two rehabilitation units (e.g., geriatric and musculoskeletal). SBAR utilization among the interprofessional team members was found to contribute to greater team effectiveness and understanding of team perspectives, which was measured by the Team Orientation Scale (Andreoli et al., 2010). Out of 10 items measured on the scale, there were significant positive changes in four items: "I am able to communicate effectively with team members", "this team has agreed methods for communication",

“communication between team members is unclear”, and “I believe other team members value my contribution to our work” (Andreoli et al., 2010, p.99).

Four studies focused on changes in collaboration and communication specifically between nurses and physicians (Randmaa, Mårtensson, Swenne, & Engström, 2014; De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013; Beckett & Kipnis, 2009; and Compton et al., 2012). In a prospective intervention study, Randmaa, Mårtensson, Swenne, & Engström (2014) used a nurse-physician questionnaire that measured five areas: within-group communication openness, between-group communication openness, within-group communication accuracy, between-group communication accuracy, and communication timeliness. There were statistically significant positive changes in two areas: “between-group communication accuracy” ($p=0.039$) and “safety climate” ($p=0.011$). The remaining areas showed no statistically significant changes (Randmaa, Mårtensson, Swenne, & Engström, 2014). De Meester and colleagues (2013) found statistically significant improvements in three areas (perception of collaboration among nurses when communicating with a physician, effectiveness of communication, and overall perception of communication) pre-intervention and post-intervention (De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013). In a study conducted by Beckett and Kipnis (2009), physicians verbalized that “phone and in-person reports had greatly improved” as a result of SBAR implementation (Beckett & Kipnis, 2009). In Compton and colleagues’ study (2012), nurses and physicians were educated in SBAR in various nursing units across 13 hospitals. 80.1% (121/155) of physicians who were on the receiving end of SBAR communication revealed that effective communication from the nurses allowed them to make clinical decisions. 97.8% of reports framed by SBAR were judged as adequate. By comparison, 2.2% of the reports not framed by SBAR were judged

as adequate. 17.4% of physicians who received report using SBAR felt they were not able to make clinical decisions based on the quality of information they received.

Aside from focusing on team communication and collaboration, three studies found improvements in patient safety (Beckett & Kipnis, 2009; Velji et al., 2008; and Randmaa, Mårtensson, Swenne, & Engström, 2014). Both Randmaa & colleagues, and Beckett and Kipnis noted significant improvements in safety climate at $p=0.011$ and $p<0.05$, respectively (Randmaa, Mårtensson, Swenne, & Engström, 2014 and Beckett and Kipnis, 2009). However, Randmaa & colleagues found that in areas other than safety climate such as teamwork climate, job satisfaction, stress recognition, perception of management, and working conditions, there were no statistically significant changes (Randmaa, Mårtensson, Swenne, & Engström, 2014). Psychological empowerment was also measured as a secondary outcome in this study using *Spreitzer's empowerment scale*, consisting of four factors: meaning, competence, self-determination, and impact (Spreitzer, 1995). There were no statistically significant changes with regard to psychological empowerment in either the intervention group or the comparison group (Randmaa, Mårtensson, Swenne, & Engström, 2014).

In addition to improvements in patient safety, Beckett & Kipnis (2009) and Velji et al. (2008) noted significant changes in team communication (Beckett and Kipnis, 2009, and Velji et al., 2008). In Beckett and Kipnis' study, qualitative data provided phrases that were associated with "positive communication". Verbalized phrases include "good framework", "strong foundation for communication", and "increases awareness" (Beckett and Kipnis, 2009, p.22). Nurses and physicians stated that SBAR improved team communication (Beckett & Kipnis, 2009). Velji and colleagues (2008) found that SBAR utilization contributed to improvements in staff perception of communication and patient safety, patient satisfaction, and safety reporting.

There were statistically significant improvements in five dimensions measuring perception of team communication and perceived patient safety (Velji et al., 2008). When compared to the rest of the hospital, the intervention unit scored higher in seven dimensions, two of which were statistically significant. Although there were improvements in patient satisfaction and safety reporting (incident and near-miss reports), these results were statistically insignificant (Velji et al., 2008).

Patient Outcomes

Six articles evaluated the effects of SBAR utilization on patient health outcomes. Study designs include one randomized controlled trial, three interventional studies, and two quasi-experimental studies. Nine patient health outcomes were measured in total. Based upon the nine outcomes, there were significant positive changes in six health outcomes as a result of SBAR utilization. There were no significant changes in four health outcomes.

Outcomes related to adverse events.

Three studies noted a decrease in incident reporting, including near-miss reporting, and falls risk (Randmaa, Mårtensson, Swenne, & Engström, 2014; Velji et al., 2008; and Andreoli et al., 2010). Randmaa and colleagues (2014) conducted a prospective intervention study with a comparison group to measure the effectiveness of SBAR utilization on incident reports. The proportion of incident reports decreased significantly in the intervention group, from 31% to 11%. This finding was statistically significant ($p < 0.001$). In the comparison group, the same measurement decreased from 25% to 19%. This finding was not statistically significant ($p = 0.744$) (Randmaa, Mårtensson, Swenne, & Engström, 2014). Velji and colleagues (2008) also conducted a prospective intervention study to measure multiple outcomes. One outcome that was measured was the number of incident and near-miss reports before and after SBAR intervention

was implemented. This study found no significant change in reports before and after the intervention (Velji et al., 2008).

Andreoli et al. (2010) focused specifically on falls and found that near-misses and severity of falls on both study units and the organization as a whole trended downwards. However, these results were inconclusive due to the shorter time period of the study (18 months) and the very nature of rehabilitation activities, which pushes patients to their limits, creating more opportunities for falls (Andreoli et al., 2010).

De Meester and colleagues (2013) were the only researchers to measure the number of unplanned ICU transfers, unexpected deaths, and cardiac arrest team calls (De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013). After SBAR implementation, there were statistically significant changes in the number of unplanned ICU transfers and unexpected deaths. Unplanned ICU transfers increased from 51 (13.1/1000 admissions) pre-intervention, to 105 (14.8/1000 admissions) post-intervention ($p=0.001$), and the number of unexpected deaths decreased from 16 (0.99/1000 admissions) pre-intervention, to 5 (0.34/1000 admissions) post-intervention ($p<0.001$). Although the number of cardiac arrest team calls decreased, (from 3.15/1000 admissions to 2.97/1000 admissions), it was statistically insignificant (De Meester, Verspuy, Monsieurs, & Van Bogaert, 2013).

Outcomes unrelated to adverse events.

Two studies noted improvements in patient health outcomes unrelated to adverse events. General health outcomes include Foley catheter removal compliance, readmission rates, percentage of therapeutic international normalized ratios (INRs) in nursing homes, and the percentage of follow-up INRs that were measured within three days in those that were not in the therapeutic range.

Townsend-Gervis and colleagues (2014) conducted an interventional study evaluating SBAR, re-admissions risk assessment, and the use of interdisciplinary rounds (IDR) on medical-surgical units of the hospital. Outcomes measured included Foley catheter removal compliance and readmission rates. There were statistically significant changes in both Foley catheter removal compliance and the rate of readmissions (Townsend-Gervis, Cornell, and Vardaman, 2014). Comparing the first quarter of 2010 to the fourth quarter of 2012, Foley catheter removal compliance improved from 78% (n=132) to 94% (n=154) ($p<0.001$) (Townsend-Gervis, Cornell, and Vardaman, 2014). From third to fourth quarter of 2011, when SBAR was implemented, readmission rates dropped from 14.5% (n=2,554) to 5.2% (n=2,449) ($p<0.001$) (Townsend-Gervis, Cornell, and Vardaman, 2014).

Field and colleagues (2011) conducted a randomized controlled trial in nursing homes to measure the effects of SBAR on warfarin-specific adverse effects (Field et al., 2011). Two outcomes were measured: the percentage of therapeutic international normalized ratios (INRs) measuring between 2.0 and 3.0, and the number of follow-up INR measurements within a three-day period for those greater than or equal to 4.5. In the intervention group, residents had therapeutic international rates (INR) between 2.0-3.0 53.1% of the time versus the control group, which had therapeutic INRs 50.0% of the time (Field et al., 2018). This 3.1% difference was statistically significant. There was no difference in follow-up INRs in individuals that measured greater than or equal to 4.5 (Field et al., 2011).

Discussion

As previously stated, eight articles were identified and used for this systematic literature review. Of these, one was a randomized controlled trial, two were prospective intervention studies with comparison groups, four were quasi-experimental studies, and one was a quality improvement study. This literature search identified only a small number of articles that met the eligibility criteria.

Strengths of the literature review include that there is a growing body of evidence on SBAR utilization, its impact on various patient health outcomes, and team perceptions of collaboration and communication when SBAR is used. Additionally, in recent years, many evidence-based practice (EBP) projects have been conducted to further translate SBAR research to practice, and there have been more simulations designed to study the effects of SBAR utilization on health outcomes and communication among healthcare workers across different clinical settings.

The primary limitation of the literature include study design, with only one randomized controlled trial identified for this review and many other studies lacking a control group for comparison. The addition of studies that have more rigorous methodology would provide a more thorough and impactful systematic review that would further justify the push for SBAR utilization SBAR in healthcare settings.

With regard to the effects of SBAR utilization on the perception of team collaboration and communication, three studies noted statistically significant positive changes. Velji and colleagues (2008) found statistically significant improvements in five dimensions measuring perception of team communication and perceived patient safety (Velji et al., 2008). Randmaa and colleagues (2014) reported statistically significant positive changes in two areas: “between-group

communication accuracy” ($p=0.039$) and “safety climate” ($p=0.011$). Beckett and Kipnis (2009) also reported statistically significant improvements in safety climate ($p<0.05$).

Three studies indicated positive changes associated with SBAR utilization; however, these improvements were not statistically significant. Andreoli and colleagues (2010) noted positive changes in areas associated with clearer communication, effective communication, verbal affirmation, and agreed upon methods of communication. In Compton and colleagues’ study (2012), 80.1% (121/155) of physicians who were on the receiving end of SBAR communication stated that effective communication from the nurses allowed them to make clinical decisions and 97.8% of SBAR reports were judged as adequate. 17.4% of physicians who received report using SBAR felt they were not able to make clinical decisions based on the quality of information they received. In Beckett and Kipnis’ study (2009), qualitative data provided phrases that were associated with “positive communication”.

In outcomes related to adverse events, two studies noted statistically significant positive changes in the proportion of incident reports, the number of unexpected deaths, and the number of unplanned ICU transfers after SBAR utilization. Randmaa and colleagues (2014) noted a significant decrease in the number of incident reports, from 31% to 11% in the intervention group ($p<0.001$). De Meester and colleagues (2013) found that ICU admissions increased from 51 (13.1/1000 admissions) to 105 (14.8/1000 admissions) ($p=0.001$) and unexpected deaths decreased from 16 (0.99/1000 admissions) to 5 (14.8/1000 admissions) ($p<0.001$).

Three studies, including the two mentioned above, indicated potential benefits of SBAR utilization on health outcomes, but changes that were reported were statistically insignificant. In Randmaa and colleagues’ study (2014), the proportion of incident reports decreased from 25% to 19% in the comparison group (no SBAR utilization), and was not statistically significant.

Andreoli et al. (2010) reported an overall downward trend with near-miss falls and the severity of falls, but due to the shorter time period of the study, this measurement was not statistically significant. In De Meester and colleagues' study (2013), cardiac arrest team calls decreased, from 3.15/1000 admissions to 2.97/1000 admissions, and was also reported to be statistically insignificant.

In outcomes unrelated to adverse events, two studies reported positive changes that were statistically significant. One study was a prospective intervention study and the other was a randomized controlled study. Townsend-Gervis and colleagues (2014) reported statistically significant changes in both Foley catheter removal compliance and the rate of readmissions. Over the course of three years, Foley catheter removal compliance improved from 78% (n=132) to 94% (n=154) ($p<0.001$). From the third to fourth quarter of 2011, when SBAR was implemented, readmission rates dropped from 14.5% (n=2,554) to 5.2% (n=2,449) ($p<0.001$) (Townsend-Gervis, Cornell, and Vardaman, 2014). Field and colleagues (2011) reported that residents in the intervention group (SBAR utilization) had therapeutic international rates (INR) between 2.0-3.0 53.1% of the time versus the control group, which had therapeutic INRs 50.0% of the time (Field et al., 2018). However, there was no difference in follow-up INRs in individuals that measured greater than or equal to 4.5 (Field et al., 2011).

Conclusion

This systematic review synthesizes the available body of information about the utilization of SBAR and its effects on both patient health outcomes and perception of communication among the healthcare team involved in patient care. SBAR utilization among healthcare providers was found to have positive patient health outcomes as a result of clear, concise communication. Being at the forefront of patient care, registered nurses need to be educated in

and encouraged to implement SBAR as a structured communication tool when speaking with peers and other healthcare professionals.

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