Effectiveness of an Adapted SBAR Communication Tool for a Rehabilitation Setting

Karima Velji, G. Ross Baker, Carol Fancott, Angie Andreoli, Nancy Boaro, Gaétan Tardif, Elaine Aimone and Lynne Sinclair

Abstract

Effective communication and teamwork have been identified in the literature as key enablers of patient safety. The SBAR (Situation-Background-Assessment-Recommendation) process has proven to be an effective communication tool in acute care settings to structure high-urgency communications, particularly between physicians and nurses; however, little is known of its effectiveness in other settings. This study evaluated the effectiveness of an adapted SBAR tool for both urgent and non-urgent situations within a rehabilitation setting.

In phase 1 of this study, clinical staff, patient and family input was gathered in a focus-group format to help guide, validate and refine adaptations to the SBAR tool. In phase 2, the adapted SBAR was implemented in one interprofessional team; clinical and support staff participated in educational workshops with experiential learning to enhance their profi-

ciency in using the SBAR process. Key champions reinforced its use within the team. In phase 3, evaluation of the effectiveness of the adapted SBAR tool focused on three main areas: staff perceptions of team communication and patient safety culture (as measured by the Agency for Healthcare Research and Quality Hospital Survey on Patient Safety Culture), patient satisfaction (as determined using the Client Perspectives on Rehabilitation Services questionnaire) and safety reporting (including incident and near-miss reporting).

Findings from this study suggest that staff found the use of the adapted SBAR tool helpful in both individual and team communications, which ultimately affected perceived changes in the safety culture of the study team. There was a positive but not significant impact on patient satisfaction, likely due to a ceiling effect. Improvements were also seen in safety reporting of incidents and near misses across the organization and within the study team.

Background

Communication failures have been cited as the leading cause of inadvertent patient harm (Joint Commission on Accreditation of Health Care Organizations 2004; Leape et al. 1995; Sutcliffe et al. 2004; Wilson et al. 1995). Communication failures include issues such as insufficient information, faulty exchanges of existing information, ambiguous and unclear information and lack of timely and effective exchange of pertinent information (Leonard et al. 2004; Sutcliffe et al. 2004) and result from individual, interpersonal and systemic factors. Increasing recognition of these issues has made improving teamwork and communication a priority for advancing patient safety and quality of care (Baker and Norton 2001; Canadian Council of Health Services Accreditation 2004; Health Council of Canada 2005; Joint Commission on Accreditation of Health Care Organizations 2004; Leggat and Dwyer 2005). Effective interaction between team members has been associated with greater efficiency and decreased workloads, improved clinical outcomes, reduced adverse drug events, reduced patient morbidity, improved job satisfaction and retention and improved patient satisfaction (Aiken 2001; Borrill et al. 2000; D'Amour et al. 2005; Gittell et al. 2000; Leape et al. 1999; Shortell et al. 1994; Zwarenstein et al. 2005).

Standardized tools and behaviours from the aviation industry such as SBAR can greatly enhance safety by helping to set expectations for what is communicated and how communication is handled.

Methods and tools from high-reliability industries are potential sources of innovation for healthcare teams (Leonard et al. 2004). Standardized tools and behaviours from the aviation industry such as Situation-Background-Assessment-Recommendation or SBAR (SBAR Technique for Communication: A Situational Briefing Model 2005), appropriate assertion, critical language and situational awareness can greatly enhance safety by helping to set expectations for what is communicated and how communication is handled among team members (Leonard et al. 2004). To date, successful implementation in healthcare of the SBAR technique has been demonstrated in high-risk settings, including perinatal care, operating rooms, intensive care and emergency departments, with improvements seen in staff and patient satisfaction, clinical outcomes, team communication and patient safety culture (Leonard et al. 2004; McFerran et al. 2005; Uhlig et al. 2002).

Most of the work examining healthcare communication and teamwork and associated strategies has focused on acute care settings and nurse-physician relationships (Storch 2005). There has been little focus within the rehabilitation literature on the use of structured communication tools for enhanced teamwork and patient safety. Rehabilitation offers a unique setting, differing from acute care in the types of clinical issues faced, team composition and interaction, the higher involvement of rehabilitation professionals and the greater involvement of patients and family members within a client-centred care model.

Purpose of the Study

This study had three distinct phases: phase 1, adaptation of the SBAR communication tool to the rehabilitation setting; phase 2, implementation of the adapted SBAR tool into an interprofessional rehabilitation team for both urgent and non-urgent safety issues; and phase 3, evaluation of the effectiveness of the adapted SBAR tool related to staff perceptions of team communication and patient safety culture, patient satisfaction and safety reporting. This article focuses on the results of the evaluation phase of this pilot study. More in-depth details and results of phases 1 and 2 will be reported elsewhere (A. Andreoli, personal communication).

Study Design

Phase 1: Adaptation of the SBAR Tool

Input from clinical staff and from former in-patients and family members was gathered in a focus-group format to help guide, validate and refine adaptations to the SBAR tool. As well, clinical scenarios were developed based on examples raised in these focus groups and from previous research work conducted within our institution; these were later used as teaching tools for the adapted SBAR. Experts in the area of communication and patient safety were also consulted regarding changes made to the original tool. (See Appendix 1 for the adapted SBAR tool.)

Phase 2: Implementation of the Adapted SBAR Tool

The implementation phase took place in one clinical unit within a rehabilitation and complex continuing care hospital over a six-month period. The Stroke Rehabilitation Unit was selected as the team had demonstrated ability in the past to successfully implement process and practice innovations. In addition, service delivery in stroke rehabilitation is available nationwide; thus, study results could be transferable to many settings.

All full-time and part-time clinical and support staff (n = 43) and leaders of the Stroke Rehabilitation Unit were offered the opportunity to take part in this demonstration project intervention. A series of three workshops totalling four hours were scheduled for staff members, physicians and leaders and offered at varying times of the day to maximize attendance. The didactic and interactive workshops highlighted a number of topics related to communication, safety and the adapted SBAR tool. The use of real case examples helped to illustrate how SBAR may be implemented and applied within a rehabilitation context.

Phase 3: Evaluation of the Adapted SBAR Tool

A pre-post test design was used for this study. Data collection, outcome measures and analysis are described below for each of the three main outcomes of this project: staff perceptions of team communication and patient safety culture, patient satisfaction and safety reporting.

Staff Perceptions of Team Communication and Patient Safety Culture

Prior to the implementation of the adapted SBAR (T1) and approximately six months following the implementation phase (T2), we administered the Hospital Survey for Patient Safety Culture (Westat 2004). The survey was distributed to all clinical and non-clinical hospital staff (n = 1,520) at T1 and again approximately 12 months later (n = 1,451). There were two waves of distribution at both time points. The survey was first distributed attached to pay stubs for all employees. Four weeks later, managers of all clinical units and departments distributed the survey to staff and encouraged their response. A self-addressed stamped envelope was included in survey packages, and respondents were assured anonymity.

The Hospital Survey on Patient Safety Culture (Westat 2004) was developed with the support of the Agency for Healthcare Research and Quality (AHRQ) in the United States (http://www.ahrq.gov/qual/hospculture/). The 42-item survey uses a five-point Likert scale to assess safety culture facility-wide or for specific units; 18 questions are reverse worded and coded accordingly. The survey can also be used to track changes in patient safety over time and to evaluate the impact of patient safety interventions. It is intended for all types of hospital staff, ranging from housekeeping and security to nurses and physicians. This survey has been widely used in American hospitals and has been found to be reliable and valid (Westat 2004). It covers 12 unit-specific and hospital-wide patient safety domains, including those specific to communication and teamwork.

Survey data were analyzed to compare staff members' perceptions across time, both within the study unit and across the hospital. The survey developers suggest using a 5% difference as a rule of thumb when comparing results; that is, results must be at least 5% higher to be considered "better" or at least 5% lower to be considered "worse." This rule of thumb was suggested in regard to comparing hospital results to the benchmark, which is the average of results from 382 American hospitals. The authors assume that a 5% difference is likely to be statistically significant for most hospitals, given the number of responses per hospital (i.e., several hundred responses), and is thus a meaningful difference to consider (Westat 2004). As well, using SPSS software, we conducted critical ratio tests to compare the pre-post Stroke Rehabilitation Unit responses as well as the responses from the Stroke Unit versus those from staff in the rest of the hospital at

T1 and T2. Unpaired t-tests were also conducted to compare Stroke Unit data at T1 and T2.

Patient Satisfaction

We used two cross-sectional cohorts of patients: those patients who were discharged from the Stroke Rehabilitation Unit six months prior to the implementation phase and those who were discharged six months following the implementation of the adapted SBAR tool. Upon discharge from our facility, all patients are sent the Client Perspectives of Rehabilitation Services (CPRS) questionnaire. Patient responses are sent directly to an external survey firm that houses all CPRS (and other) data provincially. Through our quality and performance measurement team, we obtained the data for the Stroke Rehabilitation Unit for the six months prior to the implementation phase. Due to system difficulties, data for patient satisfaction could only be obtained for four months following the implementation phase (rather than six months).

The CPRS contains seven domains that measure client-centred care from the clients' perspective using a five-point Likert scale (Cott et al. 2003, February 20). The tool has been found to be valid and reliable in rehabilitation populations (Cott et al. 2003, February 20) and is sent to all clients discharged from designated rehabilitation beds in Ontario. Results are reported in *Hospital Report: Rehabilitation* published by the Ontario Ministry of Health and Long-Term Care. We anticipated that several domains would be positively impacted by improved team communication: client participation in decision-making, education from the clients' perspective, family involvement, emotional support and coordination and continuity of care. We compared responses from the two cohorts, analyzing percentages of respondents who answered the two highest ratings ("excellent" and "very good").

Safety Reporting

Incidents and near-miss reporting are tracked on a quarterly basis through the risk manager. Currently, we use an on-line reporting system that captures both incidents and near-miss situations. From our quality and performance measurement team, we obtained the incident and near-miss reports for the six months prior to the implementation of the adapted SBAR and for the six months following the end of the implementation period. We anticipated that with improved team communication and patient safety culture, staff on the Stroke Rehabilitation Unit would feel encouraged to report safety issues in an open and comfortable environment. As a result, we predicted that reporting of incidents and near misses would increase following the implementation phase of the study.

Results

Results of the evaluation phase are described below.

Staff Perceptions of Team Communication and Patient Safety Culture

Overall Response Rates and Demographics

There were 415 usable surveys returned in T1, for a response rate of 27% – 32 were from the Stroke Unit, for a study team response rate of 74% (32/43). In T2, 319 surveys were returned hospital-wide (response rate = 22%). The Stroke Unit had a response rate of 62% (27/43). Of the respondents in T1, 86% were clinical staff hospital-wide; in T2, 87% were clinical staff. In both T1 and T2, the majority of clinical staff included nurses (36% and 33%), physicians (3% and 6%) and other healthcare providers (36% and 37%).

Stroke Unit: Results Pre- and Post-implementation

From T1 to T2, the Stroke Unit showed improvement of >5% (as per the 5% rule of thumb) in eight dimensions: overall perceptions of safety, frequency of events reported, organizational learning–continuous improvement, teamwork within units, feedback and communication about error, staffing, hospital management support for patient safety and teamwork across hospital units. However, when analyzed using critical ratio tests, no dimensions were found to be statistically significant. As the percentage difference for a number of dimensions exceeded 10%, we decided to continue statistical analysis with unpaired t-tests; five dimensions were found to be statistically significant (p < .05) (organizational learning–continuous improvement, communication openness, feedback and communication about error, staffing and hospital management support for patient safety). See Table 1 for details.

Stroke Unit versus Rest of Hospital: Results Pre- and Post-implementation

Using the 5% rule of thumb, prior to the intervention, the Stroke Unit scored higher than the rest of the hospital in three of the 12 dimensions (organizational learning–continuous improvement, feedback and communication about error and staffing) and lower than the rest of the hospital in five dimensions (overall perceptions of safety, frequency of events reported, teamwork within units, teamwork across hospital units and hospital handoffs and transitions). Following the implementation phase, the Stroke Unit made significant gains and scored higher (>5%) than the rest of the hospital in seven dimensions; however, only two of these dimensions showed statistical significance using the critical ratio test (organizational learning–continuous improvement and feedback and communication about error) (Table 2).

Table 1. Stroke Rehabilitation Unit: comparison of results pre- and post-intervention

Dimension	Pre-intervention (%)	Post-intervention (%)	Difference (%)	Critical Ratio Test z > 1.96	t-Test p < .05
Overall perceptions of safety	50	60	10	1.312	.22
Frequency of events reported	44	55	11	1.100	.08
Supervisor/manager expectations and actions promoting patient safety	67	69	2	0.151	.28
Organizational learning–continuous improvement	72	85	13	1.680	.03
Teamwork within units	69	77	8	1.131	.08
Communication openness	56	60	4	0.316	.04
Feedback and communication about error	57	71	15	1.688	.00
Non-punitive response to error	39	40	0	−0.126	.24
Staffing	53	61	7	0.899	.05
Hospital management support for patient safety	67	78	11	1.323	.02
Teamwork across hospital units	48	56	8	0.920	.26
Hospital handoffs and transitions	38	40	2	0.087	.39

Legend:

Significantly better		No difference		Significantly worse	

Table 2. Stroke Unit versus rest of hospital: comparison of results pre- and post-intervention

Dimension	Pre-intervention				Post-intervention			
	Stroke Unit (%)	Rest of Hospital (%)	Difference (%)	Critical Ratio Test z > 1.96	Stroke Unit (%)	Rest of Hospital (%)	Difference (%)	Critical Ratio Test z > 1.96
Overall perceptions of safety	50	56	–6	0.832	60	55	5	0.730
Frequency of events reported	44	53	–9	1.462	55	50	5	0.557
Supervisor/manager expectations and actions promoting patient safety	67	68	–1	0.117	69	71	–2	0.269
Organizational learning–continuous improvement	72	65	7	1.033	85	68	17	2.610
Teamwork within units	69	74	–5	1.038	77	76	1	0.210
Communication openness	56	52	4	0.557	60	53	7	0.921
Feedback and communication about error	57	51	6	1.227	71	50	21	3.088
Non-punitive response to error	39	40	–1	–0.092	40	44	–4	0.472
Staffing	53	48	5	0.159	61	51	10	1.051
Hospital management support for patient safety	67	65	2	0.194	78	70	8	1.104
Teamwork across hospital units	48	56	–8	2.332	56	57	–1	0.200
Hospital handoffs and transitions	38	43	–5	2.054	40	43	–3	0.408

Legend:

Significantly better		No difference		Significantly worse	
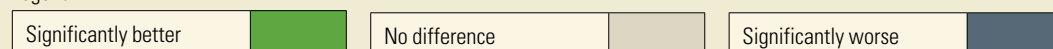
Patient Satisfaction

Preliminary analysis of this data shows marginal improvement within the study team in overall quality of care and in two of the seven domains of patient satisfaction when comparing cohorts six months prior to the implementation of the adapted SBAR communication tool (n = 42) and four months following its implementation (n = 24) (Figure 1).

Safety Reporting

Figure 2 shows safety reporting levels for incidents over the 18-month study period. There are trends to increasing incident reporting across both the organization and within the study unit, and to an increase in near-miss reporting across the organization. However, the overall numbers are quite small, particularly for the study team.

Discussion

Results from this pilot study appear promising, particularly within the study team's perceptions of team communication and patient safety culture. The SBAR tool was used primarily between professional staff and occasionally with team physicians to discuss changes in the patient care plan, discharge planning and specific safety issues, both urgent (e.g., changes in status) and non-urgent (e.g., team debriefing following a challenging admission). The most statistically significant changes seen in the communication domains (e.g., teamwork within units, feedback and communication about error) have been a result of how the tool was used within the study team. Being the selected team for the pilot study may have positively influenced domains related to organization learning–continuous improvement and hospital management support for patient safety by reinforcing the perception of organizational support for ongoing professional learning.

Figure 1. Patient satisfaction results pre- and post-implementation for Stroke Rehabilitation Unit
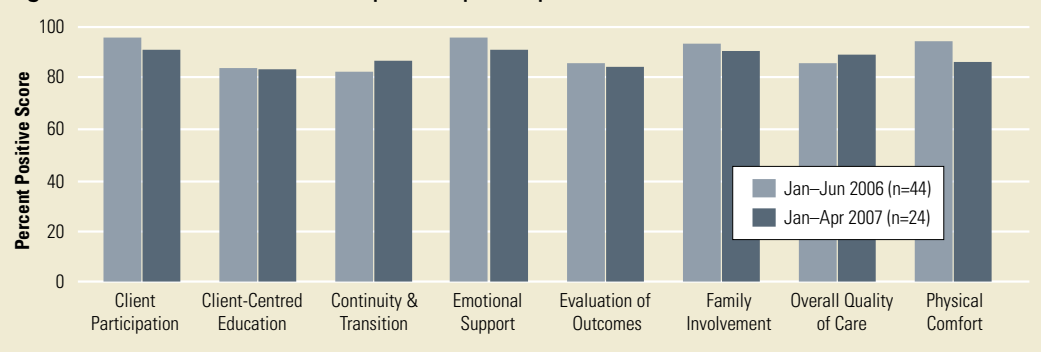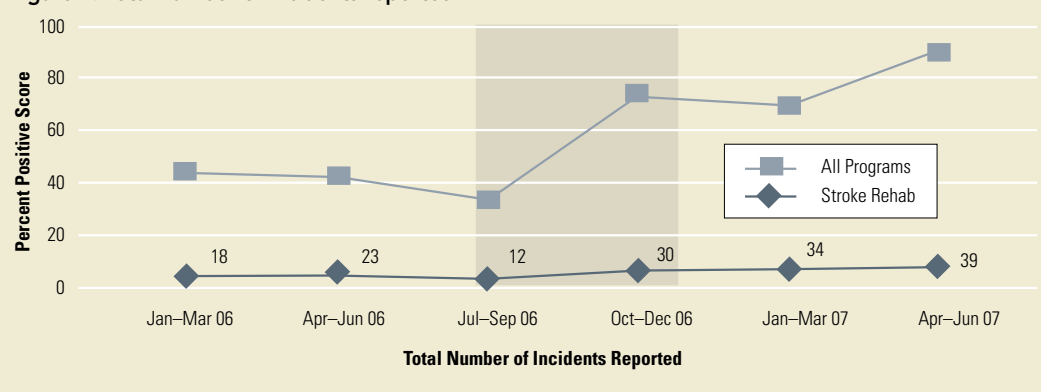

Figure 2. Total number of incidents reported

Post-intervention, the Stroke Rehabilitation Team showed improvement over the rest of the hospital in seven dimensions. Two of these dimensions showed a statistically significant improvement – organizational learning–continuous improvement and feedback about communication and error. Again, this indicates the perceived improvement of ongoing learning and staff perceptions that the SBAR tool enhanced the pilot team's communication, particularly related to discussions of error and safety concerns.

Study Limitations
Although the use of the survey developers' suggested 5% rule revealed encouraging results, these must be interpreted with caution as the rule was meant to be used with larger sample sizes. The small sample size of the study team, in particular, was a limitation in this demonstration project that affected the statistical power to detect differences when examining the AHRQ culture survey scores. While the Stroke Team did appear to make some positive changes in the overall quality of care for patient satisfaction and also within two of seven domains of the CPRS (continuity and transition, emotional support), the percent change is small and not significant as the sample size was too small to elicit any power. As well, the pre-implementation scores

of the Stroke Team were already high in most domains, indicating that there may have been a ceiling effect.

The measurement of safety reporting in this project showed itself to be a proxy measure only. While there was an increased trend in reporting of incidents and near misses, again, the numbers during the study period are quite small and are not significant. As well, any increases cannot be attributed specifically to the implementation of this one pilot project but, rather, to part of an overall series of initiatives aimed at changing safety culture across the organization as a whole. For example, new initiatives such as Safety Walkabouts with the senior leadership team, leader engagement and training related to safety culture, safety communications from the chief executive officer and staff training regarding the online reporting system have all increased awareness of safety within our hospital and the need to report near misses and incidents. These hospital-wide initiatives may also have positively affected the domain related to hospital management support for safety in the AHRQ culture survey, both across the organization and within the study team (which showed the greatest change).

The most statistically significant changes seen in the communication domains have been a result of how the tool was used within the study team.

Future Research Directions
We recommend broadening the use of the adapted SBAR tool across our organization and into other rehabilitation and complex continuing care centres to allow for a more robust evaluation beyond the limits of this pilot study. There may be great

value in targeting the use of the adapted SBAR to specific safety situations that are known to occur within rehabilitation facilities (e.g., falls interventions) to allow further uptake in defined situations across all teams. With a targeted use of the SBAR, the evaluation of its effectiveness may also be more specific and show more change across other domains (e.g., teamwork across teams and handoffs and transitions). We also need to consider how an adapted SBAR tool may be used to engage patients and family members to help structure their own safety concerns. As well, further consideration needs to be given as to how best to measure and evaluate the effectiveness of such a tool.

Conclusion

The effectiveness of the adapted SBAR communication tool has shown early promise in improving the patient safety culture within the pilot study unit. This study has expanded the use of the SBAR tool from its original purpose of physician-nurse communications in high-urgency situations to be used in a myriad of healthcare situations between a variety of team members. The expansion of the use of the SBAR tool beyond its acute care roots has the potential to enhance interprofessional team communication in a rehabilitation context and is a valuable contribution to safety research and practice. HQ

About the Authors

Karima Velji, RN, PhD, is vice-president of patient care and chief nursing executive, Toronto Rehabilitation Institute, and assistant professor, Faculty of Nursing, University of Toronto, Toronto, Ontario.

G. Ross Baker, PhD, is a professor in the Department of Health Policy, Management, and Evaluation at the University of Toronto, Toronto, Ontario.

Carol Fancott, BScPT, MSc, PhD (student), is advanced practice leader, patient safety, at the Toronto Rehabilitation Institute. You can reach Ms. Fancott at fancott.carol@torontorehab.on.ca.

Angie Andreoli, BScPT, MSc (student), is a research coordinator at the Toronto Rehabilitation Institute.

Nancy Boaro, BN, MN, CNN(C), CRN(C), is advanced practice leader, Neuro Rehabilitation Program, Toronto Rehabilitation Institute.

Gaétan Tardif, MD, is vice-president of patient care and chief medical officer, Toronto Rehabilitation Institute.

Elaine Aimone, BScPT, MSc, is director of quality, safety, and risk management, Toronto Rehabilitation Institute.

Lynne Sinclair, BScPT, MA, is director of education, Toronto Rehabilitation Institute.

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Appendix 1. Adapted SBAR tool

S	**Situation** **My name is_____. I work on the _____ service.** ☐ I need to talk to you about an urgent safety issue regarding (name of client). ☐ I need to talk to you about a quality of care issue regarding (name of client). ☐ I need about … minutes to talk to you; if not now, when can we talk? **I need you to know about:** ☐ changes to a patient status ☐ changes to treatment plan, procedures or protocols ☐ environmental/organizational issues related to patient care
B	**Background (as related to the specific situation only)** **What background information do you need? Are you aware of…?** The patient is … years old and has a primary diagnosis of … as well as … She/He was admitted on … and is scheduled for discharge on … His/Her treatment plans related to this issue to date include … She/He is being monitored by … (specialist) … and has appointments for…(procedures) … **This patient/family/staff are requesting that …**
A	**Assessment** **I think the key underlying problem/concern is …** **The key changes since the last assessment related to the specific concern are:**

Person Level Changes ☐ Vital signs/GI/cardio/respiratory ☐ Neurological ☐ Musculoskeletal/skin ☐ Pain ☐ Medications ☐ Psychosocial/spiritual ☐ Sleep ☐ Cognitive/mental status/behavioural ☐ Nutrition/hydration	**Activity/Participation/Functional Changes** ☐ ADLs ☐ Transfers ☐ Home/community safety **Environmental Changes** ☐ Organizational/unit protocols/processes ☐ Discharge destination ☐ Social/family supports

R	**Recommendations** **Based on this assessment, I request that:** ☐ we discontinue/continue with … ☐ we prepare for discharge or extend discharge date ☐ you approve recommended changes to treatment plan/goals including … ☐ you reassess the patient's … ☐ the following tests/assessments be completed by … ☐ the patient be transferred out to … /be moved to … ☐ you inform other team members/family/patients about change in plans ☐ I recommend that we modify team protocols in the following ways …	**To be clear, we have agreed to … Are you OK with this plan?** ☐ I would like to hear back from you by … ☐ I will be in contact with you about this issue by …