Systemwide Deployment of Medical Team Training: Lessons Learned in the Department of Defense

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Abstract

Advancing to a culture of safety requires a systems change. Teamwork, a powerful patient safety tool, can achieve this goal. Lessons learned within the U.S. Department of Defense indicate that for teamwork initiatives to be effective, they must possess a clear blueprint defining the solid steps for building the desired culture. Such a blueprint must be clear, detailed, and self-evident. The blueprint must include training design; curriculum; tools and associated media; a well-grounded evaluation system; concrete structural and process change steps; and a systems feedback loop necessary for organizations, leaders, change teams, and staff to build upon, learn from, and course correct. Practical theories of training and change provide the framework for a systems model for team-driven change. The process of developing this new model, combined with analyzing the experience and lessons learned in team training, resulted in identifying the steps necessary for successful team-driven patient safety culture change. These steps detail the structures and processes necessary to (1) establish the vision of, and for, teams; (2) plan and prepare the environment; (3) train and implement behaviors and expectations; (4) monitor and coach to sustain behaviors; and (5) align and integrate the behaviors. The purpose of this paper is to describe these steps and the essential leadership actions for deploying a systems-guided teamwork initiative.

Introduction

This paper provides an overview of a packaged and systematic approach to medical teamwork using a systems framework, complete with training, integrated team concepts, and culture change processes—one system that can be applied across a large health care enterprise. Past and present medical team training within the U.S. Department of Defense (DoD) Military Health System provided essential insight for this development. An analysis of the scientific and practical work to date resulted in a solid yet dynamic blueprint for change. This blueprint illustrates a teamwork systems model that provides detailed actions concrete enough to change individual behavior and concepts broad enough to drive and achieve organizational culture change. In addition, subject matter experts reviewing the blueprint conclude that for patient care to improve reliably and systematically, team training must move from a training initiative to a teamwork systems approach to care.

Background

Most military missions are accomplished through teamwork. Underpinned by more than 2 decades of work in aviation studies and by two needs assessments, where closed claims were reviewed for the presence or absence of teamwork failures, the urgency to incorporate team training into the Military Health System was established. The demand for training at any particular facility, however, grew out of staff and leadership demand. The urgency and the demand began on the forward edge of the emerging national interest in errors and health care.[1] The benefits of crew coordination-based training were demonstrated in improved staff and patient satisfaction and more efficient and effective delivery of care.[2] Despite improvements in outcomes, the need for a systemwide approach was identified in tracking the overall team training and implementation experience and progress. The practical realities, barriers, threats, and the futility of attempting to train teamwork concepts in a large multifaceted enterprise without a strategic and systematic approach were recognized and demanded a solution. A strategy resulted to capitalize knowledge and incorporate realities into a teamwork redesign. This redesign, based on the experience gained in team training across the Military Health System at 65 sites and with more than 650 instructors (Table 1), suggests that no one theory is sufficient to govern all aspects of such a systems creation.

Table 1. Team training statistics to date, representing more than 33 percent of the primary military treatment facilities

	Sites trained	Certified instructors
MedTeams™ (Army and Navy)	28	288 (ED, OR, and whole-hospital capable)
Combat Care	3	68
L&D Research	6	35
MTM (Air Force)	30	266

The process for identifying factors that influence training has moved from a nonstandard to standardized approach (described in "Step 1: establish the vision of and for teams" in text). Sites were trained with the use of the existing team training curriculum—MedTeams, MTM, Combat Casualty Care—an abbreviated version of each, and L&D research curriculum. Nonresearch sites or departments make the decision to train.

Theory is, however, essential to team training redesign. The use of theory optimizes corporate understanding, underpins training, and provides supporting steps to staff and leaders during structure and process change. Systems theory also provides an outcome-based feedback loop for dynamic course or system correction. Retrospectively, the practical models of Salas,[3] Kirkpatrick,[4] and Kotter[5] validated specific yet differing aspects of the existing team training initiatives. However, to move forward, theoretical balance and overlap was necessary, requiring an amalgamation of these theories (Figure 1).

Figure 1. Medical teamwork system
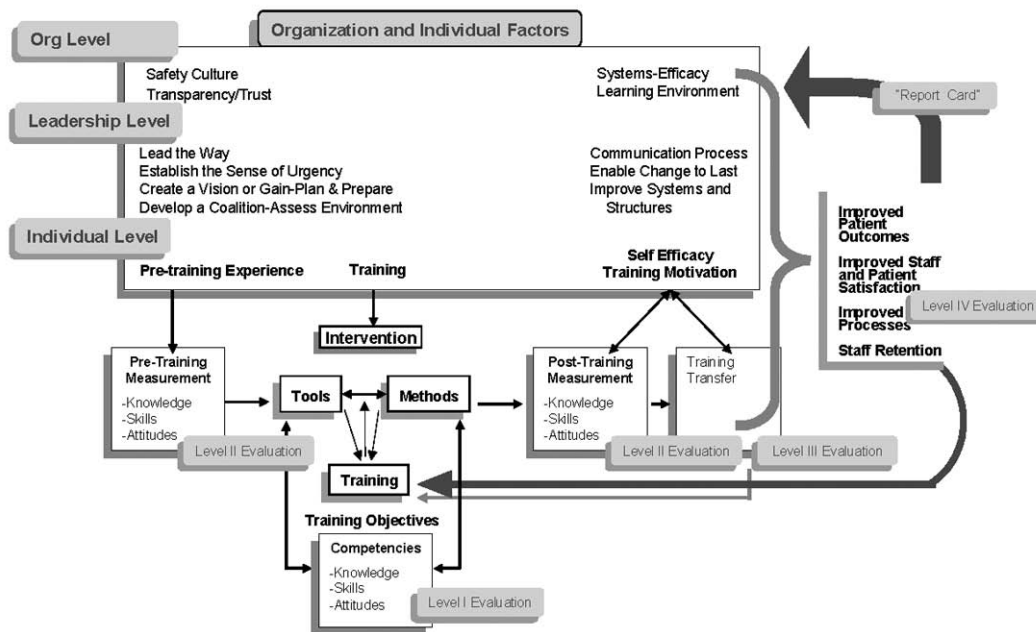
In the new design, Salas'[3] gold standard team training anchors the intervention design. Kirkpatrick's model[4] provides systems controls and outcome-based evaluation, while Kotter's theory[5] of an eight-stage process for creating major change and GE's Change Accelerated Process[6] guide the process of training, implementation, and culture change.

Implementation process and culture change lessons learned

Historically team training occurred using a train-the-trainer model (Figure 2). Sites requesting training were required to assess for readiness using a site assessment tool (further discussed in "Step 1: Establish the vision of and for teams"). Once assessed, site leaders consulted with DoD medical team trainers regarding the site assessment findings; however, the ultimate decision to train resided with site leaders. Once decided, training dates were determined and the instructor cadre chosen. Each trainer/instructor received a 3-day offsite training course. They returned to instruct and coach staff at their site in the expected skills and behaviors.

Effective teams did not just happen. Experience bore out that, despite high-impact training, teams could not exist on their own where there was a lack of vision and direct involvement of facilitative leadership. In addition, it was noted that some behaviors might change immediately, yet the full impact of team training may take much longer. It was discovered that teamwork was not just a simple tool to organize staff and improve outcomes, but a powerful tool providing an infrastructure where patient-centered safety exists as an overarching goal and mission-critical initiative, measurably demonstrated in behaviors and experienced by patients as an organizational value.[7] This transformation from a simple tool to

Figure 2. Train-the-trainer model for the dissemination of team training at medical treatment facilities (MTF)
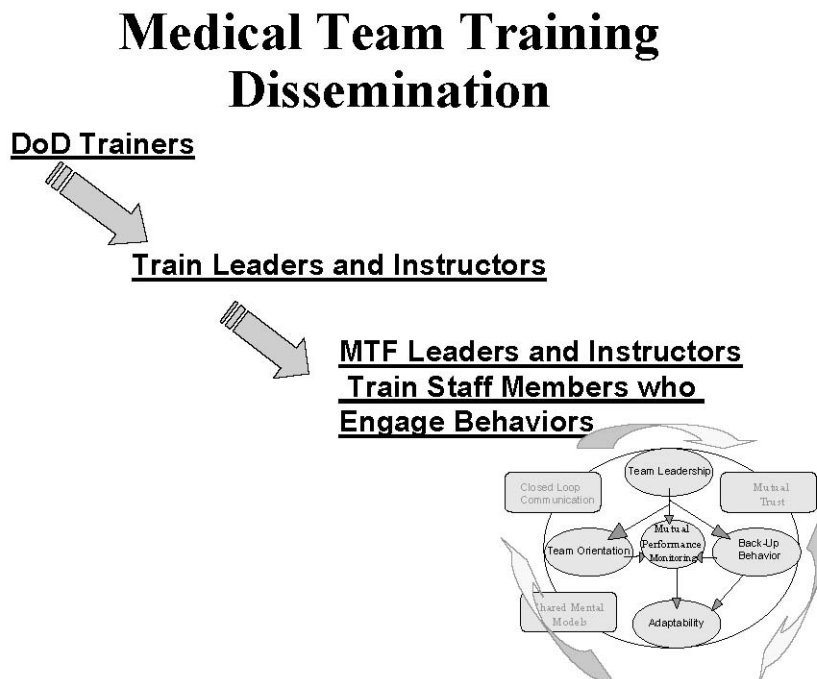

a complex structure capable of driving culture change is dependent on the vision, commitment, and facilitative skills of senior leaders, combined with the team knowledge, behavioral skills, and attitudes of staff.

Integration of lessons learned

Implementing a team training initiative requires a phased approach with parallel, yet separate and distinct actions at multiple levels (Figure 3). At the enterprise level, the predelivery phase, the challenge is to design effective supporting packages, processes, and procedures that leverage both successful experiences and the existing major organizers of team change, while developing the necessary consultative approach for interfacing with leaders and change agents at each facility. These major organizers are the processes by which teams are socialized into an organization's culture, providing interfaces and parallel actions with and between the enterprise, facility, department, and staff level. The major organizers or processes identified as foundation steps to change include—

1. Establishing the vision of and for teams;

2. Planning and preparing the environment (Delivery Phase I);

3. Training and implementing behaviors and expectations (Delivery Phase II);

4. Monitoring and coaching to sustain behaviors; and

5. Aligning and integrating behaviors (Delivery Phase III).

Figure 3. Design overlay of medical team training
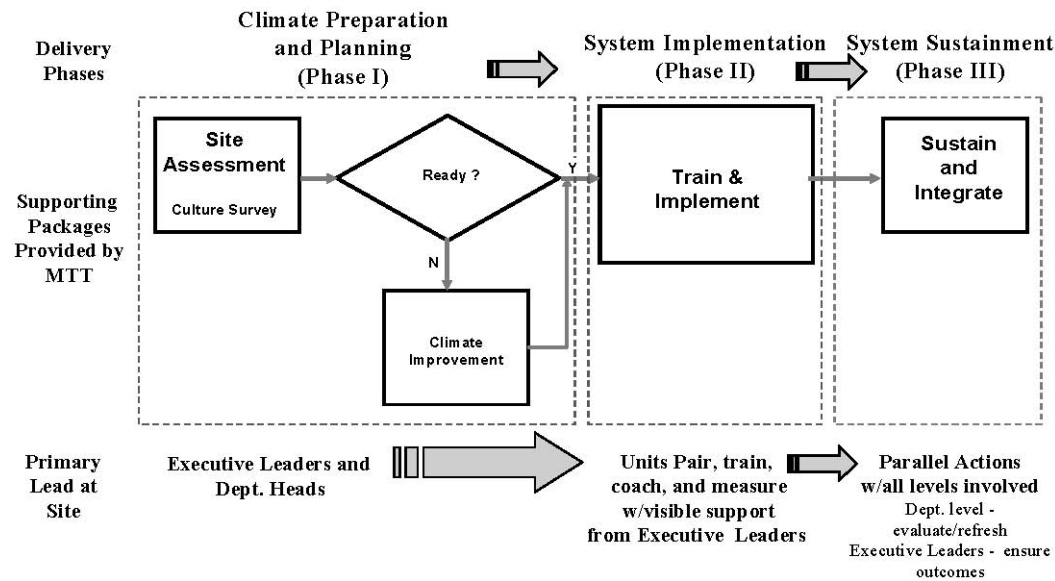
Medical team training is comprised of products and processes delivered in phases, with leaders and staff working many actions in parallel.

Throughout the Delivery Phases I, II, and III, facility- and department-level leaders evaluate factors influencing change along with impact to operations and resources. Leaders establish a change team that meets regularly to develop evaluation-based plans and strategies intended to ensure the effective training, implementation, behavioral integration, and sustainment necessary to support teams. In Phase I, leaders plan and prepare the staff to adopt the initiative with an extensive multilevel communication and commitment-gaining campaign. In Delivery Phase II, leaders train or support the training of staff, who in turn implement behaviors. Delivery Phase III provides new employee training and team-trained employee refresher training, products, and sustainment processes designed to optimize, sustain, and integrate behaviors into the individual and culture over time. Leaders monitor team development and establish coaches to role model and reinforce newly learned behaviors and reward and recognize outcomes relative to behavioral expectations, team meetings, and event reviews.

Experience with this phased delivery design reveals that implementing teamwork is greater than just the sum of its parts and detailing the steps toward culture change requires critical leadership support. Experience and lessons are vital to developing the current blueprint for team training, providing a mature and comprehensive approach to training at the systems and facility level. Ongoing evaluation ensures that, as training proceeds, the blueprint will evolve into an evidence-based model. The following section details the five critical leadership steps necessary to roll out the blueprint.

The medical team training blueprint: defining the steps to change

Step 1: Establish the vision of and for teams

Organizational, unit-level, and staff complacency are all obstacles to change. Leaders must not accept yesterday's success as the norm; rather, they must assess outcomes against best practices to stir a sense of urgency into operations as an initial phase of change.[5] With a clear vision and detailed blueprint, leaders easily understand the accountabilities and responsibilities involved in leading the culture change process. Large-scale change must be methodical and well thought out, so it does not negatively impact other situations in a facility (e.g., in the case of changing resident hours-of-coverage and the limitations that one single yet complicated action can create). Medical team training is designed to provide planned change systematically implemented over time using tools, evaluation, and strategies designed to support leaders and staff with a step-by-step road map to success. The first step is for leaders to establish and personally commit to the vision of improving patient safety through training individuals to the team behaviors that manage, mitigate, or avoid care delivery errors. This vision becomes a mental model shared by staff on a patient-by-patient basis when the rationale communicated for change may be less clear, e.g., to improve performance, outcomes, and patient and staff satisfaction.

### Pretraining safety culture site assessment

A site assessment occurs once the question "Why teams?" is answered, and the decision or consideration to train and implement is made and communicated to staff. Site assessments combine process consultation and survey responses into a systematic approach for evaluating factors that influence change[4] (Appendix A).[*] The Site Assessment Guide and self-administered survey tool seeks information from respondents chosen at three levels of the organization— executive, middle management, and staff—who respond to inquiries on demographics and readiness. Trainers and site respondents customize and tailor training and implementation using this information. Facility members completing a self-assessment survey may determine the need for more information, and an onsite assessment is scheduled (Figure 4). During this event, trainer-consultants tour the facility site to view operations; shadow physicians and nurses to gain insight into facility or department-specific processes; and meet with leaders and staff to explain the team training intervention, implementation, and evaluation system and processes. Findings are documented in a postassessment summary. Whether through the use of the self-administered survey or onsite observation for factors that affect teamwork, the site assessment provides a vehicle for both pre- and posttraining evaluation of staff knowledge, skills, and attitudes intended to guide the development, maturation, and integration of team behaviors over time. In general, the assessment determines the training and implementation needs of

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[*] Appendixes cited in this report are available from the corresponding author.

the organization, staff, and leadership, which drives course customization and tailoring to ensure needs-adjusted outcomes (Appendix B).

Figure 4. Site assessment process decision tool (DoD team coordination course)
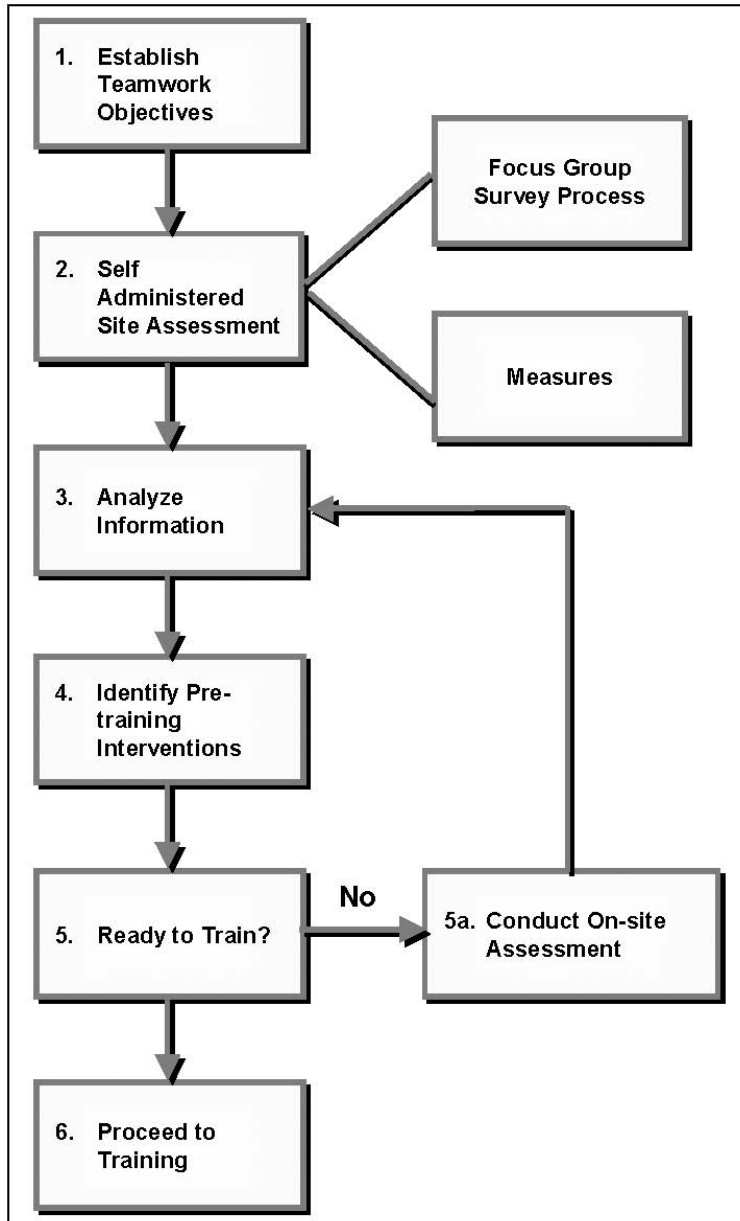
The goal of the site assessment is to gather information regarding existing or anticipated factors that will influence teamwork at a health care facility; to provide information used to customize the training and implementation effort; and to establish and accept into practice the tools and processes necessary for ongoing impact evaluation. This goal is achieved through two processes, one building on the other. Information is first gained through the use and administration of the Site Assessment Guide and Self-assessment Tool. Second, at the request of the organization, an onsite assessment that further informs the decision to train can occur.

Step 2: Plan and prepare

Prepare the environment, prepare the people, plan the intervention

Establishing the internal change team is essential to the planning and preparation phase of the teamwork intervention. Comprising formal and informal leaders and staff members, and guided by Kotter's phases of change,[5] the change team carries out the actions necessary to bring teamwork into an organization. Under facilitative leadership, the change team identifies and develops training and implementation strategies relative to the organization's strengths, weaknesses, opportunities, and threats that affect establishment of team expectations and performance goals, and the training and implementation of team behaviors. The change team identifies, plans for, and controls (to the extent possible) for factors that influence change. These factors, identified in the site assessment, include any force that impacts operations (e.g., organizational reorganization, competing initiatives, and resources, such as changes in leadership, personnel or performance expectations, job restructuring, work redesign, or lay-off). Members of the change team, with the help of leadership, secure the necessary resources to support team structure and work. The change team is a powerful guiding coalition that creates and plans the formal strategic communication campaign clarifying the purpose of change and gaining commitment from key stakeholders. A deliberate and key intent of the pretraining communication campaign is the reality check. Communicators gain new information that may require a plan or strategy revision to resolve, manage, or mitigate the impact of unanticipated or current issues and obstacles to the soon-to-be-learned behaviors. After training, change team members act as role models, mentors, and coaches, observing staff in successful events of teamwork, reinforcing and rewarding new and sustained behaviors. The positive impact of this facilitated change team model is measured by the presence of a shared mental model for teamwork in the organization, the availability of ample trainers and sufficient onsite coaches, and the role models and mentors necessary to sustain teams over time.

Step 3: Train and implement

Leaders establish the vision of teams, but team training establishes the behaviors necessary for caregivers to implement that vision.[5] Information exchange engenders caregiver commitment to the concrete achievable actions necessary for a group to transform from a cluster of people working independently into a team of professionals "who interact, dynamically, interdependently, and adaptively toward a common and valued goal."[3] Transformation is first expressed when leaders train to a gold standard curriculum. To improve the existing team training curriculum, the DoD Patient Safety Healthcare Team Coordination Program (HCTCP) Working Group adopted and adapted the framework of Cannon-Bowers and Salas.[3] This has enabled the HCTCP to model the design and ensure the structure and content, as well as the knowledge, skills, and attitude requirements of effective team training program (Figure 1, intervention component). Knowledge is increased through the feedback-strengthened curriculum and facilitated interactions. In addition to

knowledge, old skills are leveraged and new skills gained through simulation designed to stress and practice new behaviors. The low-fidelity simulation exercises range from discussions of actual cases to role-playing similar hypothetical situations that staff members encounter. Simulated reenactments of team-caregiver scenarios assist staff to identify with the situation. With the use of simulation, knowledge and skills may increase on site; however, attitudes take time to change.[8] Successful experiences and personally identifying with situations through the aid of simulation and real-life practice spurs attitudinal and behavioral change.

Step 4: Monitor and sustain

The ability to capitalize on improvements to produce more change over time is critically linked with the constant and ongoing monitoring and evaluation of team behaviors, which is communicated to leaders, the change team, and staff through a systems feedback loop.[5] Informal and real-time monitoring and feedback occur during team huddles (meetings), which provide debriefing opportunities to members regarding relevant information exchange for any given patient or population of patients. Informal team meetings provide coaching and education opportunities, as well as the evaluation of teamwork behaviors and areas for improvement. Formal monitoring and feedback may occur through performance improvement strategies, as well as morbidity-mortality committee meetings. Evaluation is built into the sustainment process with a posttraining teamwork assessment and safety culture assessment—scheduled approximately 6 to 9 months following implementation—to reassess knowledge, skills, and attitudes of team members. Team structure and processes are reassessed during sustainment to ensure their facilitative role in team outcomes. Team members are accountable to regularly give and receive feedback regarding the standards and competency requirements as part of their performance process. New staff members are trained in teamwork behavior skills during their orientation to the facility and assigned units. Leaders demonstrate their continued commitment through their sustained presence at change team meetings and by acknowledging and rewarding good team performance through preestablished methods.

Step 5: Align and integrate the culture of safety

Institutionalizing new approaches is Kotter's[5] final phase to process change. Leaders, change team members, and staff evaluate the progress. Leader and change team actions move from evaluating progress at the unit or department level to aligning training and strategies across the organization, thereby promoting and, over time, achieving a culture of safety. During the initial site assessment, leaders and staff established the measures to assess whether the vision was achieved. To determine if steps are in place to sustain continued success, it is important to examine successful initiatives as well as failures. Medical team training equips leaders and change teams with methods and products to refresh behaviors and understanding, renew the professional commitment to teams, reward and recognize team champions, and reassess and revise team behaviors and processes over time.

Conclusion

Medical team training is better understood and defined through the large-scale training and process review performed by the Department of Defense.[9] This understanding resulted in an enhanced system blueprint for training, detailing the competencies and process steps to change. This blueprinted redesign—an amalgamation of the gold standard models and theories of Cannon-Bowers and Salas,[3] Kirkpatrick,[4] and Kotter[5]—illustrates the key actions for culture change and training and evaluation relationships required to move a culture from individually achieved outcomes to a team-driven culture of safety. This process of program evaluation and redesign has value for a health care system as large as the DoD, where 8.9 million beneficiaries of TRICARE, DoD's health care coverage plan, are eligible for treatment annually. The processes and associated products used in the revised team training system continue to be refined and improved. As a result of review and redesign, leaders are taking the systematic steps to leverage health care teams for achieving a culture of safety. Organizationally, patient safety managers and change teams now possess common roles in daily operations. Locally, caregivers find new ways to contribute to safety by integrating new or formalized behaviors with existing clinical skills to improve daily operations.

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