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Impact of TeamSTEPPS on Team Performance in an Oral and Maxillofacial Surgery Practice

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Abstract

Effective communication and teamwork skills among oral and maxillofacial surgery (OMS) teams are essential for quality and safe patient care. As some in the profession assert that the team model for delivering anesthesia care is integral to their history of safety, the model continues to be scrutinized by professional groups whose members seek to limit oral surgeons' ability to provide anesthesia services in the office setting. This quality improvement project assessed how introducing the TeamSTEPPS Office-Based Care (OBC) program in an OMS clinic impacted team dynamics. The impact of TeamSTEPPS OBC training on attitudes and perceptions of teamwork was evaluated with the TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ), the TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ), and a qualitative tool using a mixed methods explanatory sequential design. The data was collected following the training session and at 60 days post training. Fifteen team members (79%) and two surgeons (50%) completed the training and the pre-/post-assessments. Statistical analyses were conducted using a Wilcoxon Signed Rank test with Rosenthal's *r* for effect size, and thematic properties were extracted from qualitative responses. The overall post-training T-TAQ scores improved significantly ($p < 0.05$), and while 100% of the participants (N = 17) reported enhanced teamwork, the increase in the overall post-implementation T-TPQ score was not statistically significant ($p = 0.234$). Huddles were the most frequently used tool during the implementation period. Participant responses highlighted the need for leadership support, surgeon endorsement, full team participation, coaching, and frequent reinforcement activities to sustain the TeamSTEPPS OBC tools and strategies.

Keywords: TeamSTEPPS, oral and maxillofacial surgery, teamwork, communication, oral surgery anesthesia teams

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Introduction and Background

The release of the landmark report, *To Err is Human: Building a Safer Health System*, in 1999 by the Institute of Medicine (IOM), catapulted medical errors and patient safety into the spotlight. More than two decades after that pivotal report, researchers are beginning to understand how errors occur and what strategies can improve patient safety. The report was structured with four tiers of recommendations. The fourth tier focused on developing a system of safe practices within healthcare organizations by targeting where care is delivered, the level prioritized in the report. (Kohn et al., 2000).

Focusing on the out-of-hospital environment, the IOM report acknowledged the paucity of attention to safety due to the lack of staff members, inadequate technical awareness of safety principles, unrecognition of errors, lack of error reporting systems, poor interprofessional collaboration and communication, and prioritization of professional autonomy (Kohn et al., 2000). Attention was also directed to the safety of anesthesia in the outpatient setting, including medical offices, dental clinics, and podiatry practices, as the frequency of outpatient and office-based surgical procedures increased (Kohn et al., 2000). Within the fourth recommendation, the IOM report proposed five principles that should be included in the design of a safe healthcare system. Among these design principles was the promotion of effective teams by training those expected to function in a team, acknowledging that teamwork results in fewer errors (Kohn et al., 2000). Working in teams results in role clarity, mutual support, collegial trust, and fewer errors (Kohn et al., 2000). It proposed team training for healthcare systems, allowing participants to better appreciate the strengths and weaknesses of their colleagues (Kohn et al., 2000).

Effective communication and teamwork skills among healthcare professionals are essential for quality patient care, as high-functioning teaming is associated with safer patient experiences and improved patient outcomes (Schwartz et al., 2022). As more procedures transition out of the hospital setting to the outpatient and office-based environment, and with subsequent reduction in crisis response resources, the ability of professionals to apply the concepts of teaming is critical (Schwartz et al., 2022). In addition to supporting patient safety and improved outcomes, effective teams support an optimistic and collaborative workplace (Rosen et al., 2018). The importance of teamwork has been realized as integral to patient care, and more attention has been directed to developing and sustaining high-functioning teams (Kohn et al., 2000). Solutions to support teaming in high-risk environments, such as aviation and healthcare, have evolved into structured training programs with documented success at reducing errors. In particular, the Team Strategies and Tools to Enhance Performance and Patient Safety program, commonly referred to as TeamSTEPPS, is backed by 25 years of research and application built into an evidence-based curriculum to optimize the performance of healthcare teams (Agency for Healthcare Research and Quality [AHRQ], 2019a). Initially developed for the acute care setting, TeamSTEPPS expanded its suite to offer resources for non-acute settings, such as the office-based environment. However, there is limited information regarding the application of TeamSTEPPS in the office setting.

Oral and maxillofacial surgery (OMS), a specialty within dentistry, is unique in its surgical and anesthesia care delivery. Surgeons serve as both the proceduralist and the anesthesia provider, referred to as the operator/anesthetist model, for sedation up to and including the administration of general anesthesia (American Association of Oral and Maxillofacial Surgeons [AAOMS], 2016). This model uses a team approach to assist with patient monitoring consisting

of the surgeon/anesthetist, a dental or surgical assistant, and another assistant functioning as the anesthesia assistant (AAOMS, 2016). Those operating within this specialty boast of a long-standing safety record and attribute their specialized training and anesthesia team model to its success (AAOMS, 2016; Drew, 2018; Todd et al., 2021). The American Association of Oral and Maxillofacial Surgeons (AAOMS) references the program Crew Resource Management (CRM) as a resource that oral surgery teams can utilize for guidance on the management of emergencies, along with hosting regular emergency drills and understanding of safety concepts (AAOMS, 2016). However, there is no standardized curriculum, syllabus, or implementation plan for CRM training programs (Gross et al., 2019).

Ritt et al. (2017) point out that in an emergency, the CRM model positions the surgeon as the leader who takes a position of an observer, delegating critical tasks to professional personnel, such as nurses. In most oral surgery offices, the supportive clinical staff members are only dental assistants, unable to perform skills beyond Basic Life Support. This limitation requires the surgeon to function as the team leader and primary care provider in an emergency (Ritt et al., 2017). Although there is a dental-related module in the TeamSTEPPS suite, it consists of only four videos. Other TeamSTEPPS curricula, such as the traditional acute care and office-based care programs, provide PowerPoint slides and video vignettes specific to each setting. There are no published studies on the effectiveness of the TeamSTEPPS program in dentistry or the use of the TeamSTEPPS Office-Based Care (OBC) curriculum in OMS.

Problem Statement

Effective teamwork is essential in OMS clinics. Those within the profession claim that teamwork sets them apart from other anesthesia delivery models and is crucial to their history of safe care (Fain et al., 2017). However, the operationalizing of teamwork in the OMS clinic is

generally not well-defined, leaving clinics without guidance for creating a high-functioning team. The anesthesia team model utilized in OMS continues to be scrutinized by other professional groups, such as anesthesiologists and certified registered nurse anesthetists seeking more control over how anesthesia is delivered outside the hospital environment (Todd et al., 2021). There is an increasing need for those in the OMS profession to adopt a comprehensive framework for team development.

Purpose

The project leader (PL) of this quality improvement (QI) project assessed how introducing the TeamSTEPPS OBC program in an oral and maxillofacial surgery clinic impacts team dynamics characterized by five constructs of teamwork, mutual support, situational awareness, team structure, leadership, and communication. The provision of sedation in the office-based setting by the oral surgery team, the inherent risks of anesthesia, and the limited resources of personnel and equipment characteristic of the office setting make this population an ideal target for teamwork improvement. It was anticipated that the TeamSTEPPS OBC program would improve employees' attitudes and perceptions of teamwork as measured by pre-and post-training assessment surveys. The impact of TeamSTEPPS OBC training in an OMS practice was evaluated by analyzing quantitative and qualitative data collected during the project. The opportunities and challenges of implementation as experienced by the participants during the 60-day implementation period were identified, providing insight into how TeamSTEPPS can be meaningfully integrated into the OMS practice setting.

Review of Evidence

Barriers to Teamwork and Communication

The factors that affect teamwork can be organized as: relational, processual, organizational, and contextual (Szafran et al., 2017). Relational barriers include ineffective communication, lack of trust or respect among teammates, poorly defined roles, unequal power structure, and professional seclusion (Szafran et al., 2017). Processual barriers reflect structural and managerial challenges such as physical space within the facility and staff retention (Szafran et al., 2017). Organizational barriers exist when the team goals are not well aligned, and boundaries are poorly defined (Szafran et al., 2017). Steep hierarchies and a lack of team training contribute to contextual barriers (Szafran et al., 2017). Lai (2019) identified similar barriers to teamwork among surgical teams, noting that in addition to the ones recognized by Szafran et al. (2017), breakdowns in communication, lack of a shared mental model, distractions, and psychological challenges, lead to ineffective surgical teams. The responsibility for maintaining the highest standard of patient care for a safe experience cannot fall on one individual (Rosen et al., 2018). Variability in team dynamics stems from differing educational backgrounds and siloed training, which also contributes to poorly functioning teams (Etherington et al., 2019; Salik & Ashurst, 2021). The steep hierarchy seen in OMS from a wide gap in professional education and experience, such as between surgeon and dental assistant, can create a culture that inhibits staff empowerment (Ritt et al., 2017).

Ineffective communication contributes to team dysfunction. Lai (2019) suggests that teamwork and communication form one of four pillars related to surgeons' nontechnical skills, and clear communication results in a shared mental model for the team. Communication barriers are multifactorial, including issues related to the individual, the team, the task, and the organization (Etherington et al., 2019). One obstacle to communication involves the lack of

standardized communication techniques, such as checklists and briefings (Etherington et al., 2019).

Facilitators of Teamwork and Communication

D'Angelo et al. (2019) identified nine characteristics essential to interprofessional healthcare teams; 1) leadership, 2) backup behavior, 3) mutual performance monitoring, 4) communication, 5) adaptability, 6) shared mental models, 7) mutual trust, 8) team orientation, and 9) individual competency. Using the same categories that reflect the barriers to teamwork, Szafran et al. (2017) proposed that effective communication, trust, respect, and opportunities for team building were facilitators of teamwork within the relational category. In addition, shared workspaces, standardized policies, recruitment of staff, a shared strategic vision, and collaborative training were facilitators of teamwork within the processual, organizational, and contextual categories (Szafran et al., 2017).

Specific to the OMS setting, strong teams demonstrate competency in leadership, appropriate delegation of tasks, role clarity, closed-loop communication, empowerment of team members, appropriate documentation, and stress management (Ritt et al., 2017). The office-based OMS setting is much different from the clinical environment of medical specialty practices. While most surgical practices utilize the office setting for consultations and minor procedures, more extensive procedures are completed in a hospital or ambulatory surgery center, and the facility limits the number of procedures that a surgeon can perform each day. The OMS clinic, however, differs by accommodating a larger number of surgical procedures in one day, offering a greater depth of sedation compared to other office settings, managing complex patient conditions, and providing a wide variety of surgical procedures (Ritt et al., 2017). These characteristics, coupled with the time pressures of private practice, add to the risk of the OMS

anesthesia model and highlight why effective team dynamics are essential for optimal patient outcomes (Ritt et al., 2017).

TeamSTEPPS

Within healthcare, teams span a wide range of taxonomies, from teams with a complex cognitive focus, such as diagnostic or care planning teams, to those with demanding technical requirements, as seen with surgical teams (Rosen et al., 2018). The performance of healthcare teams is impacted by the quality of teamwork and is supported through training and practice (Schwartz et al., 2022). The AHRQ collaborated with the Patient Safety Program within the United States Department of Defense (DoD) to develop the team training program TeamSTEPPS as a direct result of the *To Err is Human* report (Gross et al., 2019). Drawing on the AHRQ's extensive knowledge of patient safety and medical errors and leveraging the DoD's expertise in managing complex teams, TeamSTEPPS was created to help healthcare organizations build high-functioning teams to provide higher quality, safer patient care (AHRQ, 2019b). The TeamSTEPPS model was released in 2006 as a "national standard for team training in health care" (King et al., n.d., p. 6). Its evidence-based curriculum was developed by experts and is supported by more than 25 years of research on teams to promote an environment where individuals harmoniously and cooperatively function as a team (AHRQ, 2019b; Clancy & Tornberg, 2007/2019). The TeamSTEPPS program emphasizes four teachable-learnable skills: leadership, situation monitoring, mutual support, and communication, and provides specific strategies that the patient care team can deploy to operationalize these skills (AHRQ, 2021). In addition to the traditional TeamSTEPPS program for the acute care environment, the program expanded its curriculum to include modules for rapid response teams, patients with limited English proficiency, dentistry, long-term care, office-based care, and in 2022 released a program

utilizing TeamSTEPPS for diagnosis improvement (AHRQ, 2022). The office-based care (OBC) program is adapted to reflect the unique environment specific to the office setting and is a full version of TeamSTEPPS (AHRQ, 2021). TeamSTEPPS is used in the military dental system to promote situational awareness, improve communication, break down barriers, and manage conflict as part of a comprehensive patient safety initiative (Stahl et al., 2019).

The traditional TeamSTEPPS model, developed for the acute care setting, has been studied for effectiveness in multiple studies. However, few studies have addressed the use of the OBC version in practice. Parker et al. (2018), in an integrative review, sought to evaluate the use of the OBC curriculum in the outpatient setting, but the authors were unable to identify even one study specific to OBC implementation and evaluation. Miller et al. (2018) conducted a systematic review of team-building programs outside the acute care setting. The authors identified six articles describing TeamSTEPPS in practice, but only one was specific to an office-based setting (Miller et al., 2018).

Core Competencies of TeamSTEPPS

The TeamSTEPPS program introduces four skill areas: leadership, situation monitoring, mutual support, and communication, within five critical domains for effective team performance (Clancy & Tornberg, 2007/2019). The five domains are derived from the Big Five Theory's team framework (Paige et al., 2021). Through the development of the Big Five Theory, Salas et al. (2005) recognized that teams are more than an interaction among individuals; teams must be able to organize effectively and work cooperatively using available resources to accomplish the team's shared goals. Salas et al. (2005) further explain that teamwork is the action of teams through shared emotions and actions that come together to achieve the desired outcome. Conducting a broad review of the literature on teamwork, Salas et al. (2005) found that the

common concepts associated with teamwork were 1) team leadership, 2) mutual performance monitoring, 3) backup behavior, 4) adaptability, and 5) team orientation. Linking the interrelationships of the five core competencies are three coordinating mechanisms, 1) shared mental model, 2) mutual trust, and 3) closed-loop communication (Salas et al., 2005). The TeamSTEPPS core competencies are interdependent, and deficiencies in the execution of some skills cannot be accounted for by overcompensating in other domains (Rosen et al., (2018).

TeamSTEPPS integrates the recommended tools and strategies that support high-functioning teams and effective communication into its publicly accessible training curriculum. Divided into targeted modules, each lesson introduces specific interventions to support that module, bridging the recognized barriers to teamwork with the tools and strategies needed for the desired outcomes, illustrated in Appendix A. To standardize communication, tools such as checklists, briefings and debriefings, huddles, use of SBAR (Situation, Background, Assessment, Recommendation), and closed-loop communication can be implemented (Buljac-Samardzic et al., 2020; Etherington et al., 2019). Utilizing these tools encourages a top-down leadership structure that improves patient safety through professional collaboration (Salik & Ashurst, 2021). Preoperative briefings and checklists introduce a shared mental model among team members and proactively address potential complications in patient care (Buljac-Samardzic et al., 2020; Etherington et al., 2019). Closed-loop communication (CLC), considered a simple, efficient, and accurate strategy for the surgical environment, has been shown to improve safety (Etherington et al., 2019; Salik & Ashurst, 2021). Introducing structured communication tools has the potential to improve teamwork and patient outcomes significantly, but its impact is muted by the organization’s culture and requires continued engagement to be sustained (Rosen et al., 2018).

Assertive language strategies such as the CUS method (I am concerned! I am uncomfortable! This is a safety issue!) or the two-challenge rule, a form of collaborative inquiry, can be used to overcome perceived hierarchical gradients and are relevant to encouraging mutual support (Etherington et al., 2019; Green et al., 2017). The two-challenge rule couples inquiry and advocacy, encouraging a self-correcting conversation and allows an opinion to be formed through open communication (Green et al., 2017). Green et al. (2017) share that encouraging open communication without fear of retribution flattens perceived hierarchies. TeamSTEPPS situation monitoring tools, such as cross-monitoring and the STEP mnemonic (status of the patient, team members, environment, and progress to the goal), support Brennan et al.'s (2020) recommendations for encouraging situational awareness in oral surgery by surveying the environment and speaking up when something is not correct.

Outcomes and Sustainability of TeamSTEPPS Implementation

TeamSTEPPS has been studied since its release to determine its impact on teamwork and communication. The program is intended to be customizable to the organization and has resulted in various implementation methods that limit the ability to generalize results to a broad population (Chen et al., 2019). Variations in post-training assessment tools have also narrowed the applicability of studies to all environments. TeamSTEPPS implementation in an ambulatory reproductive facility revealed five lessons for effective implementation in the outpatient setting, 1) obtaining organizational buy-in, 2) communicating expectations, 3) ensuring the relevance of materials presented, 4) understanding that the path to success is not without challenges, and 5) evaluating the program at every stage of implementation (Paul et al., 2017). During their implementation experience, Clancy and Tornberg (2007/2019) found that 1) completing an initial organizational assessment was critical to implementation, 2) engagement and buy-in of senior

leaders should occur before the training, 3) training should be concise, recognizing the workload already assumed by healthcare professionals, 4) evaluation with specific metrics is necessary throughout the process, and 5) continued training, coaching, and surveillance of behaviors is essential for reinforcement of teamwork skills.

Parker et al. (2018) reviewed 19 studies on the impact of TeamSTEPPS on reducing errors in outpatient settings using the traditional TeamSTEPPS curriculum. All 19 studies reported improved attitudes related to communication, leadership, teamwork skills, and mutual support after implementation (Parker et al., 2018). Dodge et al. (2018) and Krivanek et al. (2020) saw similar improvement in teamwork domains; however, both studies showed little progress in the leadership domain. Dodge et al. (2018) theorized that improvement in the leadership domain is often delayed because it is a slow process and high-level changes are out of the control of the staff. At one-year post training, participants in an ambulatory reproductive health center reported that communication improved, the hierarchy was no longer a barrier, and a reassessment of participants' perceptions of teamwork revealed improvement in the mutual support and communication constructs (Dodge et al., 2018). Two years after training, improvements in perceptions of teamwork continued, but to a lesser extent than what was observed one-year post training (Dodge et al., 2020). However, the two-year results showed consistent use of the strategies among staff members, and the authors suggested that TeamSTEPPS had been successfully integrated into the organization (Dodge et al., 2020).

The sustainability of a TeamSTEPPS program depends on leadership support, notably support from the upper and middle management, and a consistent change team (Baloh et al., 2017). Rosen et al. (2018) emphasize that an organization's leaders and culture influence the members' perceptions of its values and priorities. Adopting the interventions presented through

team training is contingent on the leadership's ability to create and sustain a cultural change (Rosen et al., 2018). For example, in the implementation of a surgical checklist communication tool, the degree of improvement in patient outcomes was correlated with positive changes in the participants' perception of teamwork and safety culture, thus suggesting that organizations with a more robust culture of safety will have more significant improvements in outcomes compared to those with a weaker culture of safety (Haynes et al., 2011; Rosen et al., 2018). Ambulatory patient safety programs require dedicated leadership and facilitation teams prioritized for a successful program outcome (Desai et al., 2019).

Lee et al. (2017) achieved continued improvement in observed teamwork performance scores by instituting a reinforcement program with frequent TeamSTEPPS materials shared with the staff. They noticed that the nursing staff exposed to weekly TeamSTEPPS reinforcement materials had the greatest gains in teamwork behaviors, suggesting that continual reinforcement contributes to long-term sustainment (Lee et al., 2017). A "one and done" approach to TeamSTEPPS will not have sustained results (Wakeman & Langham, 2018, p. 112). Without continuous reinforcement, gains from training will deteriorate, and attitudes and behaviors may return to pre-training levels (Wakeman & Langham, 2018). Long-term sustainability is dependent on structuring organizational goals and culture with expectations, along with training new staff on the adopted team tools and strategies (Rosen et al., 2018)

Summary of the Evidence

Multiple factors contribute to failures in teamwork and communication that can be overcome by adopting various facilitators. TeamSTEPPS addresses the characteristics of poor teamwork and ineffective communication through its structured presentation of the core competencies and associated skills, paralleling solutions identified in the literature.

TeamSTEPPS has been shown to improve teamwork across the multiple constructs with varying degrees of sustainability. However, variability in program implementation methods and assessment tools limits the generalizability of TeamSTEPPS program outcomes to a broad range of healthcare settings. Cases with successful implementation and program continuation reference dependence on leadership support and continued reinforcement post training. As identified, OMS teams are vulnerable to the barriers affecting teamwork and communication. The solutions presented in the TeamSTEPPS OBC are consistent with the literature regarding which tools and strategies may overcome teamwork challenges.

Theoretical Model

Kotter's Theory for Organizational Change serves as the theoretical framework for this quality improvement project and is found in Appendix B. The model is an eight-step approach to organizational change that guides introducing a new initiative, gaining buy-in, implementing the change, and sustaining its success (Kotter, 2012). The model is rooted in emotional engagement, and Kotter proposes that behavioral change is influenced less by analytic persuasion and more by appealing to the individual's feelings (Kotter & Cohen, 2002; Melnyk & Fineout-Overholdt, 2019). At the core of successful behavior changes, a pattern of three steps emerges, See-Feel-Change, which consists of showing individuals the problem and providing solutions that generate an emotional response, and is contrary to a model based on logic, such as Analysis-Think-Change (Cohen, 2005; Kotter & Cohen, 2002). The emotional reaction to an issue generates the power to move a change initiative forward and overcome barriers (Kotter & Cohen, 2002).

Kotter's Theory for Organizational Change was selected for this project because it addresses vulnerabilities and areas of failure in a change program. Kotter identified why change projects fail by researching over 100 organizations and large-scale change initiatives, and his

resulting model transformed those obstacles into opportunities for successful change (Kotter, 1995). Through each step of Kotter's eight stages of change, the core challenge is people's behavior (Kotter & Cohen, 2002). As this QI project attempts to shift the role-based team model of the OMS team to a more collaborative dynamic, using a theoretical framework grounded in team engagement and ownership is important. The step-by-step process provides a clear plan for integrating the change process into the organization's culture in conjunction with leadership support. Kotter (2012) emphasizes that change consists of two important concepts; 1) for it to be useful, the change must move through a multi-step process that can overcome challenges, and 2) its effectiveness is not dependent on just good management but must include strong leadership. The model aligns with the lessons learned by Clancy and Tornberg (2007/2019) and Paul et al. (2017) during their implementation of TeamSTEPPS, including performing a readiness assessment of the organization, engaging the leadership in developing the vision for change, and continuously reinforcing the progress to forge a new culture. This project assessed the TeamSTEPPS OBC program's impact on an OMS practice. By mitigating competing forces of change through the use of Kotter's model, the significance of the TeamSTEPPS OBC program can be better appreciated. In addition, using the Kotter model, strengths and weaknesses in the implementation process can be categorized within the model's framework for evaluation.

Steps of Kotter's Change Theory Model

The eight steps of the change model, as outlined in Kotter (2012), are:

1) Create a sense of urgency,
2) Build the guiding coalition,
3) Develop a vision and strategy,
4) Communicate the change vision,

5) Empower broad-based action,
6) Generate short-term wins,
7) Consolidate gains and produce more change, and
8) Anchor new approaches in the culture.

Cohen (2005) further categorized the eight steps into three phases. Phase I consists of steps one through three that set the climate for change; Phase II incorporates numbers four through six to engage the organization with the change project; and Phase III involves steps seven and eight, which consist of the project implementation and sustainment (Cohen, 2005; Baloh et al., 2017). The Kotter Model of Change has been applied across a diverse range of settings, including healthcare, and was adopted by the TeamSTEPPS program to guide its implementation process (AHRQ, 2019b; Baloh et al., 2017). The TeamSTEPPS curriculum follows a similar structure of phases of implementation, 1) assessment, 2) planning, training, and implementation, and 3) sustainment (AHRQ, 2018).

Phase I

As described in step one, establishing urgency helps move the organization out of a position of complacency, challenging the status quo (Melnyk & Fineout-Overholdt, 2019). The organization of focus in this QI project completed a readiness assessment to determine its ability to support a change initiative. The team created in step two should be composed of the organization's members who have the knowledge and skill to influence change while also having the respect of their peers (Allen, 2016; Melnyk & Fineout-Overholdt, 2019). Kotter (2017) explains that when the team is organized with members who are not senior managers, it operates irrespective of the organization's hierarchical structure, which is necessary for progress. For transformation to occur, it is critical to step outside of traditional boundaries in the organization

(Kotter, 1995). In this QI project, six practice employees made up the change team. Members varied in leadership roles, including the senior administrator, medical director, and team leaders at individual clinic locations. At step three, the initiative risks failure if the coalition moves slowly to create a vision and strategy for change (Melnyk & Fineout-Overholdt, 2019). The vision must also be clearly defined with realistic and specific strategies that can be implemented (Kotter, 2017). The change team developed the vision and strategies to be incorporated into the training through email discussions and in-person meetings over three months.

Phase II

Communicating the vision in step four is necessary to gain organizational buy-in, and every method of communication available should be utilized, appealing to the target audience's emotions (Kotter, 2017; Melnyk & Fineout-Overholdt, 2019). Communicating the vision through actions can be more potent than words, necessitating that the actions of the change leaders are consistent with their words (Kotter, 1995). The QI project utilized email and in-person engagement to facilitate discussion and share information. Once there is a clear vision and strategy, team members must be empowered to explore the change by removing barriers that inhibit employee engagement in the change process, as outlined in step five (Cohen, 2005; Melnyk & Fineout-Overholdt, 2019). Kotter (2017) refers to the obstacles impeding implementation as elephants. Progress can be hindered by the elephant, which can be in the individuals' minds, or a concrete barrier such as organizational structure, narrow scopes of practice, or issues competing with the individuals' self interests such as compensation (Kotter, 2017). Support of the practice leadership, including devoting time and resources for training and implementation, encourages employee participation. When the organization hits targets along the trajectory of change, these smaller wins should be celebrated (Cohen, 2005; Melnyk & Fineout-

Overholdt, 2019). Not acknowledging the interim successes can result in frustration and burnout early in the initiative, so creating small goals along the way to the bigger goal help maintain the team's momentum and fulfills the specifications of step six (Kotter, 2017). The PL emailed tips regarding the TeamSTEPPS implementation process to maintain momentum through the end of the project and reinforce key strategies, and encouraged the change team to recognize and publicly praise the successful integration of the TeamSTEPPS tools.

Phase III

Melnyk and Fineout-Overholdt (2019) refer to step seven as "ongoing persistence," and state that continuous persistence moves a vision into reality (p. 435). However, Kotter (2017) cautions that declaring success prematurely can quash the momentum, allowing a reversion to the past culture. To ensure persistence, leaders should realize that actualized gains take time. By celebrating short-term wins, larger issues can be overcome (Kotter, 2017). The final step of the eight-step change model is integrating the changes into the organization's culture for sustainment (Melynk & Fineout-Overholdt, 2019). To institutionalize change, the organization should demonstrate the desired attitudes and behaviors that lead to the change and promote leaders that embody the new culture (Cohen, 2005; Kotter, 2017). Both stages seven and eight were incorporated during the post-60-day assessment visit, where the team's hard work was acknowledged. At the conclusion of the QI project, the change team took over to continue the TeamSTEPPS program. With their intimate knowledge of what went well and ideas for improvement, they may be able to institutionalize the change by leading and coaching the existing staff and new employees who join the practice.

The movement of an organization through each step is time-consuming (Allen, 2016; Kotter, 2017). In addition, errors such as abbreviating or omitting steps only slow the process

leading to failure or lack of sustainment of progress (Allen, 2016; Kotter, 2017). The introduction of the TeamSTEPPS program into the OMS practice required a methodical implementation plan, as Kotter's Model of Change outlines. Continuing to provide specialized patient care while undergoing an organizational change can present a challenge to staff, and ineffective change management can result in employee dissatisfaction, failed program outcomes, and increased costs (Allen, 2016; Beasley et al., 2020).

Project Design

This QI project was designed to evaluate the impact of the TeamSTEPPS OBC program on teamwork, and communication in an OMS practice. A mixed methods explanatory sequential design was used, incorporating a pre-test/post-test design with semi-structured open-ended qualitative questions, which allowed for a better understanding of the quantitative results and a more robust overall understanding of participants' views. Participants engaged in a full-day training session covering the fundamentals of TeamSTEPPS OBC. After implementing the TeamSTEPPS tools and strategies, perceptions of teamwork were reevaluated at 60 days post training. The Belmont University Institutional Review Board granted exempt status to this project.

Clinical Setting

The project took place in an oral and maxillofacial surgery practice in Northern Middle Tennessee. Feedback from the practice administrator revealed many of the same challenges to teamwork and communication identified in the literature. The barriers to effective teamwork experienced by the practice were relational, processual, organizational, and contextual, as described in Szafran et al. (2017). The practice consists of three locations in two neighboring counties and is available to the community Monday through Friday, with emergency access

through two area hospitals. The staff surgeons provide full-scope oral and maxillofacial surgical procedures in each location and services patients of all ages and medical complexities. Over 10,000 patient encounters and 4000 surgical procedures are performed annually, including the administration of deep intravenous sedation or intravenous general anesthesia (IVGA). In addition to OMS procedures, the surgeons also perform facial cosmetic surgery. The main office has four procedure rooms where the providers administer deep sedation and IVGA. It also has a fully functioning operating suite where inhalational general anesthesia is delivered. The two other offices also have procedure rooms for administering deep sedation and IVGA. Surgeries are performed in office-based surgery clinics five days a week. All offices hold dental facility permits to administer deep sedation and general anesthesia, which are issued by the Tennessee Board of Dentistry.

Project Population

The population is the staff and surgeons of the OMS practice. Four board-certified surgeons rotate between the clinics. The medical director holds a medical degree (MD) and a dental degree (DDS). The other three surgeons are single-degree oral surgeons, having a dental degree only (DDS or DMD). The staff consists of 20 administrative and clinical team members who rotate between sites. Each site has a leader dedicated to that clinic, and the practice administrator oversees the entire organization. Clinical team members are registered dental assistants with varying years of experience who serve in multiple clinical roles, such as surgical assistants, anesthesia assistants, sterilization technicians, and patient care coordinators. The administrative staff consists of front desk personnel, schedulers, treatment coordinators, insurance specialists, and billing specialists. Two administrative team members work remotely,

one in another state. The minimal requirement for staffing in the OMS office is the surgeon, a surgical assistant, an anesthesia assistant, and an administrative staff member (Ritt et al., 2017).

All employees and surgeons were invited to participate. The practice administrator assisted with participant recruitment by sharing the training opportunity with staff and surgeons during scheduled staff meetings and through email. The consent form for participation in the project was made available to staff before the training session. Change team members only took one assessment test on the training day, necessitating a modified consent. The consent for non-change team participants can be found in Appendix C, and for change team members, see Appendix D. Staff members and surgeons were made aware that participation is voluntary. Employees electing not to participate were offered an alternative work location and assignment at one of the three clinics selected by the administrator. This was to ensure continued compensation for all employees without being asked to utilize paid time off benefits as a result of electing not to participate in the training. Because the owner surgeons agreed to host this training opportunity, the clinic was closed to patients. If an employed surgeon wished not to participate, they would be provided with an administrative day or offered the opportunity to take the day off. No punitive action was imposed on employees who chose not to participate.

Sources of Data/Data Collection Instruments

Quantitative and qualitative data were collected to assess the impact of the TeamSTEPPS OBC training. Demographics of the participants were obtained with the pre-training assessment. As illustrated in Appendix E, this was a separate form, so surveys could not be paired with the questionnaires to protect participant anonymity. Validated tools developed and tested by the TeamSTEPPS program were used in addition to a qualitative assessment tool created by the PL. Participants created a unique identifier code to match pre- and post-assessment data and recorded

it on each assessment tool. They were asked not to share their code. This procedure protected the participant from being inadvertently identified while allowing for paired testing of the data. All assessment tools were presented as pencil and paper evaluations. Completed assessments were placed in a collection box at a table in the training classroom and the practice site for both data collection sessions.

The readiness assessment, TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ), and TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ) were created by the AHRQ for use with the TeamSTEPPS program and are available in the public domain. The pre-and post-training survey instruments, the T-TAQ and the T-TPQ, assess attitudes and perceptions of teamwork along the five domains presented in the TeamSTEPPS program. The T-TAQ and T-TPQ have been validated and found reliable in psychometric testing (American Institute for Research [AIR], 2010; Baker et al., 2008). However, this testing was completed using the traditional, acute care version of TeamSTEPPS. The OBC versions of the T-TAQ and T-TPQ have been adapted to reflect the office environment.

Readiness Assessment

The TeamSTEPPS readiness assessment is a 13-item Yes/No questionnaire that addresses the organization's need for change, its readiness to take on a culture change, the commitment of time, resources, and personnel, and the support needed to sustain the change. (AHRQ, 2015). Organizations that score between 9 and 13 points are considered ready for change, scores between 6 and 8 points indicate the organization may not yet be prepared to move forward with TeamSTEPPS, and organizations that score less than 5 points are encouraged to work on other supportive areas within the organization to increase the level of readiness (AHRQ, 2015). The Readiness Assessment can be found in Appendix F.

T-TAQ

The T-TAQ measures individuals' attitudes toward teamwork (Baker et al., 2008). The 30-item survey is equally distributed across team structure, leadership, situation monitoring, mutual support, and communication (Baker et al., 2008). The instrument can be used as a stand-alone assessment of teamwork attitudes, part of a TeamSTEPPS site assessment, and as a TeamSTEPPS evaluation tool. (Baker et al., 2008). Interdependence of the constructs was measured using Pearson's correlation coefficients with scores ranging from .36 to .63, all with a $p < .01$, two-tailed (Baker et al., 2008). Cronbach's Alpha scores for the individual constructs range from .70 to .80. Question 29 of the survey was adapted for the OBC version of the test. The original question was, "It is important to have a standardized method for sharing information when handing off patients" (Baker et al., 2008, pp. A–4). The OBC-specific question can be viewed with the entire instrument in Appendix G.

Scoring is based on a 5-item Likert scale, four of which are reverse-coded, with a one indicating strong disagreement and a five indicating strong agreement. The higher the score, the more favorable the attitude toward teamwork (Baker et al., 2008). Baker et al. (2008) state that the T-TAQ can be used to assess the effectiveness of a TeamSTEPPS intervention. However, the manual for the T-TPQ discourages using the T-TAQ as a measurement of TeamSTEPPS effectiveness (AIR, 2010). For this project, the T-TAQ was used as part of the evaluation of effectiveness, along with the T-TPQ and qualitative assessment.

T-TPQ

The T-TPQ measures individuals' perceptions of unit-level skills and behavior (AIR, 2010). Located in Appendix H, it consists of 35 questions equally divided among the five constructs of TeamSTEPPS. It can be administered independently of any team training

interventions, as a standalone measure to assess the effectiveness of a TeamSTEPPS training, follow-up testing after TeamSTEPPS implementation, or as part of a site assessment to determine the need for team training (AIR, 2010). The manual cautions the user that scores may drop from the baseline assessment following TeamSTEPPS training due to a change in individuals' understanding of teamwork (AIR, 2010). For this reason, the manual recommends that the T-TPQ be used as a longitudinal assessment of the effectiveness of TeamSTEPPS training several months post training (AIR, 2010). Also, the T-TPQ states that if the tool is used to determine the efficacy of a TeamSTEPPS training program, it should be administered immediately before and after the training session (AIR, 2010).

The test demonstrated reliability and validity through psychometric testing. Intercorrelation between the constructs ranged from .57 to .79, and $p < .01$, two-tailed. The Cronbach's alpha scores for each domain are between .88 and .90. The change in the OBC version of the T-TPQ from the acute care version is the substitution of the word *unit* with the term *office* or *team* throughout the test.

Like the T-TAQ, the T-TPQ is scored on a 5-item Likert scale but with no reverse-coded questions. The T-TPQ questions are related to group-level behaviors, an assessment of perceived on-the-ground activities among teammates. Reassessing immediately following a training session is premature because the tools have not been implemented. For this project, the T-TPQ post-training assessment was reserved for use at 60 days post training.

Qualitative Assessment

The qualitative assessment consists of five questions, found in Appendix I, that accompanied the T-TPQ assessment tool and was administered 60 days after training. The assessment was structured to answer the following four questions:

1) Do employees perceive that TeamSTEPPS is appropriate for use in the OMS setting?
2) Are the strategies presented in TeamSTEPPS easily adaptable in the OMS clinic?
3) Does the TeamSTEPPS OBC training improve the staff's attitudes toward teamwork immediately following training and their perceptions of teamwork approximately two months post education?
4) Where were the barriers to implementation?

Data Collection Process/Procedures

Similar to the categorization of phases within Kotter's Change Model and the TeamSTEPPS implementation process, the implementation plan consisted of three phases, assessment, training, and implementation activities.

Assessment

Kotter's Change Model explains that creating urgency, developing a vision, and establishing organizational buy-in are critical at this phase (Melnyk & Fineout-Overholdt, 2019). The practice leadership determined there is a need to improve collaboration among staff. While engaging with the key stakeholder to obtain buy-in for the proposed initiative, the practice administrator shared her assessment of the current state of teamwork within the organization. Her priorities were improving communication, clarifying expectations, enhancing cooperation, and speaking up. Her input was included when customizing the training curriculum, focusing on specific tools to support her objectives.

The practice conducted a needs assessment in 2021 when the leadership showed interest in bringing TeamSTEPPS into the practice. According to the practice administrator, the Readiness Assessment results were favorable for beginning the TeamSTEPPS implementation process and suggested a high likelihood of success. Since that assessment, no significant changes

in practice leadership have occurred, and the administrator feels confident that the practice is ready to implement TeamSTEPPS. A repeat Readiness Assessment was conducted at the beginning of this project, and the practice scored 13, indicating a high likelihood of success with TeamSTEPPS implementation.

Step two, creating a coalition to guide the initiative, was achieved by establishing a change team consisting of the practice administrator, medical director, clinical lead, and office leads from the three clinic sites. TeamSTEPPS recommends a multidisciplinary makeup among the change team that represents the variety of professionals in the organization who are committed to the change process (AHRQ, 2019b). The change team provided feedback to the PL regarding priorities for training challenges with teamwork. Working with the practice administrator and using the assessment results, the vision for the practice was established, as directed in step three, which helped determine which strategies in the TeamSTEPPS suite were introduced.

Training and Implementation

Phase II, incorporating steps four through six of Kotter's change model, was divided into pre-training, training day, and post-training activities.

Pre-Training Activities. The PL completed a nine-week TeamSTEPPS Master Trainer course through the American Hospital Association (AHA). The PL previously completed the TeamSTEPPS Change Leaders and Champions program through the AHA in 2021, which focused on "how to effectively manage change, build team resilience and integrate teamwork practices into existing workflows and organizational initiatives" (AHA Team Training, n.d., para. 2). The Master Trainer course was directed toward professionals who will be actively

engaged in training and implementing TeamSTEPPS in their organization (AHA Team Training, n.d.).

After completing the Master Trainer course, the PL led the change team through a foundational study of the fundamental concepts of each of the five TeamSTEPPS OBC domains. This was completed over 16 weeks, consisting of eight video modules narrated by the PL and delivered via email. They had access to the PL for any questions related to the modules and provided feedback on the tools they felt most appropriate for implementation in the practice. Before the training day, a one-hour meeting with the change team members and the PL was held to review the practice objectives and agenda for the training day and clarify the change team's role in the implementation process.

Training Day Activities. The training session was hosted on September 23, 2022, in a meeting room of the local hospital. The session lasted from 8 am until 4:30 pm, with regular stretch breaks and a 45-minute lunch break. Before beginning the session, all participants signed the appropriate informed consent document. They were then asked to complete a demographic survey and take two assessment surveys, the T-TPQ and the T-TAQ. Change team members only took the T-TPQ because their previous exposure to the TeamSTEPPS program over the past 16 weeks may have impacted their baseline attitudes toward teamwork. The training session used the prepared curriculum from the TeamSTEPPS OBC version, incorporating slides, video vignettes, and skill practice opportunities. The TeamSTEPPS OBC version consists of modules on team structure, communication, leading teams, situation monitoring, and mutual support. A final module, Putting It All Together, weaves all the skills from the previous modules together so the learner can see how the strategies work in harmony with each other.

TeamSTEPPS provides a sample agenda approximating how long each module takes to present. Generally, modules require 45 minutes to 1 hour. Additional time was allotted to modules that the PL felt needed more attention based on feedback from the change team, particularly communication and mutual support. Participants were given a QR code to access the TeamSTEPPS Pocket Guide online, a binder with the printed Pocket Guide, worksheets to accompany the activities, and paper for notetaking. Video vignettes produced for the TeamSTEPPS OBC curriculum reinforced each module's key concepts. Two video scenarios specific to oral surgery and general dentistry from the dental module were incorporated to illustrate poor teamwork and how a team should engage using the TeamSTEPPS tools. The training day schedule is provided in Appendix J. Participants were entered to win one of three gift baskets throughout the day by earning tickets for a drawing at the end of the day. All participants were given a ticket for attending the morning session and another for attending the afternoon session. Additional entries were earned by correctly answering a question during the module discussions, participating in activities, or sharing with the group.

Breakout sessions were used to practice critical skills. Team members were preassigned to breakout groups, which included members with diverse roles. There were three breakout groups, with six members in each group. Each group included one surgeon and two change team members for the morning session. The afternoon session consisted of three groups, but only two had a surgeon present. Change team members were included in the groups to help facilitate discussion and serve as a leader during the implementation period.

Immediately following the conclusion of the training session, staff, except for change team members, completed the T-TAQ assessment to evaluate if there was a change in attitudes towards teamwork compared to the pre-training assessment. As previously stated, the T-TPQ

was not reassessed at the end of the training day because it was reserved to measure perceptions of teamwork after the tools and strategies were implemented.

Post-Training Activities. During the 60 days following the training day, the PL sent out TeamSTEPPS tips to the participants via email every two weeks. These four emails reinforced the tools and strategies presented and encouraged the program's full implementation. Using the modules created through a partnership between the AHA and Centers for Disease Control, called Project Firstline, participants were provided links to modules that presented a brief video discussion of the tool, a video example of the tool in use, and reinforcement questions about how the tool should be used (AHA, 2021). The PL encouraged the change team members to facilitate engagement and implementation of the TeamSTEPPS tool through positive reinforcement, celebrating exemplary strategy usage, and providing regular feedback to participants.

To measure the effectiveness of the training after the opportunity for real-life implementation, the design called for a re-evaluation of the T-TPQ. At the end of the 60 days, participants were asked to complete the T-TPQ and five questions for the qualitative component of the study to evaluate the effectiveness of the TeamSTEPPS training. Only staff members who completed the training day session were permitted to take the assessment. The practice leadership provided lunch after the assessments were collected to recognize the team's hard work in adopting TeamSTEPPS. The TeamSTEPPS program recommends that organizations celebrate wins to encourage sustainment and engage participants (AHRQ, 2019b). Step six of Kotter's change model includes publicly recognizing victories and rewarding those who contributed to the success (Kotter, 2012). To further support the continued use of TeamSTEPPS tools, the practice leadership was encouraged to establish a program that reinforces the TeamSTEPPS strategies by recognizing employees that implement the tools in daily practice.

Data gathered from the assessments were aggregated and shared with the practice to guide ongoing training programs, adjust their implementation process to meet identified needs, and use them as a reference for future evaluations. Steps seven and eight of Kotter's change model recommend identifying and correcting areas of the change process that were less successful and adopting the changes into the organization's culture (Kotter, 2017).

Data Analysis

Using a mixed-methods approach, specifically an explanatory sequential design, quantitative and qualitative data were analyzed for differences between pre-and post-training assessments, help to explain any changes, and identify opportunities to reinforce any changes made. The pre-and post-assessment test data were manually entered into an online Qualtrics survey created by the PL for data organization and reporting purposes. The quantitative data were then exported into the IBM SPSS Version 28 software for analysis. Missing data were replaced with the mean score of the available data for that question. The normality of the results will determine which statistical test is used. If the results have a normal distribution, a paired *t*-test will be used with a *p*-value of 0.05 for statistical significance. Cohen's *d* will be used to calculate the effect size. For non-parametric data, the Wilcoxon Signed Rank Test for matched pairs will be used, also with a significance level of 0.05 for a pre-and post-test analysis of paired samples. The effect size for non-parametric data will be calculated using Rosenthal's r.

The T-TAQ and T-TPQ manuals recommend two methods for scoring the results, summing scores for statistical analysis (the preferred method) or computing an average score for each construct (AIR, 2010; Baker et al., 2008). Presenting an average score allows for the results to be displayed graphically. Assessments that could not be paired due to participants

withdrawing from the study, only completing part of the training session, or terminating employment, were excluded from the comparative analysis.

The qualitative responses were analyzed by the PL and an experienced qualitative faculty advisor for common themes related to the participants' experiences. Themes in the form of frequent or relevant codes were developed as they emerged from the data. The themes were reviewed against the results of the assessment tests to evaluate if participant experiences explained post-training assessment results and provided additional information about program implementation, and possible factors for ongoing success. Descriptive statistics were used to describe the demographic makeup of the participants. The assessment results were not analyzed against the demographic makeup of the participants due to the risk of participant identification because of a small sample size. Because unpaired assessments could not be matched to demographic surveys for exclusion, all demographic surveys were included in the analysis.

Results

Participant Demographics

A total of 18 team members participated in the TeamSTEPPS training program. Of the 18 participants, 17 completed the full training day session. All 18 completed the demographic survey, and the characteristics are shown in Appendix K. Demographics collected at the beginning of the training session revealed that 50% (n = 9) of the participants represented the business office, 33% (n = 6) were part of the clinical team, and 17% (n = 3) were surgeons. Sixty-one percent (n = 11) had worked in dentistry/oral surgery for three to ten years. A total of 50% (n = 8) of the participants (N = 16) had been employed at the clinical site for two years or less. Fifty percent (n = 9) of the participants (N = 18) reported hearing of the TeamSTEPPS program, with 39% (n = 7) having participated in a past TeamSTEPPS training.

Quantitative Data

T-TAQ Pre and Post Assessment

Eleven participants completed the pre-and post-T-TAQ assessments. The minimum score for the T-TAQ was 30, and the maximum possible score 150. Each domain had a minimum score of 6 and a maximum score of 30. Using the Wilcoxon Signed-Ranks Test, the median overall post-test score (*Mdn* = 135) was statistically significantly higher than the median pre-test score (*Mdn* = 129), $Z = -2.45$, $p = 0.014$, $r = 0.738$ (see Table L1). When analyzed by domain, post-test scores on all domains increased from the pre-test scores. Only the Team Structure post-test score (*Mdn* = 27) was statistically significant compared to the pre-test score (*Mdn* = 25), $Z = -2.41$, $p = 0.016$, $r = 0.726$.

T-TPQ Pre and Post Assessment

The pre-and post-T-TPQ assessments were completed by all participants ($N = 17$). The minimum score for the T-TPQ was 35, and the maximum score possible was 175. Each domain had a minimum score of 7 and a maximum score of 35. A Wilcoxon Signed-Ranks Test was used, and the median post-training test scores (*Mdn* = 132) was higher than the median pre-training test score (*Mdn* = 125) but not statistically significant, $Z = -1.19$, $p = 0.234$, $r = 0.289$. The post-training test median scores of all domains, except for Situation Monitoring, increased compared to the mean pre-training scores, though none were statistically significant (see Table L2).

Post-Training Qualitative Assessment

Qualitative Prompts Responses

Seventeen participants completed the post-training qualitative assessment; the results are shown in Table M1. Questions 1 and 2 addressed the appropriateness of the strategies introduced

to the practice and if the strategies were used in daily work. All participants answered Yes (*n* = 17) to Questions 1 and 2. Question 3 asked if teamwork improved in the day-to-day clinical operations after implementing the TeamSTEPPS program. Sixteen participants answered this question; 94% (*n* = 15) responded Yes, and 6% (*n* = 1) answered No. Question 4 inquired if there were any barriers to implementing the tools and strategies introduced. Of the sixteen responses, 44% (*n* = 7) answered. Yes, and 56% (*n* = 9) answered No.

Narrative Responses

All participants (*N* = 17) were invited to complete the narrative portion of the post-training qualitative assessment. Not all participants responded to each prompt. Themes were identified from each prompt response and organized by frequency. The answers were used to help explain the quantitative results and provide more depth to the participants' perceptions during the implementation period.

Appropriateness of Strategies Presented.

Nine participants provided additional information on the appropriateness of the TeamSTEPPS strategies presented for their workplace in Question 1. The theme, *communication*, was identified in the majority of responses (*n* = 5), with *improved communication* (*n* = 4) and *structured communication* (*n* = 1) properties of the theme, as shown in Table M2. In addition, the *promotion of patient safety* (*n* = 2) and *improved flow and efficiency* (*n* = 2) were also identified.

Strategies Implemented.

Question 2 explored the strategies that the participants implemented. Of the total responses (*N* = 11), *huddles* were mentioned by 10 participants as a tool to improve the communication of relevant information, with one participant stating, "Morning huddles was an

excellent way to communicate relevant information" (see Table M3). Other strategies identified in the narrative responses included *debrief* (*n* = 3), *cross monitoring* (*n* = 1), *closed-loop communication* (*n* = 1), *CUS* (*n* = 1), and *SBAR* (*n* = 1).

Improvements Made.

Question 3 asked participants to explain in detail if TeamSTEPPS OBC improved teamwork in the practice. As shown in Table M4, eleven participants shared insight into how the program impacted teamwork, with *huddles* (*n* = 3) and *communication* (*n* = 3) most frequently mentioned. Within the *communication* theme, participants noted it was *improved* (*n* = 1), and more specifically, the *communication between the front and back improved* (*n* = 1). Developing a *shared mental model* (*n* = 2) was noted as an improvement in teamwork. Notably, one participant shared that "Huddles and debriefs have allowed for staff within the same office to be on the same page." Additional improvements included *role clarity* (*n* = 1), *projection of needs* (*n* = 1), *peer-to-peer relationships* (*n* = 1), *task assistance (n* = 1), and *patient handoff* (*n* = 1).

Barriers to Implementation.

Reflecting on the implementation experience, participants (*N* = 7) identified a *lack of participation* (*n* = 5), *increased expectations* (*n* = 1), and *ineffective huddles* (*n* = 1) as barriers to implementing the tools and strategies from TeamSTEPPS (see Table M5). Participants noted that the *lack of participation* included *not attending training* (*n* = 1) for both staff and doctors, and *lack of participation in huddles* (*n* = 1). One participant stated, "leadership of some of the doctors who felt it wasn't applicable or only for the staff" was a barrier. One participant described the *increased expectations* as "Some things like morning huddle can be perceived as extra work."

Suggestions for Improvement.

The fifth prompt asked participants for suggestions for improving how TeamSTEPPS OBC training is applied in the practice. Respondents (N = 11) recommended improvement in *participation* (n = 5), *collegial interactions* (n = 3), and *ongoing reinforcement* (n = 2), as shown in Table M6. Within the theme of *collegial interaction*, the properties of *proper tone* (n = 1), *improved attitude* (n = 1), and *respect* (n = 1) emerged. The theme, *participation,* included training *for all* (n = 3) and participating in *huddles* (n = 2). Regarding training *for all*, a notable comment was:

> Everyone should've been required to attend the first TeamSTEPPS training in my opinion because it has caused some not to be in the same loop as others and communicating certain things get taken into offense rather than informing and preparing.

One participant commented that "Everyone needs to take a moment to be involved with morning huddles," and another stated, "There are people (staff) in the office who do not want to participate in huddles."

Discussion

Effective teamwork and communication are integral to safe patient care. As Frankel et al. (2006) state, "Currently, we can assure our patients that their care is always provided by a team of experts, but we cannot assure our patients that their care is always provided by expert teams" (p. 1700). The participants' overall attitudes towards teamwork in the T-TAQ improved significantly immediately following the training session. All five domains making up the T-TAQ showed an improvement in post-training scores; however, only the Team Structure domain showed statistically significant improvement. The T-TPQ results did not reveal a statistically significant change in the overall median score or the scores of the individual domains. Nevertheless, all the participants felt the TeamSTEPPS strategies presented in the training

sessions were appropriate for their work environment and were able to integrate the strategies into their daily work. Less than half reported barriers to implementation, and the majority responded that TeamSTEPPS improved teamwork in their practice.

An initial decrease in post-training T-TPQ scores can reflect a change in understanding of teamwork (AIR, 2010). Therefore, following the TeamSTEPPS training, participants may have a new perspective on effective teamwork and communication. This can result in a lower post-training score which is not illustrative of a lack of progress but reflects a transformed definition of teamwork and communication among all participants. Obenrader et al. (2019) noted a decrease in the mean score of the Communication domain of the T-TPQ tool at the first post-training assessment of emergency room staff, in which the authors suggested that the participants' initial post-training scores were more realistic. In this QI project, there was a slight decrease in the median score in the Situational Monitoring domain, but it was not statistically significant.

TeamSTEPPS has been shown to improve attitudes and perceptions of teamwork and communication, with varying success depending on the implementation and assessment (Chen et al., 2019). As revealed through participant narrative responses, the TeamSTEPPS OBC program improved teamwork, and the program's achievements were balanced with opportunities for improvement. Additionally, empowering staff to modify workflows and behaviors with the support of practice leaders was found to be a critical element for success. The addition of obtaining qualitative data provided a more in-depth analysis of the participants' experience, given the small sample size and the inability to complete serial post-training quantitative assessments.

Program Achievements

Participants were complimentary regarding the training session and the potential for improved teamwork. Of the strategies presented in the training session, the most frequently adopted tool was the huddle. TeamSTEPPS refers to huddles as structured team meetings occurring in response to a change in plans or to reestablish situational awareness, and team meetings at the beginning and end of a procedure or workday are briefs and debriefs (AHRQ, 2015). In dentistry, however, the term huddle is colloquially used to represent a team meeting at the beginning of the day. It focuses on productivity metrics, patient flow, administrative issues, and clinic efficiency. For discussion purposes, the term huddle will also describe briefs and debriefs. Staff members attempted to lead daily huddles, but the benefit of the huddles varied by the clinic site and surgeon that day. Participants shared that the clinicians unsupportive of implementing huddles viewed the strategy as additional work. The practice attempted huddles in the past, but the strategy was not sustained because there was no standardized approach to the sessions and lacked staff and surgeon participation. The TeamSTEPPS OBC training provided the rationale and structure for staff support of huddles. When implementing huddles in an oral medicine clinic, Finn et al. (2017) noted that clinicians were initially skeptical that huddles were effective, and others believed they interrupted the workflow. However, after introducing huddles into the safety strategy, clinicians became more accepting of the practice over time (Finn et al., 2017).

The participants recognized an improvement in peer-to-peer dynamics, specifically the communication between clinical and administrative teams. The stronger interpersonal relationships were also reflected in improved anticipation of coworkers' needs. Situational awareness results in a shared mental model where all team members are in tune with the

environment, anticipating the needs of each other, the surgeons, and the patient. This led to mutual support, including task assistance.

Opportunities for Improvement

Overall, the program introduced strategies and tools to the OMS practice that could improve the participants' attitudes and perceptions of teamwork using the various TeamSTEPPS OBC strategies. However, after implementing the TeamSTEPPS OBC program and evaluating the results, some areas may need additional improvement to achieve statistically significant results. Therefore, to maintain the sustainability of the TeamSTEPPS OBC program in this practice setting, additional strategies should be implemented for continued success.

Coaching and On-going Reinforcement

The PL was not involved in the on-site implementation process but, through email correspondence, provided regular TeamSTEPPS OBC reinforcement materials after the training session, which were to be used in conjunction with the change team support. The objective of the change team was to provide on-site coaching and support to the participants during the implementation process. However, not all change team members were fully engaged in the process. The email reinforcement materials required self-efficacy and skill to transfer the concepts into practice independently. The open rate of these emails was not tracked, and the effectiveness of the emails was not measured.

Embedding a TeamSTEPPS master trainer in the clinic sites to provide ongoing coaching and reinforcement during the implementation period could have improved the program's influence on teamwork and communication. A master trainer actively participating in the change process could have served as a bridge between staff and surgeons, softening the hierarchy. As an alternative, change team members could have attended a master trainer course to better prepare

them for their role in this project. However, due to the change team members' practice workload and time constraints, participation in a master training course was not an option.

In a TeamSTEPPS implementation project with operating room staff, Lee et al. (2017) identified that the greatest gains were seen with participants exposed to multiple reinforcement activities. Those not participating in reinforcement activities did not exhibit significant differences in teamwork behaviors (Lee et al., 2017). The participants in this QI project requested continuing reinforcement activities to promote teamwork and practice the TeamSTEPPS skills. Even though the TeamSTEPPS OBC emails included video and narrative materials, there was no assurance that the participants reviewed the emails during the implementation period. Therefore, active participation in periodic reinforcement activities is necessary to sustain improvements (Lee et al., 2017; Rosen et al., 2018).

Leadership Support

The participants commented on inconsistencies in applying the tools and strategies among clinical sites and surgeons. The staff members rotate between clinics, and the variability in implementation was noticeable. It was hoped that having change team members from all sites would curb disparities in how the strategies were adopted; however, steep hierarchies were a barrier to effective teamwork. It was difficult for change team members to overcome resistance from surgeons who were unsupportive of the change efforts, limiting their effectiveness. It was ambitious to expect a staff member to lead an intervention that a surgeon does not embrace or is unwilling to participate in. Therefore, comments from the participants indicated that the surgeons less supportive of the tools or located at the sites with poorer uptake of the strategies, did not participate in the full training day. As stated by Epps and Levin (2015), surgeons can be a barrier to change because they work in established routines and are considered the expert of the care

team. When complications occur infrequently, there can be little incentive for change (Epps & Levin, 2015). However, practice leadership should support and model the desired team behaviors, and actions must be consistent with their words (Kotter, 1995; Lee et al., 2017).

Competing Priorities

Kotter's Theory for Organizational Change and the experiences shared by Clancy and Tornberg (2007/2019) emphasize the need for the organization to overcome competing forces and support the change initiative (Kotter, 2012). The practice's score on the readiness assessment indicated it was well-positioned to introduce the TeamSTEPPS OBC program. During the implementation period, the staff was made aware that the practice would be undergoing an organizational restructuring, including a change of ownership, in the coming weeks. The surgeons and practice administrator had been working for several months to facilitate this operational change which was a competing priority to the QI project. The announcement to the staff was made a week before the 60-day post-training assessments were administered, which could have affected the staff's perceptions of team dynamics. Kotter (2017) encourages organizations experiencing change to remove obstacles that can block progress or compete with the goals of the change initiative. While it is ideal for change programs to be prioritized over other practice activities, it is important to acknowledge the influence of concurrent ventures on the attention of leadership and staff.

Participation in Training Program

Although participation in this QI project was voluntary, effective teamwork and communication should encompass all practice members. Not all staff members and surgeons participated in the training, with 79% of the staff and 50% of the surgeons completing the full-day training session. It was challenging for those who participated in the training to effectively

utilize the strategies with team members who did not attend. As a result, participants shared in the post-training assessment that the training day should have been mandatory for all staff.

Implications for Practice

Effective teams not only have members with specific roles but can integrate those specific skill sets within the team structure (Epps & Levin, 2015). The team structure used in oral and maxillofacial surgery to support its operator/anesthetist model relies on a division of tasks. However, a task-focused approach to teamwork may neglect the collaboration of the team members (Heath & Staudenmayer, 2000). The idea that a team is solely assembling individuals participating in a patient's care is a misconception (Epps & Levin, 2015). Collaborating as a team is not intuitive, and while individuals may consider themselves a part of the healthcare team, they may not have the skills to operationalize effective teamwork (Epps & Levin, 2015). Oral and maxillofacial practices desiring to create a more collaborative dynamic among team members have access to strategies through the TeamSTEPPS OBC program.

This QI project identified practice implications related to commitment, support, and training in a change initiative. Although Kotter's Theory for Organization Change was used as the theoretical model, the experience of implementing the tools and strategies demonstrated the nuances of Kotter's model and how inconsistent adoption of the steps by participants can affect the impact of the change program. The potential for the TeamSTEPPS OBC program to improve team effectiveness in an OMS practice is appreciable, as effective team dynamics is a collaborative effort that engages the knowledge, skills, and attitudes of teamwork (Epps & Levin, 2015). Practices wanting to implement the TeamSTEPPS OBC program should ensure organizational commitment and leadership support of the initiative, consider embedding a

TeamSTEPPS Master Trainer into the clinic to coach team members, and reduce as many competing priorities as possible.

Strengths, Limitations, and Future Directions

The PL had worked in this OMS clinic for 15 years and had extensive knowledge of the teamwork and communication challenges within the practice. Consequently, the PL was able to customize the TeamSTEPPS OBC presentation based on her experience and the requests of the practice leadership. This also helped the PL better relate to the staff during the training day and understand their perspectives.

Although the difference in the pre-and post-training T-TAQ was statistically significant, the change in perception of teamwork and communication post implementation measured by the T-TPQ was not statistically significant. The small sample size is believed to be the primary reason for the lack of statistical significance, especially when considering qualitative responses. Due to the study's time constraints, the implementation period was limited to 60 days. As previously noted, it is not uncommon to see a decrease in the initial repeat T-TPQ assessment.

Not all staff members and surgeons participated in the training day. Therefore, without the full participation of the clinic personnel in training, it is difficult to generalize the results of one practice's experience with the TeamSTEPPS OBC program to the OMS community limiting the program's impact. The use of the TeamSTEPPS OBC email reinforcement activities by the participants is unknown, and underutilization could have hindered the proper application of the strategies and tools. Continuation of this QI project should include in-person reinforcement activities with all staff members and surgeons and serial T-TPQ assessments to evaluate the ongoing impact. Future implementation of the TeamSTEPPS OBC program should involve a larger sample size to capture changes in attitudes and perceptions of teamwork.

Conclusion

When the IOM published its recommendations to improve safety, it prioritized developing systems where care is delivered. The design of a safe healthcare system included supporting effective teams through training. The OMS model relies heavily on teamwork, yet does not have a well-defined framework that supports collaboration among team members. This deficiency has made the profession a target for criticism by outside professional groups that seek to limit the ability of oral surgeons to provide surgeon-administered anesthesia in the office setting. TeamSTEPPS has been extensively studied in the acute care and outpatient settings, and its impact on teamwork and communication is well-established. The limited evidence related to its use in the dental environment presents an opportunity to examine the impact of the TeamSTEPPS OBC program on teamwork and communication in the OMS setting. The TeamSTEPPS OBC training improved attitudes and perceptions of teamwork and communication. Although not all the improvements were statistically significant, the project established the potential for influence within the OMS practice setting. Huddles emerged as the most frequent and beneficial strategy implemented, supporting communication, situational awareness, and mutual support. This QI project also highlighted the importance of leadership endorsement in a change initiative. For future practice, having the entire team participate in training sessions, providing ongoing coaching support, and hosting frequent reinforcement activities are recommended to sustain the TeamSTEPPS OBC strategies and tools in practice.

References

Agency for Healthcare Research and Quality. (2015). *Readiness assessment*. https://www.ahrq.gov/teamstepps/officebasedcare/handouts/readiness.html

Agency for Healthcare Research and Quality. (2018). *TeamSTEPPS implementation guide* [PDF]. AHRQ. https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/education/curriculum-tools/teamstepps/instructor/essentials/implguide.pdf

Agency for Healthcare Research and Quality. (2019a). *TeamSTEPPS® 2.0: Introduction*. https://www.ahrq.gov/teamstepps/instructor/introduction.html

Agency for Healthcare Research and Quality. (2019b, June). *About TeamSTEPPS*. https://www.ahrq.gov/teamstepps/about-teamstepps/index.html

Agency for Healthcare Research and Quality. (2021). *TeamSTEPPS for office-based care version*. AHRQ. https://www.ahrq.gov/teamstepps/officebasedcare/index.html

Agency for Healthcare Research and Quality. (2022). *Curriculum materials*. https://www.ahrq.gov/teamstepps/curriculum-materials.html

AHA Team Training. (n.d.). *TeamSTEPPS for change leaders and champions (virtual)*. American Hospital Association. https://www.aha.org/center/team-training/courses-and-workshops/change-leaders

Allen, B. (2016). Effective design, implementation and management of change in healthcare. *Nursing Standard*, *31*(3), 58–71. https://doi.org/10.7748/ns.2016.e10375

American Association of Oral and Maxillofacial Surgeons. (2016). *Office-based anesthesia provided by the oral and maxillofacial surgeon* [White paper].

https://www.aaoms.org/docs/govt_affairs/advocacy_white_papers/advocacy_office_based_anesthesia_whitepaper.pdf

American Hospital Association. (2021). *AHA TeamSTEPPS video toolkit*. AHA Center for Health Innovation. https://www.aha.org/center/project-firstline/teamstepps-video-toolkit

American Institute for Research. (2010). *TeamSTEPPS® teamwork perceptions questionnaire manual*. Agency for Healthcare Research and Quality. https://www.ahrq.gov/sites/default/files/wysiwyg/teamstepps/instructor/reference/teamperceptionsmanual.pdf

Baker, D. P., Krokos, K. J., & Amodeo, A. M. (2008). *TeamSTEPPS® teamwork attitudes questionnaire manual*. Agency for Healthcare Research and Quality. https://www.ahrq.gov/sites/default/files/wysiwyg/teamstepps/instructor/reference/teamattitudesmanual.pdf

Baloh, J., Zhu, X., & Ward, M. M. (2017). Implementing team huddles in small rural hospitals: How does the Kotter model of change apply? *Journal of Nursing Management, 26*(5), 571–578. https://doi.org/10.1111/jonm.12584

Beasley, L., Grace, S., & Horstmanshof, L. (2020). Responding and adapting to change: An allied health perspective. *Leadership in Health Services, 33*(4), 339–349. https://doi.org/10.1108/lhs-07-2019-0050

Brennan, P., Holden, C., Shaw, G., Morris, S., & Oeppen, R. (2020). Leading article: What can we do to improve individual and team situational awareness to benefit patient safety? *British Journal of Oral and Maxillofacial Surgery, 58*(4), 404–408. https://doi.org/10.1016/j.bjoms.2020.01.030

Buljac-Samardzic, M., Doekhie, K. D., & van Wijngaarden, J. H. (2020). Interventions to improve team effectiveness within health care: A systematic review of the past decade. *Human Resources for Health, 18*(1). https://doi.org/10.1186/s12960-019-0411-3

Chen, A. S., Yau, B., Revere, L., & Swails, J. (2019). Implementation, evaluation, and outcome of TeamSTEPPS in interprofessional education: A scoping review. *Journal of Interprofessional Care, 33*(6), 795–804. https://doi.org/10.1080/13561820.2019.1594729

Clancy, C. M., & Tornberg, D. N. (2007/2019). Republished: TeamSTEPPS: Assuring optimal teamwork in clinical settings. *American Journal of Medical Quality, 34*(5), 436–438. https://doi.org/10.1177/1062860619873181

Cohen, D. S. (2005). *The heart of change field guide: Tools and tactics for leading change in your organization* (1st ed.). Harvard Business Review Press.

D'Angelo, M., Cervero, R., Durning, S., & Varpio, L. (2019). The teamwork model: Proposing a model for studying interprofessional healthcare teams. *MedEdPublish, 8*, 81. https://doi.org/10.15694/mep.2019.000081.1

Desai, S., Fiumara, K., & Kachalia, A. (2019). Building an ambulatory safety program at an academic health system. *Journal of Patient Safety, 17*(2), e84–e90. https://doi.org/10.1097/pts.0000000000000594

Dodge, L. E., Nippita, S., Hacker, M. R., Intondi, E. M., Ozcelik, G., & Paul, M. E. (2018). Impact of teamwork improvement training on communication and teamwork climate in ambulatory reproductive health care. *Journal of Healthcare Risk Management, 38*(4), 44–54. https://doi.org/10.1002/jhrm.21353

Drew, S. J. (2018). Oral and maxillofacial surgery team anesthesia model and anesthesia assistant training. *Oral and Maxillofacial Surgery Clinics of North America*, *30*(2), 145–153. https://doi.org/10.1016/j.coms.2018.01.002

Epps, H. R., & Levin, P. E. (2015). The TeamSTEPPS approach to safety and quality. *Journal of Pediatric Orthopaedics*, *35*(Supplement 1), S30–S33. https://doi.org/10.1097/bpo.0000000000000541

Etherington, N., Wu, M., Cheng-Boivin, O., Larrigan, S., & Boet, S. (2019). Interprofessional communication in the operating room: A narrative review to advance research and practice. *Canadian Journal of Anesthesia*, *66*(10), 1251–1260. https://doi.org/10.1007/s12630-019-01413-9

Fain, D. W., Ferguson, B. L., Indresano, A., Johnson, J., Rafetto, L. K., Farrell, S., Nelson, S. R., Nannini, V. L., Schwartz, P. J., Clark, R. S., Morrison, J., Tiner, B., & Egbert, M. A. (2017). The oral and maxillofacial surgery anesthesia team model. *Journal of Oral and Maxillofacial Surgery*, *75*(6), 1097–1100. https://doi.org/10.1016/j.joms.2017.03.030

Finn, D. J., Rajlawat, B. P., Holt, D. J., Adair, S. L., Kent, K., & Field, E. A. (2017). The development and implementation of a biopsy safety strategy for oral medicine. *British Dental Journal*, *223*(9), 667–673. https://doi.org/10.1038/sj.bdj.2017.885

Frankel, A. S., Leonard, M. W., & Denham, C. R. (2006). Fair and just culture, team behavior, and leadership engagement: The tools to achieve high reliability. *Health Services Research*, *41*(4p2), 1690–1709. https://doi.org/10.1111/j.1475-6773.2006.00572.x

Green, B., Oeppen, R., Smith, D., & Brennan, P. (2017). Challenging hierarchy in healthcare teams – ways to flatten gradients to improve teamwork and patient care. *British Journal*

of Oral and Maxillofacial Surgery, *55*(5), 449–453. https://doi.org/10.1016/j.bjoms.2017.02.010

Gross, B., Rusin, L., Kiesewetter, J., Zottmann, J. M., Fischer, M. R., Prückner, S., & Zech, A. (2019). Crew resource management training in healthcare: A systematic review of intervention design, training conditions and evaluation. *BMJ Open*, *9*(2), e025247. https://doi.org/10.1136/bmjopen-2018-025247

Haynes, A. B., Weiser, T. G., Berry, W. R., Lipsitz, S. R., Breizat, A. S., Dellinger, E. P., Dziekan, G., Herbosa, T., Kibatala, P. L., Lapitan, M. M., Merry, A. F., Reznick, R. K., Taylor, B., Vats, A., & Gawande, A. A. (2011). Changes in safety attitude and relationship to decreased postoperative morbidity and mortality following implementation of a checklist-based surgical safety intervention. *BMJ Quality & Safety*, *20*(1), 102–107. https://doi.org/10.1136/bmjqs.2009.040022

Heath, C., & Staudenmayer, N. (2000). Coordination neglect: How lay theories of organizing complicate coordination in organizations. *Research in Organizational Behavior*, *22*, 153–191. https://doi.org/10.1016/s0191-3085(00)22005-4

King, H. B., Battles, J., Baker, D. P., Alonso, A., Salas, E., Webster, J., Toomey, L., & Salisbury, M. (n.d.). *TeamSTEPPS™: Team strategies and tools to enhance performance and patient safety*. https://www.ahrq.gov/downloads/pub/advances2/vol3/advances-king_1.pdf

Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (2000). *To err is human: Building a safer health system*. National Academies Press. https://doi.org/10.17226/9728

Kotter, J. P. (1995). Leading change: Why transformation efforts fail. *Harvard Business Review*, *73*, 59–67. https://doi.org/10.1016/0024-6301(95)91633-4

Kotter, J. P. (2012). *Leading change, with a new preface by the author* (1R ed.). Harvard Business Review Press.

Kotter, J. P. (2017). Leading change, Why transformation efforts fail. *Accountancy SA*, 19–29. https://bunchproxy.idm.oclc.org/login?url=https://www.proquest.com/trade-journals/leading-change-why-transformation-efforts-fail/docview/1937382081/se-2?accountid=8570

Kotter, J. P., & Cohen, D. S. (2002). *The heart of change: Real-life stories of how people change their organizations* (1st ed.). Harvard Business Review Press.

Krivanek, M., Dolansky, M. A., Goliat, L., & Petty, G. (2020). Implementing TeamSTEPPS to facilitate workplace civility and nurse retention. *Journal for Nurses in Professional Development*, *36*(5), 259–265. https://doi.org/10.1097/nnd.0000000000000666

Lai, P. B. (2019). Teamwork. *Surgical Practice*, *23*(3), 85–86. https://doi.org/10.1111/1744-1633.12382

Lee, S.-H., Khanuja, H. S., Blanding, R. J., Sedgwick, J., Pressimone, K., Ficke, J. R., & Jones, L. C. (2017). Sustaining teamwork behaviors through reinforcement of TeamSTEPPS principles. *Journal of Patient Safety*, *17*(7), e582–e586. https://doi.org/10.1097/pts.0000000000000414

Melnyk, B. M., & Fineout-Overholdt, E. (2019). *Evidence-based practice in nursing & healthcare: A guide to best practice* (4th ed.). Wolters Kluwer.

Miller, C. J., Kim, B., Silverman, A., & Bauer, M. S. (2018). A systematic review of team-building interventions in non-acute healthcare settings. *BMC Health Services Research*, *18*(1). https://doi.org/10.1186/s12913-018-2961-9

Obenrader, C., Broome, M. E., Yap, T. L., & Jamison, F. (2019). Changing team member perceptions by implementing TeamSTEPPS in an emergency department. *Journal of Emergency Nursing*, *45*(1), 31–37. https://doi.org/10.1016/j.jen.2018.08.006

Paige, J., Garbee, D., Bonanno, L., & Kerdolff, K. (2021). Qualitative analysis of effective teamwork in the operating room. *Journal of Surgical Education*, *78*(3), 967–979. https://doi.org/10.1016/j.jsurg.2020.09.019

Parker, A. L., Forsythe, L. L., & Kohlmorgen, I. K. (2018). TeamSTEPPS®: An evidence-based approach to reduce clinical errors threatening safety in outpatient settings: An integrative review. *Journal of Healthcare Risk Management*, *38*(4), 19–31. https://doi.org/10.1002/jhrm.21352

Paul, M. E., Dodge, L. E., Intondi, E., Ozcelik, G., Plitt, K., & Hacker, M. R. (2017). Integrating TeamSTEPPS® into ambulatory reproductive health care: Early successes and lessons learned. *Journal of Healthcare Risk Management*, *36*(4), 25–36. https://doi.org/10.1002/jhrm.21271

Ritt, R. M., Bennett, J. D., & Todd, D. W. (2017). Simulation training for the office-based anesthesia team. *Oral and Maxillofacial Surgery Clinics of North America*, *29*(2), 169–178. https://doi.org/10.1016/j.coms.2016.12.006

Rosen, M. A., DiazGranados, D., Dietz, A. S., Benishek, L. E., Thompson, D., Pronovost, P. J., & Weaver, S. J. (2018). Teamwork in healthcare: Key discoveries enabling safer, high-quality care. *American Psychologist*, *73*(4), 433–450. https://doi.org/10.1037/amp0000298

Salas, E., Sims, D. E., & Burke, C. (2005). Is there a "Big Five" in teamwork? *Small Group Research*, *36*(5), 555–599. https://doi.org/10.1177/1046496405277134

Salik, I., & Ashurst, J. V. (2021). Closed loop communication training in medical simulation. In *StatPearls*. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK549899/

Schwartz, K., Flyckt, R., Kim, S., & Lindheim, S. R. (2022). Teaming in the ambulatory surgical space and crisis management strategies. *Fertility and Sterility*, *117*(1), 22–26. https://doi.org/10.1016/j.fertnstert.2021.09.035

Stahl, J. M., Mack, K., Cebula, S., & Gillingham, B. L. (2019). Dental patient safety in the military health system: Joining medicine in the journey to high reliability. *Military Medicine*, e262–e268. https://doi.org/10.1093/milmed/usz154

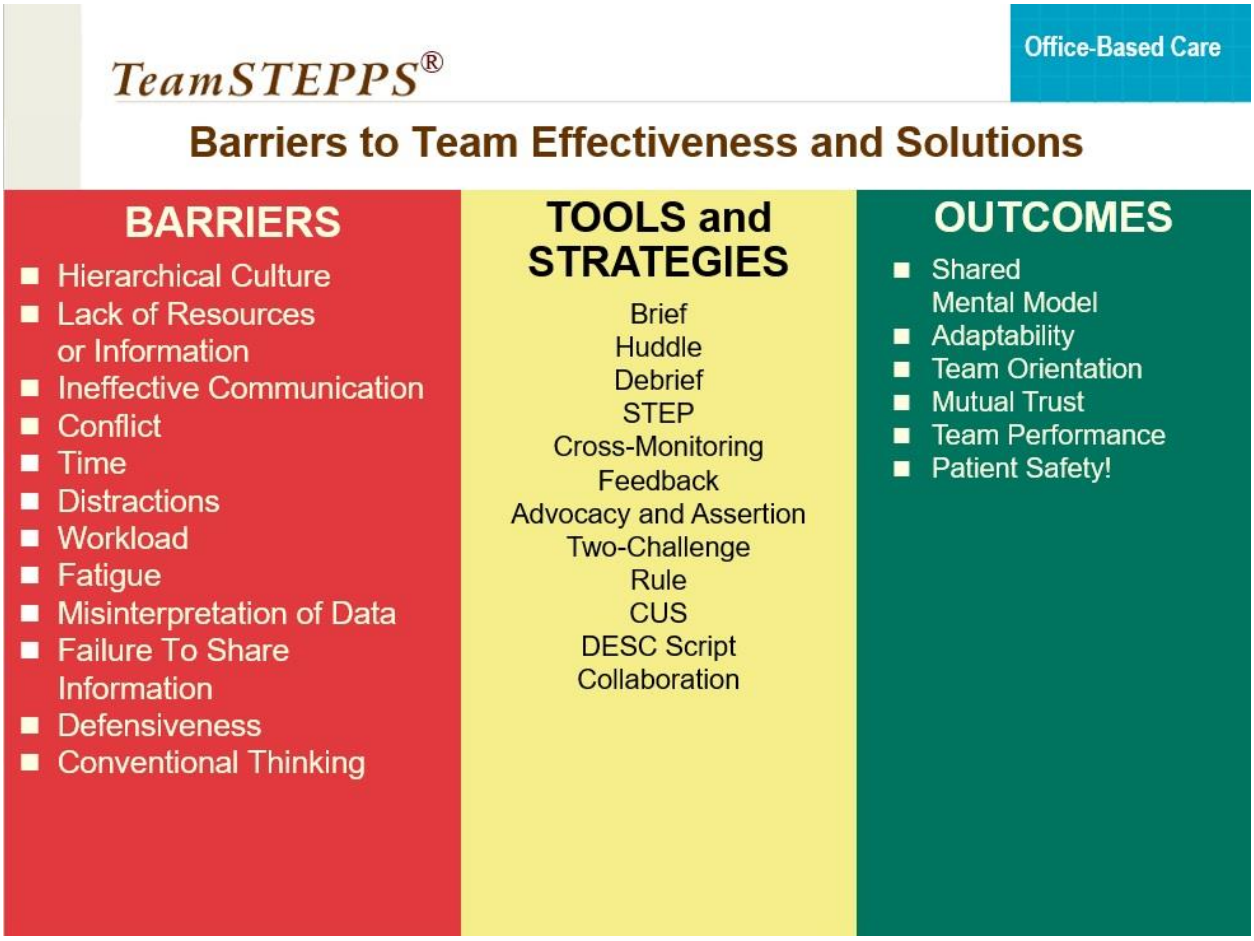
Szafran, O., Torti, J., Kennett, S. L., & Bell, N. R. (2017). Family physicians' perspectives on interprofessional teamwork: Findings from a qualitative study. *Journal of Interprofessional Care*, *32*(2), 169–177. https://doi.org/10.1080/13561820.2017.1395828

Todd, D. W., Weber, C. R., Krishnan, D. G., & Egbert, M. A. (2021). Oral-maxillofacial surgery anesthesia team model at a crossroads safety in office-based anesthesia – lessons we can learn from aviation. *Journal of Oral and Maxillofacial Surgery*, *79*(9), 1812–1814. https://doi.org/10.1016/j.joms.2021.05.015

Wakeman, D., & Langham, M. R. (2018). Creating a safer operating room: Groups, team dynamics and crew resource management principles. *Seminars in Pediatric Surgery*, *27*(2), 107–113. https://doi.org/10.1053/j.sempedsurg.2018.02.008

Appendix A

TeamSTEPPS Barriers and Strategies



Note. From *TeamSTEPPS for Office-Based Care: Summary: Putting It All Together*, Agency for Healthcare Research and Quality, 2016 (https://www.ahrq.gov/teamstepps/officebasedcare/module7/office_summary.html). In the public domain.

Appendix B

Kotter's 8-Step Model of Change

Note. Adapted from Kotter, J. P. (2012). *Leading change, with a new preface by the author* (1R ed.). Harvard Business Review Press. Adapted with permission.

Appendix C

Participant Consent Form - Non-Change Team

BELMONT UNIVERSITY
RESEARCH PROJECT INFORMATION SHEET

IMPACT OF TEAMSTEPPS ON TEAM PERFORMANCE IN AN ORAL AND MAXILLOFACIAL SURGERY PRACTICE

Principal Investigator: Katherine E. Lee, MSN, RN, CPHRM, CMPE; Belmont School of Nursing

Faculty Advisor: Steven Busby, Ph.D., FNP-BC; Belmont School of Nursing

You are invited to participate in a research study about the impact of the team training program, TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety) for Office-Based Care on the attitudes and perceptions of teamwork in oral and maxillofacial surgery.

Starting at 8 am on the training day, you will be asked to complete two pre-training assessments, the TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ) and the TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ) and a demographic survey. Next, you will be provided an opportunity to participate in the full-day TeamSTEPPS training (8.5 hours) by the PI. The training consists of didactic presentations, videos, interactive scenarios to practice the tools presented in the modules, and an opportunity to ask questions. Immediately following the conclusion of the training session, you will complete one post-training assessment, the T-TAQ. For 60 days following the training session, the PI will email you TeamSTEPPS tips. These tips will be based on the discussions held among the participants during the training session and the feedback from the change team members regarding which tools are most appropriate for the practice. At the post-60-day mark, the T-TPQ and qualitative assessment will be provided to you to complete. The pre-training assessments and demographic survey should not take longer than 20 minutes to complete. The immediate post-training assessment is estimated to take approximately 10 minutes to complete. And the final post-training assessment is estimated to take no longer than 20 minutes to complete.

Team training has been shown to benefit healthcare organizations and their patients. The program is designed to identify changes in employees' attitudes and perceptions of teamwork that may occur after TeamSTEPPS training. This study will also add to the literature on team training in the oral and maxillofacial surgery setting as well as the use of TeamSTEPPS in the office-based care environment. You will receive your normal hourly wage while participating in the training.

There is minimal risk to participants. There is a small risk of discomfort regarding disclosing personal views of practice operations.

COVID-19 Risk: All investigators and advisors of this study have committed to protecting the health and safety of all research participants; however, any human contact comes with a risk of exposure to COVID-19. The following information outlines the health and safety guidelines that will be utilized in this study. If you agree to participate, you are agreeing to the following health and safety procedures.

COVID-19 protocols will be dictated by local and state mandates, and requirements of Cumberland Surgical Arts & Associates, Tennova Healthcare-Clarksville, and Belmont University. If masking is not required at the time of the training session, participants are welcome to wear a mask for the duration of the program. Participants may elect to socially distance themselves in the conference room for the training day. While a symptom tracker will not be used to screen participants, those feeling ill or exposed to COVID-19 are encouraged to not attend the training session and follow applicable CDC guidelines for quarantine and isolation.

***** **You may stop participating in this study at any time if you believe participation may expose you to COVID-19.** If you choose to end your participation, please contact the Principal Investigator listed at the top of this document or if you have other concerns related to COVID-19 exposure during the study, please contact Phil Johnston, PharmD, Vice Provost for Academic Affairs: (615) 460-6964 or phil.johnston@belmont.edu.

It is your choice whether or not to participate in this study. Even if you decide to participate now, you may change your mind and stop at any time. If you choose not to participate, you will be provided an alternative work assignment at your regular rate of pay.

We will protect the confidentiality of your research records by not matching your demographic survey to any questionnaires or asking that you include your name or any identifying information on the assessments. Questionnaires will be matched by you using a unique identifier that you create and do not share with the principal investigator. In addition, no one besides the principal investigator will have access to the study records. All information shared will be in aggregate form.

Information collected may be shared with other researchers involved in this project. We will not share any information that could identify you with others outside of the research team. If the results of this study are published or presented, individual names and other personally identifiable information will not be used.

If you have questions about this research study, please contact Steven Busby, Ph.D., FNP-BC, (615) 460-5518, steven.busby@belmont.edu. If you have questions about your rights as a research participant or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact Phil Johnston, PharmD, Vice Provost for Academic Affairs: (615) 460-6964 or phil.johnston@belmont.edu.

Name of Participant (Please print):

_____

Signature of Participant:

_____ **Date:** _____

Signature of Investigator:

_____ **Date:** _____

Appendix D

Participant Consent Form – Change Team

BELMONT UNIVERSITY
RESEARCH PROJECT INFORMATION SHEET

IMPACT OF TEAMSTEPPS ON TEAM PERFORMANCE IN AN ORAL AND MAXILLOFACIAL SURGERY PRACTICE

Principal Investigator: Katherine E. Lee, MSN, RN, CPHRM, CMPE; Belmont School of Nursing

Faculty Advisor: Steven Busby, Ph.D., FNP-BC; Belmont School of Nursing

You are invited to participate in a research study about the impact of the team training program, TeamSTEPPS (Team Strategies and Tools to Enhance Performance and Patient Safety) for Office-Based Care on the attitudes and perceptions of teamwork in oral and maxillofacial surgery.

Starting at 8 am on the training day, you will be asked to complete a pre-training assessment called a TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ) and a demographic survey. Next, you will be provided an opportunity to participate in the full-day TeamSTEPPS training (8.5 hours) by the PI. The training consists of didactic presentations, videos, interactive scenarios to practice the tools presented in the modules, and an opportunity to ask questions. For 60 days following the training session, the PI will email you TeamSTEPPS tips. These tips will be based on the discussions held among the participants during the training session and the feedback from the change team members regarding which tools are most appropriate for the practice. At the post-60-day mark, the T-TPQ and qualitative assessment will be provided to you to complete. The pre-training assessment and demographic survey should not take longer than 20 minutes to complete. The final post-training assessment is estimated to take no longer than 20 minutes to complete.

Team training has been shown to benefit healthcare organizations and their patients. The program is designed to identify changes in employees' attitudes and perceptions of teamwork that may occur after TeamSTEPPS training. This study will also add to the literature on team training in the oral and maxillofacial surgery setting as well as the use of TeamSTEPPS in the office-based care environment. You will receive your normal hourly wage while participating in the training.

There is minimal risk to participants. There is a small risk of discomfort regarding disclosing personal views of practice operations.

COVID-19 Risk: All investigators and advisors of this study have committed to protecting the health and safety of all research participants; however, any human contact comes with a risk of exposure to COVID-19. The following information outlines the health and safety guidelines that will be utilized in this study. If you agree to participate, you are agreeing to the following health and safety procedures.

COVID-19 protocols will be dictated by local and state mandates, and requirements of Cumberland Surgical Arts & Associates, Tennova Healthcare-Clarksville, and Belmont University. If masking is not required at the time of the training session, participants are welcome to wear a mask for the duration of the program. Participants may elect to socially distance themselves in the conference room for the training day. While a symptom tracker will not be used to screen participants, those feeling ill or exposed to COVID-19 are encouraged to not attend the training session and follow applicable CDC guidelines for quarantine and isolation.

***** **You may stop participating in this study at any time if you believe participation may expose you to COVID-19.** If you choose to end your participation, please contact the Principal Investigator listed at the top of this document or if you have other concerns related to COVID-19 exposure during the study, please contact Phil Johnston, PharmD, Vice Provost for Academic Affairs: (615) 460-6964 or phil.johnston@belmont.edu.

It is your choice whether or not to participate in this study. Even if you decide to participate now, you may change your mind and stop at any time. If you choose not to participate, you will be provided an alternative work assignment at your regular rate of pay.

We will protect the confidentiality of your research records by not matching your demographic survey to any questionnaires or asking that you include your name or any identifying information on the assessments. Questionnaires will be matched by you using a unique identifier that you create and do not share with the principal investigator. In addition, no one besides the principal investigator will have access to the study records. All information shared will be in aggregate form.

Information collected may be shared with other researchers involved in this project. We will not share any information that could identify you with others outside of the research team. If the results of this study are published or

presented, individual names and other personally identifiable information will not be used.

If you have questions about this research study, please contact Steven Busby, Ph.D., FNP-BC, (615) 460-5518, steven.busby@belmont.edu. If you have questions about your rights as a research participant or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact Phil Johnston, PharmD, Vice Provost for Academic Affairs: (615) 460-6964 or phil.johnston@belmont.edu.

Name of Participant (Please print):

_____

Signature of Participant:

_____ **Date:** _____

Signature of Investigator:

_____ **Date:** _____

Appendix E

Participant Demographic Data Collection

Position

_____ Administrative
_____ On Site _____Off Site (remote)
_____ Clinical
License held (if applicable) _____
_____ Surgeon

Education (select highest level achieved)

_____ High School Diploma
_____ Vocational Program
_____ Some College
_____ 4-yr College Degree
_____ Master's Degree
_____ Doctorate

Years worked in dentistry/OMS

_____ 0-2
_____ 3-5
_____ 6-10
_____ 11-15
_____ 16-20
_____ 21+

Years worked at CSAA

_____ 0-2
_____ 3+

Active-Duty Military Experience

_____ No
_____ Yes
If yes, branch_____

Have you ever heard of TeamSTEPPS?

_____ No
_____ Yes

Have you ever participated in TeamSTEPPS training?

_____ No
_____ Yes

Appendix F

Readiness Assessment

TeamSTEPPS® for Office-Based Care

Readiness Assessment

Is your practice or medical office ready for TeamSTEPPS?

Answering the questions below can help you determine the degree to which your practice (or the practice you support) is ready to initiate TeamSTEPPS. The questions are meant to help you to think through critical factors that can affect your success in implementing the program. In this spirit, we strongly encourage you to read the notes that accompany each question before you answer. You may also find it useful to involve a group (e.g., senior leaders) in assessing the practice's readiness and determining steps you might take to realize the best outcome.

Instructions

Answer "Yes" or "No" to each question. Instructions for obtaining your readiness "score" are presented at the end of the questions.

Defined Need

1. Has your practice/the practice you support clearly defined the needs that are driving it to consider implementing TeamSTEPPS?

   ____ Yes ____ No

   A practice is more likely to implement TeamSTEPPS when it has objective information to support the need for improving specific areas. This "needs assessment" will ensure the practice has identified a challenge or issue for which more effective teamwork would enhance performance. Further, the assessment will help the practice select a specific challenge or issue for which the initial implementation would prove most fruitful.

   Using a needs assessment to create a secure foundation for TeamSTEPPS may not be easy, because individuals have difficulty appraising their work environments in an unbiased way. The best way to proceed is to collect data that are as objective as possible. The most objective data are statistics gathered from practice-specific records: average length of patient wait times, number of followup appointments completed, compliance with preventive screenings, infection rates, number of misdiagnoses, percentage of lab results communicated to patient, etc. Such data provide a baseline of the practice's current status. If appropriate, they can also be used to develop a business case or leader briefings.

   Patient and staff satisfaction surveys, as well as other surveys completed by staff, can also provide useful information. Examples of the last category include the AHRQ Medical Office Survey on Patient Safety Culture, available at http://www.ahrq.gov/professionals/quality-patient-safety/patientsafetyculture/medical-office/index.html, and the TeamSTEPPS Teamwork Perception Questionnaire (T-TPQ), available at http://www.ahrq.gov/professionals/education/curriculum-tools/teamstepps/primarycare/index.html.

2. Is building a stronger teamwork and safety culture an appropriate strategy to address the needs or quality improvement efforts of your practice/the practice you support?

____ Yes ____ No

A substantial body of research and practice has shown that teamwork plays a key role in ensuring patient safety and high-quality patient care. A practice that is ready to focus on teamwork and safety is more likely to benefit from implementing TeamSTEPPS.

TeamSTEPPS focuses on developing five fundamental, interconnected skills: functioning as a unified team, communicating effectively, providing effective leadership, delivering mutual support, and monitoring an ongoing situation. As you define the practice's need for TeamSTEPPS, the results may reveal a challenge or issue for which TeamSTEPPS is obviously relevant (e.g., a lack of standardization in the way nurses and physicians communicate the same information).

On the other hand, the needs assessment may reveal a challenge or issue that, on the surface, does not appear to signal poor teamwork (e.g., patient wait times are significantly longer than desired). For the latter type of challenge, think about how this concern manifests itself in the *behavior* of office and clinical staff. You may discern patterns of interactions (or the lack of interactions) that seem to sustain the less than desirable functioning you have identified.

Finally, your practice/the practice you support may identify some challenges that exert a negative impact on efficiency but are not under your control and do not involve teamwork. For example, issues related to information technology, electronic health records, or other computer-driven functions affect the practice's operations but cannot be resolved through strategies (such as a TeamSTEPPS implementation) focused on building stronger teamwork and safety culture.

Readiness for Change

3. Is now the right time to initiate a culture change (i.e., it will not compete with other quality improvement efforts or major changes currently being made in your practice/the practice you support, such as implementing an electronic health record system)?

____ Yes ____ No

Appropriately implemented, TeamSTEPPS can exert a powerful effect on a practice's culture—markedly increasing staff engagement and fostering a sense of efficacy. Yet, because its implementation requires a solid commitment to organizational change, choosing an optimal time to initiate the program is critical. If your practice/the practice you support is currently experiencing other significant changes (e.g., instituting electronic health records)—or is undergoing a transition—a wise strategy might be to wait until these changes are completed before introducing TeamSTEPPS. Even if the changes are well coordinated, attempting to introduce multiple concurrent changes is likely to decrease the staff's ability and willingness to participate fully in TeamSTEPPS; they may view it as a distraction rather than an improvement.

A practical strategy for this aspect of readiness is to:

1. Identify the changes that are occurring or will occur during the timeframe within which TeamSTEPPS implementation is being considered;
2. Create a timeline for each change; and
3. Determine which staff members are involved in each change.

This information can be used to decide an optimal (or at least more favorable) period for implementation. Sometimes delaying the effort for a few months can substantially enable staff capacity and willingness to change.

4. Have other factors, such as anticipated busy times of the year or known staffing fluctuations, been considered in the timing of TeamSTEPPS implementation?

____ Yes ____ No

Routine staffing changes and the predictable ebb and flow in service demands can affect the appropriate timing of TeamSTEPPS implementation. Specifically, staff stability is important for the success of a TeamSTEPPS initiative. For example, if a small practice is facing staff retirements or extended leaves of absence, these temporary instabilities and staff shortages may influence timing decisions. Similarly, if a practice can anticipate busy times of the year, during which staff may feel overworked, consider allowing sufficient time to elapse before or after these potential distractions before introducing TeamSTEPPS.

As noted with regard to the general timing of implementation (see Question 3), a practical strategy for addressing the timing of implementation as it relates to factors such as staff stability and busy times of the year is to identify the anticipated timing of these factors and create a timeline of each. In addition, determine which staff members are affected by these factors. You can use this information to identify an optimal period for implementation. Recall that, sometimes, delaying the effort for a few months can substantially bolster staff capacity and willingness to change.

5. Does the leadership in your practice/the practice you support back the culture change and effort needed to implement and sustain TeamSTEPPS?

____ Yes ____ No

TeamSTEPPS cannot succeed without the active support of the practice's leaders (e.g., practice owners or other administration). "Active support" means providing the personnel, time, and resources needed to implement and sustain trainer preparation, ongoing coaching, and periodic evaluation. In addition, leaders play a crucial role in sponsoring, evaluating, enabling, or modifying the behaviors needed to shape and maintain the targeted changes.

One way to gain the support of the practice's leaders is to assemble a business case that can be presented to support initiating TeamSTEPPS. Identify who will receive the business case presentation (e.g., senior leaders) and provide the type of information that will be most meaningful to them in making their decisions (e.g., evidence-based research, success stories).

Present a compelling rationale for why the change effort is necessary (e.g., the problems that TeamSTEPPS will solve) and the benefits it will potentially yield. A lack of urgency and a vague rationale are two of the most common derailers of change efforts. If you cannot develop a persuasive rationale for TeamSTEPPS, the best course of action is to postpone implementation.

Be sure that your presentation emphasizes the program's purpose and goals, explains what is required from an organizational perspective, and defines the commitment you are seeking from the leaders (e.g., decisions, support for the program, resources). Emphasize that TeamSTEPPS is more than just a "training program"; it encompasses an ongoing effort to enhance teamwork. Leader support is necessary to ensure that, after training, new behaviors become incorporated into everyday actions.

Sometimes leaders fail to sponsor efforts effectively because they simply do not know how to sponsor a program. Thus, after your leaders understand and approve the implementation of TeamSTEPPS, ensure their continuing support by coaching and supporting their behavior. Ask them to help launch the effort, agree to follow up on progress, reinforce key behaviors, and model the desired behaviors themselves.

6. Do you have buy-in of the practice's office manager/administrator regarding TeamSTEPPS implementation?

____ Yes ____ No

In the medical office setting, the full endorsement of the office manager/administrator is crucial to implementing TeamSTEPPS. In many cases, the office manager/administrator is in a prime position to act as a key advocate for, and enforcer of, any changes your practice/the practice you support undertakes. The stronger and more explicit his or her endorsement, the more likely the implementation of TeamSTEPPS is to succeed.

Time, Resources, Personnel

7. Have you identified the right individuals, including at least one physician or other influential clinician, who are willing and able to serve as champions of TeamSTEPPS in your practice/the practice you support?

____ Yes ____ No

Having the right individuals to champion your TeamSTEPPS effort is a vital aspect of the effort's success. Champions support the effort, encourage others, and maintain energy. The champions you identify will be responsible for driving and sustaining the change your intervention targets; they will serve as your change agents. These individuals should have the practice leadership's support, be viewed as respected and influential, and, where possible, represent a cross-section of professions within the practice.

Ideally, you will involve individuals who tend to exert the greatest influence on other team members—those whom team members rely on when deciding if something is useful. If these individuals cannot assume the role of champion at the beginning of the effort, try to involve them in the initial decisions (e.g., which problems to address, which tools to use).

The importance of identifying and maintaining a physician or other clinician as a champion is critical. Without the commitment, support, and participation of at least one of the practice's physicians or other clinicians, change cannot successfully occur. For example, if staff members are trained in the use of a specific communication tool but physicians do not use it, the intervention will not be shown to be valued and reinforced, and it will not be sustained.

8. Will the clinicians and staff in your practice/the practice you support who are acting as the champions of the TeamSTEPPS intervention be able to commit time to the project?

____ Yes ____ No

Successful implementation of TeamSTEPPS will require the champions identified for the effort to devote sufficient time to the project, including time spent on their own learning and time to train and coach other staff. Again, senior leader support is critical to ensuring that the champions can perform effectively.

9. Will your practice/the practice you support be able to identify and prepare appropriate staff to serve as TeamSTEPPS trainers/instructors?

____ Yes ____ No

Identifying the right individuals to serve as trainers/instructors is another significant aspect of TeamSTEPPS implementation. Trainers/instructors should, first of all, be willing to participate and hold positions that allow them the needed flexibility. Furthermore, to optimize the program's success, they should:

- Be viewed as advocates of teamwork and as models for implementing teamwork actions during day-to-day operations;
- Be viewed by peers and administrators as respected and influential leaders; and
- Be dynamic and enthusiastic presenters.

10. Will your practice/the practice you support be able to identify and prepare appropriate staff to serve as TeamSTEPPS coaches?

____ Yes ____ No

Implementing TeamSTEPPS signals a significant change in a practice's *culture*. To sustain the new culture beyond the initial training requires dedicated coaches who reinforce, monitor, and model teamwork principles in everyday practice. For larger practices, the recommendation is that one coach be selected for every 10 staff members. Coaches should:

- Be effective at developing the teamwork skills of others;
- Be able to effect changes in work patterns, behaviors, and environments;
- Be highly respected, with sufficient informal or formal power;
- Exhibit an interpersonal style conducive to coaching (e.g., demonstrate a supportive attitude and the ability to build confidence in others);
- Be able to provide effective feedback that is descriptive, problem oriented, empowering, probing, and considerate; and
- Be highly visible, accessible, and available for coaching throughout the change effort.

11. Do the staff in your practice/the practice you support have enough flex time during the workday to commit to learning TeamSTEPPS?

____ Yes ____ No

To ensure success, everyone in the practice should have enough time to learn and practice using TeamSTEPPS. The full training element of the program includes up to 6 hours of instruction; however, a given practice may decide to train only one skill, tool, or strategy that may require 1 hour or less of instruction. To prevent disruptions and scheduling issues and to maximize learning, the practice will need to design training schedules that deliver training during normal practice hours or after hours (e.g., hosting a continuing education lunch or dinner). Creative solutions may be needed. There might already be time in the practice's normal operations, such as weekly staff meetings, to accommodate training.

Sustainment of Change

12. Will your practice/the practice you support be willing to measure and assess progress and continually improve processes?

____ Yes ____ No

For continued success, your practice/the practice you support should view quality improvement initiatives, such as TeamSTEPPS, as a process rather than an event and document its effectiveness on an ongoing basis. Documented *improvements* in the targeted areas can be used to garner additional staff buy-in; documented *concerns* can guide thoughtful program revision.

One of the best ways to establish TeamSTEPPS as a continuous improvement process is to incorporate its behaviors into existing work processes by making better teamwork an integral part of doing the job. Identify any current safety and quality initiatives (e.g., Lean Six Sigma) that may already be occurring within the practice and determine how TeamSTEPPS can fit into and reinforce those efforts. (One caveat: avoid linking TeamSTEPPS with an unpopular or unsuccessful effort.)

13. Will your practice/the practice you support be able to reinforce and reward positive teamwork behaviors and improvements in processes?

____ Yes ____ No

Positive teamwork behaviors and improvements in processes and outcomes that result from your TeamSTEPPS intervention need to be reinforced and rewarded. Leaders, champions, instructors, and coaches should provide ongoing feedback to others within the practice. Successes need to be formally recognized and showcased. The initial training may *generate* behavior change, but the reinforcement provided by positive feedback—and, ultimately, by the participants' increased sense of self-efficacy and purpose—is the only way to *sustain* it.

Readiness Assessment Scoring

The following provides the scoring associated with the TeamSTEPPS for Office-Based Care Readiness Assessment. Score 1 point for each "Yes" response; a maximum of 13 points can be earned.

9–13 Points

Your practice/the practice you support is likely ready to implement TeamSTEPPS. As you begin the implementation process, make sure you continue to monitor whether the answers to these questions change, and keep a close eye on any items to which you answered "No."

6–8 Points

Your responses regarding approximately one-third to one-half of the questions indicate that your practice/the practice you support may not yet be ready to implement TeamSTEPPS. Review the notes accompanying each question and identify any steps the practice might take to improve its readiness.

0–5 Points

Based on your responses, significant work is likely needed to raise the readiness level of your practice/the practice you support. Implementing TeamSTEPPS at this time is not likely to produce the desired results. Consider postponing the implementation process for a few months and review the notes accompanying each question for ways to enhance the practice's readiness. Then answer the questions again to determine if any of the factors have changed.

Further Information

Listed below are resources with additional information.

1. Beaman KV, Guy GR. Effecting change in business enterprises. New York, NY: The Conference Board; August 2005. Report No. R-1371-05-RR.
2. Lines R. Influence of participation in strategic change: resistance, organizational commitment, and change goal achievement. J Change Manag 2004;4(3):193-215.
3. Sirkin HL, Keenan P, Jackson A. The hard side of change management. Harv Bus Rev 2005;83(10):109-18.
4. Tannenbaum SI. Enhancing continuous learning: diagnostic findings from multiple companies. Hum Resour Manage 1997;36(4):437-52.
5. Tracy JB, Tannenbaum SI, Kavanagh MJ. Applying trained skills on the job: the importance of the work environment. J Appl Psychol 1995;80(2):239-52.

Note. From *Readiness assessment*. Agency for Healthcare Research and Quality, 2015, (https://www.ahrq.gov/teamstepps/officebasedcare/handouts/readiness.html). In the public domain.

Appendix G

TeamSTEPPS – Teamwork Attitudes Questionnaire

TeamSTEPPS ® Teamwork Attitudes Questionnaire (T-TAQ)

Instructions: Please respond to the questions below by placing a checkmark (√) in the box that corresponds to your level of agreement from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. It is important to ask patients and their families for feedback regarding patient care.					
2. Patients are a critical component of the care team.					
3. This facility's administration influences the success of direct care teams.					
4. A team's mission is of greater value than the goals of individual team members.					
5. Effective team members can anticipate the needs of other team members.					
6. High-performing teams in health care share common characteristics with high-performing teams in other industries.					
7. It is important for leaders to share information with team members.					
8. Leaders should create informal opportunities for team members to share information.					
9. Effective leaders view honest mistakes as meaningful learning opportunities.					
10. It is a leader's responsibility to model appropriate team behavior.					
11. It is important for leaders to take time to discuss with their team members plans for each patient.					
12. Team leaders should ensure that team members help each other out when necessary.					
13. Individuals can be taught how to scan the environment for important situational cues.					

TeamSTEPPS ® Teamwork Attitudes Questionnaire (T-TAQ)

Instructions: Please respond to the questions below by placing a checkmark (√) in the box that corresponds to your level of agreement from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14. Monitoring patients provides an important contribution to effective team performance.					
15. Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.					
16. It is important to monitor the emotional and physical status of other team members.					
17. It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.					
18. Team members who monitor their emotional and physical status on the job are more effective.					
19. To be effective, team members should understand the work of their fellow team members.					
20. Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.					
21. Providing assistance to team members is a sign that an individual does not have enough work to do.					
22. Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.					
23. It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.					
24. Personal conflicts between team members do not affect patient safety.					
25. Teams that do not communicate effectively significantly increase their risk of committing errors.					
26. Poor communication is the most common cause of reported errors.					

TeamSTEPPS ® Teamwork Attitudes Questionnaire (T-TAQ)

Instructions: Please respond to the questions below by placing a checkmark (√) in the box that corresponds to your level of agreement from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
27. Adverse events may be reduced by maintaining an information exchange with patients and their families.					
28. I prefer to work with team members who ask questions about information I provide.					
29. It is important to have a standardized method for sharing information when handing off patients.					
30. It is nearly impossible to train individuals how to be better communicators.					

Please provide any additional comments in the space below.

Note. Adapted from *Teamwork Attitudes Questionnaire,* Agency for Healthcare Research and Quality, 2015 (https://www.ahrq.gov/teamstepps/officebasedcare/handouts/teamattitudes.html). In the public domain.

Appendix H

TeamSTEPPS – Teamwork Perceptions Questionnaire

TeamSTEPPS ® Teamwork Perceptions Questionnaire (T-TPQ)

Instructions: Please respond to the questions below by placing a checkmark (√) in the box that corresponds to your level of agreement, from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The skills of staff overlap sufficiently so that work can be shared when necessary.					
2. Staff are held accountable for their actions.					
3. Staff within my office share information that enables timely decision making by the direct patient care team.					
4. My team makes efficient use of resources (e.g., staff supplies, equipment, information).					
5. Staff understand their roles and responsibilities.					
6. My team has clearly articulated goals.					
7. My team operates at a high level of efficiency.					
8. My supervisor/manager considers staff input when making decisions about patient care.					
9. My supervisor/manager provides opportunities to discuss the team's performance after an event.					
10. My supervisor/manager takes time to meet with staff to develop a plan for patient care.					
11. My supervisor/manager ensures that adequate resources (e.g., staff, supplies, equipment, information) are available.					
12. My supervisor/manager resolves conflicts successfully.					
13. My supervisor/manager models appropriate team behavior.					

TeamSTEPPS ® Teamwork Perceptions Questionnaire (T-TPQ)

Instructions: Please respond to the questions below by placing a checkmark (√) in the box that corresponds to your level of agreement, from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14. My supervisor/manager ensures that staff are aware of any situations or changes that may affect patient care.					
15. Staff effectively anticipate each other's needs.					
16. Staff monitor each other's performance.					
17. Staff exchange relevant information as it becomes available.					
18. Staff continuously scan the environment for important information.					
19. Staff share information regarding potential complications (e.g., patient changes, bed availability).					
20. Staff meets to reevaluate patient care goals when aspects of the situation have changed.					
21. Staff correct each other's mistakes to ensure that procedures are followed properly.					
22. Staff assist fellow staff during high workload.					
23. Staff request assistance from fellow staff when they feel overwhelmed.					
24. Staff caution each other about potentially dangerous situations.					
25. Feedback between staff is delivered in a way that promotes positive interactions and future change.					
26. Staff advocate for patients even when their opinion conflicts with that of a senior member of the unit.					

TeamSTEPPS ® Teamwork Perceptions Questionnaire (T-TPQ)

Instructions: Please respond to the questions below by placing a checkmark (√) in the box that corresponds to your level of agreement, from *Strongly Agree* to *Strongly Disagree*. Please select only one response for each question.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
27. When staff have a concern about patient safety, they challenge others until they are sure the concern has been heard.					
28. Staff resolve their conflicts, even when the conflicts have become personal.					
29. Information regarding patient care is explained to patients and their families in lay terms.					
30. Staff relay relevant information in a timely manner.					
31. When communicating with patients, staff allow enough time for questions.					
32. Staff use common terminology when communicating with each other.					
33. Staff verbally verify information that they receive from one another.					
34. Staff follow a standardized method of sharing information when handing off patients.					
35. Staff seek information from all available sources.					

Please provide any additional comments in the space below.

Note. Adapted from *Teamwork Perceptions Questionnaire,* Agency for Healthcare Research and Quality, 2015 (https://www.ahrq.gov/teamstepps/officebasedcare/handouts/teamperceptions.html). In the public domain.

Appendix I

Qualitative Assessment

1. Do you feel that the TeamSTEPPS strategies presented were appropriate for your work environment? _____Yes _____No

   Please explain your answer in as much detail as possible.

2. Have you used any of the strategies as part of your daily work? _____Yes _____No

   If yes, please share which strategies you have used and provide detail about your experience.

3. Did TeamSTEPPS improve teamwork in your practice? _____Yes _____No

   Please explain your answer in as much detail as possible.

4. Were there any barriers to implementing the tools and strategies from TeamSTEPPS into daily practice? _____Yes _____No

   Please explain your answer in as much detail as possible.

5. What suggestions do you have for improving how the TeamSTEPPS training is applied in this practice?

Appendix J

Training Day Schedule

Topic	Time
Welcome and Pre-Training Assessment	7:45 am – 8:20 am
Module 1 Introduction & Ice Breaker Exercise	8:20 am – 9:00 am
Module 2 Team Structure	9:00 am – 9:30 am
BREAK	9:30 am – 9:45 am
Module 3 Communication	9:45 am – 10:45 am
Module 4 Leading Teams	10:45 am – 11:30 am
Debrief / Catch-Up / Discussion	11:30 am – 12:00 pm
Lunch	12:00 pm – 12:45 pm
Module 5 Situation Monitoring	12:45 pm – 1:30 pm
Module 6 Mutual Support	1:30 pm – 2:45 pm
BREAK	2:45 pm – 3:00 pm
Module 7 Putting It All Together	3:00 pm – 4:00 pm
Debrief and Post-Training Assessment	4:00 pm – 4:30 pm

Appendix K

Participant Demographics

Demographic Data (N = 18)

Demographic Variable	*n*	%
Practice Department	18	100
Business Office	9	50
Clinical	6	33
Surgeon	3	17
Level of Education	18	100
High School Diploma	3	17
Vocational Program	1	6
Some College	9	50
Four-year College Degree	1	6
Master's Degree	1	6
Doctoral Degree	3	17
Years worked in Dentistry/OMS	18	100
0 – 2	4	22
3 – 5	3	17
6 – 10	8	44
11 – 15	2	11
16 – 20	1	6
21+	0	0
Length of Employment at Clinic	16	89
0 – 2	8	50
3 – 5	3	19
6 – 10	4	25
11 – 15	0	0
16 – 20	1	6
21+	0	0
Active-Duty Military Service	18	100
Yes	2	11
No	16	89
Ever Heard of TeamSTEPPS	18	100
Yes	9	50
No	9	50
Past Participation in a TeamSTEPPS Training	18	100
Yes	7	39
No	11	61

Note. Percentage totals that do not equal 100% are due to rounding.

Appendix L

Quantitative Data Results

Table L1

T-TAQ Pre and Post-Training Test Results (N = 11)

Domain	Pre-Training Test		Post-Training Test		*Z*	*p*	*r*
	Mdn	Range	*Mdn*	Range			
Team Structure*	25	9	27	5	-2.408	0.016	-0.726
Leadership	27	4	29	7	-0.776	0.438	-0.234
Situation Monitoring	26	10	27	9	-1.725	0.084	-0.520
Mutual Support	27	12	28	7	-1.544	0.123	-0.466
Communication	26	7	27	7	-1.569	0.117	-0.473
Overall Score*	129	26	135	32	-2.488	0.014	-0.738

*****$p < .05$.

Table L2

T-TPQ Pre and Post-Training Test Results (N = 17)

Domain	Pre-Training Test		Post-Training Test		*Z*	*p*	*r*
	Mdn	Range	*Mdn*	Range			
Team Structure	25	15	26	15	-0.252	0.801	-0.061
Leadership	27	12	28	10	-0.057	0.954	-0.014
Situation Monitoring	26	13	25	14	-0.781	0.435	-0.189
Mutual Support	23	16	25	13	-1.138	0.255	-0.276
Communication	27	13	28	14	-1.479	0.139	-0.359
Overall Score	125	60	132	56	-1.19	0.234	-0.289

Appendix M

Qualitative Data Results

Table M1

Qualitative Response Prompts (N = 17)

Question	Yes (*n*)	No (*n*)
1. Do you feel that the TeamSTEPPS strategies presented were appropriate for your work environment?	100% (17)	0% (0)
2. Have you used any of the strategies as part of your daily work?	100% (17)	0% (0)
3. Did TeamSTEPPS improve teamwork in your practice?	94% (15)	6% (1)
4. Were there any barriers to implementing the tools and strategies from TeamSTEPPS?	44% (7)	56% (9)

Table M2

Appropriateness of Strategies Presented (N = 9)

Theme (*n*)	Property (*n*)	Exemplar
Communication (5)	Improved (4)	"We have been able to communicate more effectively."
	Structured (1)	
Promotion of patient safety (2)		
Improved flow and efficiency (2)		
Staff satisfaction (1)		
Improved conflict resolution (1)		
Promotes shared mental model (1)		"I feel these strategies promote an environment of like-minded team members who work toward a similar goal together."

Table M3

Strategies Implemented (N = 11)

Theme (*n*)	Property (*n*)	Exemplar
Huddles (10)	Improves communication of relevant information (1)	"Morning huddles was an excellent way to communicate relevant information."
Debrief (3)		
Cross-monitoring (1)		
CUS (1)		
SBAR (1)		

Table M4

Improvements Made (N = 11)

Theme (*n*)	Property (*n*)	Exemplar
Huddles (3)		"Huddles and debriefs have allowed for staff within the same office to be on the same page."
Communication (3)	Improved	"It made us notice that communication is key."
	Front-to-back communication improved	
Shared mental model (2)		
Role clarity improved (1)		
Improved projection of needs (1)		"Staff is looking at schedules ahead of time to anticipate needs for other office such as specific supplies and instruments for the following week."
Improved peer-to-peer relationships (1)		
Task assistance (1)		
Improved patient handoff (1)		

Table M5

Barriers to Implementation (N = 7)

Theme (*n*)	Property (*n*)	Exemplar
Lack of participation (5)	Not at the training session (1)	
	Doctors	"Leadership of some of the doctors who felt it wasn't applicable to them or only for the staff."
	Staff	"Some team members who needed this training were not there."
	Huddles (1)	"Not all offices were participating in huddles."
Increased expectation (1)		"Somethings like morning huddle can be perceived as extra work."
Ineffective huddles (1)		

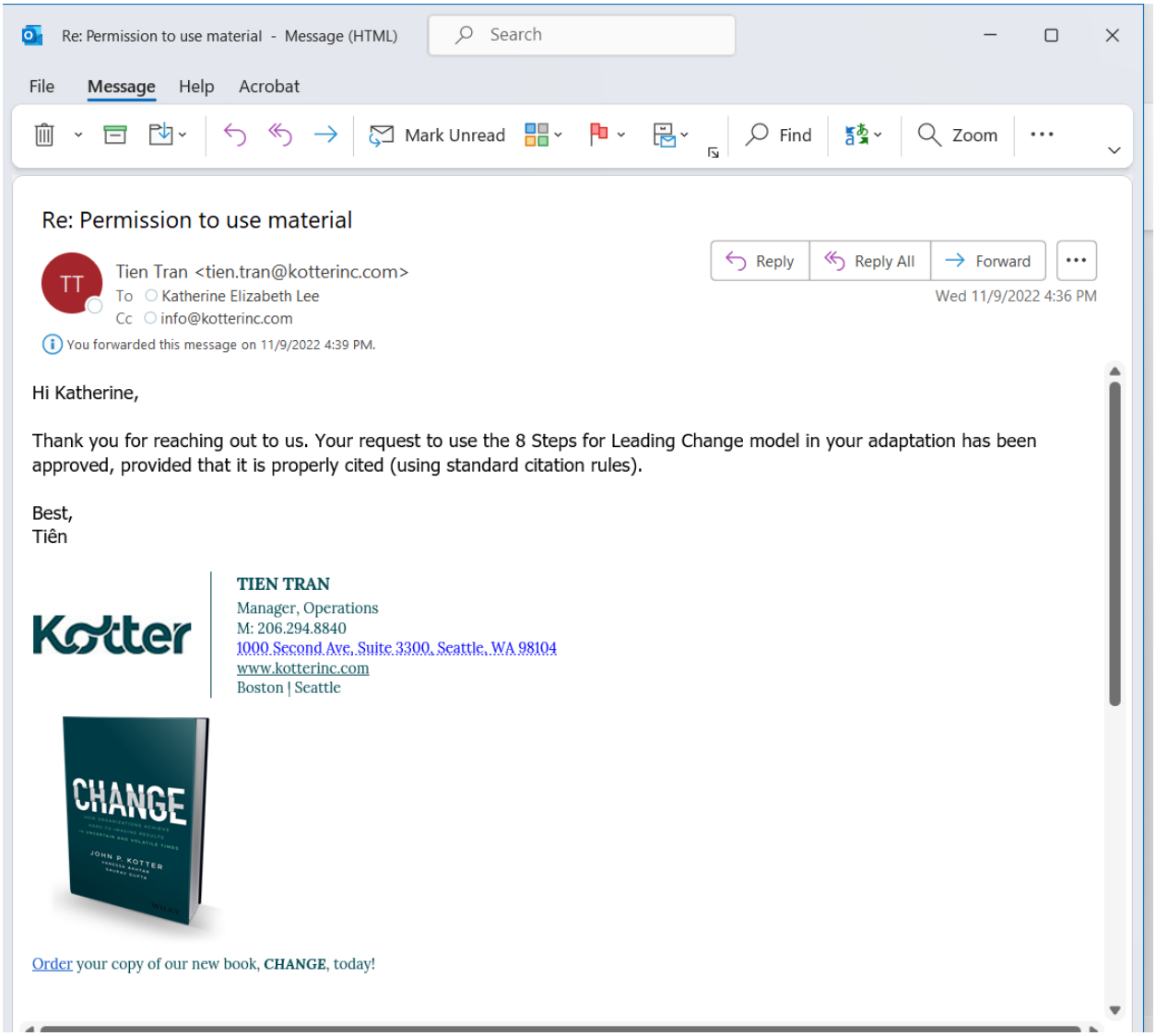
Table M6

Suggestions for Improvement (N = 11)

Theme (*n*)	Property (*n*)	Exemplar
Participation (5)	For all (3)	"Everyone should've been required to attend the first TeamSTEPPS training in my opinion because it has caused some not to be in the same loop as others and communicating certain things gets taken into offense rather than informing and preparing."
		"All offices participate."
	Huddles (2)	"Everyone needs to take a moment to be involved with morning huddles."
		"There are people (staff) in the office who do not want to participate in huddles."
Collegial interactions (3)	Proper tone (1)	"Tone is everything."
	Improved attitude (1)	
	Respect (1)	
Ongoing reinforcement (2)		"Occasional training days where the team can come together, participate in team-building activities and learn/practice skills."

Appendix N

Permission for Use



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Re: Permission to use material

Tien Tran <tien.tran@kotterinc.com>
To Katherine Elizabeth Lee
Cc info@kotterinc.com

Reply Reply All Forward

Wed 11/9/2022 4:36 PM

You forwarded this message on 11/9/2022 4:39 PM.

Hi Katherine,

Thank you for reaching out to us. Your request to use the 8 Steps for Leading Change model in your adaptation has been approved, provided that it is properly cited (using standard citation rules).

Best,
Tiên

TIEN TRAN
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