

Training Guide: Using Simulation in TeamSTEPPS® Training

Prepared for:

James Battles, Ph.D.
Center for Quality Improvement and Patient Safety
Agency for Healthcare Research and Quality (AHRQ)
540 Gaither Road
Rockville, MD 20850

Heidi B. King
Patient Safety Program
TRICARE Management Activity
Department of Defense
Skyline 5, Suite 810
Falls Church, VA 22041

AHRQ Contract No: HHS290200600019

Prepared by:

AMERICAN INSTITUTES FOR RESEARCH®
1000 Thomas Jefferson Street, NW
Washington, DC 20007

AHRQ Publication No. 11-0041-EF
February 2011

The views expressed in this guide are those of the authors. No official endorsement by the Agency for Healthcare Research and Quality, the U.S. Department of Health and Human Services, or the U.S. Department of Defense is intended or should be inferred. TeamSTEPPS is a trademark of the Agency for Healthcare Research and Quality and the Department of Defense.

This document is in the public domain and may be used and reprinted without permission. Citation of the source is appreciated. The suggested format is:

American Institutes for Research. Training Guide: Using Simulation in TeamSTEPPS® Training. Rockville, MD: Agency for Healthcare Research and Quality. AHRQ Publication No. 11-0041-EF. February 2011.

Table of Contents

	<u>Page</u>
Introduction	v
Audience	v
Purpose.....	v
Session Overview	vi
Preparation Checklist	vii
Tips for Facilitators of Simulation Training	vii
Before the Training Session	viii
 Facilitator’s Notes	
I. Welcome, Introduction, Objectives, Agenda	1
II. Background	3
III. Phase 1—Scenario Development.....	5
IV. Phase 2—Development of Performance Measures	10
V. Phase 3—Debriefing	14
 Participant Handouts	
Your Expectations for This Training.....	H-1
Objectives of Training	H-2
Developing Learning Objectives	H-3
Writing a Scenario for Your Learning Objectives	H-4
Developing Scenarios.....	H-5
 Bibliography	B-1
 Acknowledgments	



Introduction to Using Simulation in TeamSTEPPS Training

Audience

The audience for this guide is health care team trainers who have been trained as TeamSTEPPS Master Trainers.

Purpose

The purpose of this guide is to provide instruction on using simulation-based training when teaching TeamSTEPPS, as opposed to using TeamSTEPPS tools and strategies in simulation training for other purposes. The use of simulation, which has been proven to be a powerful strategy in team-based health care, affords excellent opportunities to enhance the quality of continuing education for health care professionals, as well as provide education and practice for students learning to become health care professionals.

The culture of medicine has traditionally valued technical proficiency over interpersonal skills, and this may not always be the most efficacious approach to ensuring patient safety. This TeamSTEPPS simulation guide integrates critical teamwork, interpersonal, and communication skills into simulation-based training, thereby offering strategies and tools that can improve team performance and enhance patient safety.

This training course can and should be adapted to meet the needs of specific health care teams and programs. It is intended as a train-the-trainer program in which key personnel become familiar with the materials and activities so that they can offer the simulation-based TeamSTEPPS training to local health care teams. Users of this training course are encouraged to adapt and augment activities accordingly, substituting their own scenarios in the training, when applicable.

Session Overview

Objectives

By the end of this session, participants will be able to

1. Apply the Event-Based Approach to Training.
2. Develop TeamSTEPPS training scenarios.
3. Develop TeamSTEPPS performance measures.
4. Conduct effective debriefs of team performance.
5. Determine the appropriate setting for TeamSTEPPS simulation training.

Materials Checklist

- Q Computer for use with flash drive or CD-ROM and LCD projector.
- Q Copies of handouts for each participant.
- Q Flash drive or CD-ROM containing the file of the PowerPoint presentation, "Using Simulation in TeamSTEPPS Training."
- Q Facilitator's notes.
- Q Flipchart marking pens and masking tape for posting flipchart pages to walls.
- Q Post-It[®] Note pads for participant tables.

Preparation Checklist

- Q Reserve space for the training.
- Q Duplicate handouts and assemble participant packets.
- Q Ensure you have a flash drive or CD-ROM of the PowerPoint presentation, “Using Simulation in TeamSTEPPS Training.”
- Q Make nametags or name tents for participants.
- Q Apply for CME/CEUs, if applicable, and prepare attendance sheet.
- Q Arrange for food and beverage, as appropriate.
- Q Arrive a half hour before training is scheduled to begin.
- Q Check equipment to ensure that it is working properly.
- Q Pre-label three flipchart pages using the following headings:
 - Expectations.
 - Parking Lot Issues.
 - Participant Feedback. This page should have two columns: one labeled pluses (+) and one labeled deltas (ρ).

Tips for Facilitators of Simulation Training

- Use questions to promote in-depth team participation.
- Avoid closed-ended questions (i.e., those requiring “yes” or “no” answers). Instead, ask open-ended questions, such as those beginning with “what,” “how,” and “why” to encourage deeper discussion.
- When a participant asks a question, direct the question back to the team, if possible. This encourages team discussion and interaction and encourages team members to discover their own answers.
- Ensure that all team members are fully drawn into the discussion.
- Allow time for participants to consider and formulate their answers after receiving a question. Do not be intimidated by a few moments of silence. Silence following a question often will prompt responses from the group.
- Do not immediately provide answers when participants do not promptly respond to your questions. Instead, try rewording, rephrasing, or restating the questions.
- Use active listening to indicate that you hear what participants are saying and to encourage continued participation.

Before the Training Session

The following tasks should be completed before the session is held:

- Q **Arrange for a place** to hold the course session and ensure that it has sufficient space and moveable chairs for break-out activities. Consider the room arrangement that will best facilitate your activities. For this course, it is suggested that the room have round tables that each seat from five to eight people.
- Q **Send out fliers** or e-mails announcing the course and the dates.
- Q **Order all equipment** (computer, LCD projector, screen, and flipcharts).
- Q **Arrange for refreshments and lunch**, as appropriate.
- Q **Duplicate all handouts** for the session (H-1 through H-5) and arrange them into participant packets. By providing a packet of materials to each participant, you can avoid the time-consuming task of distributing materials during the session.
- Q **Prepare nametags** or name tents for participants.
- Q **Prepare a sign-in sheet** to verify attendance (if providing CME or CEU, this is required for each session). Include spaces for participant name, program name, address, phone and fax numbers, and e-mail address. This will be useful if you need to make future contact with participants.
- Q **Read the Facilitator's Notes** for the session, pages 1-17.
- Q **Review** the handouts (H-1 through H-5) and the PowerPoint presentation, "Using Simulation in TeamSTEPPS Training," (slides 1 through 48).
- Q **Load the PowerPoint presentation** "Using Simulation in TeamSTEPPS Training" on the computer from the flash drive or CD-ROM.
- Q **Check the equipment** to ensure that it is working properly. Check to ensure the slides can be seen clearly from the back of the room.
- Q **Pre-label flipchart pages** with the headings below that correspond with the Facilitator's Notes:
 - Expectations.
 - Parking Lot Issues.
 - Participant Feedback. This page should have two columns: one labeled pluses (+) and one labeled deltas (p).

Materials	Activities	Times
	<p>Refer to the flipchart list and identify those topics that will be addressed in this course; those that have not been planned for but can be addressed easily during the course; and those, if any, that are outside the realm of this course. To the extent possible, identify resources (both Web-based and print materials) that participants can access to address the issues that will not be covered in this course. Also identify other upcoming training opportunities, as appropriate, that will cover these topics.</p>	
<p>PPT slide 2; H-2</p>	<p>Now show participants PPT slide #2, Objectives, and refer to Handout 2 (H-2). Explain that there are two types of objectives: (1) Teamwork objectives that relate to the TeamSTEPPS approach that focuses on teamwork, interpersonal, and communication skills and (2) Technical/clinical objectives that relate to the specific medical procedure(s). Trainers should add their own specific objectives to PPT slide #2 to reflect the content of the simulation training they will conduct. They will also need to add the objectives to H-2 in participants' handout packets.</p>	<p>(3 min.)</p>
<p>PPT slide 3</p>	<p>Trainers will need to develop an agenda for the training they will conduct (see sample agenda under Tab A, Appendix A, of the <i>TeamSTEPPS Instructor Guide</i>) and integrate the content and activities into the phases listed on PPT slide #3, Course Outline. Explain that for any course they develop, they will need to identify content for each of these three critical phases: Scenario development, measurement development, and debriefing. Be sure that the course outline focuses throughout on teamwork, interpersonal, and communication skills. It's helpful to create an agenda as a participant handout, including approximate times for each phase as well as breaks (e.g., morning, afternoon, and lunch breaks), as appropriate. If the course will be offered over a series of dates, be sure to include a multiday agenda with dates and times of each session. Participants always appreciate having information on course content and meeting times. Now, referring to the PPT slide #3, quickly summarize the activities that will be part of this training and state their relationship to the expected outcomes.</p>	<p>(5 min.)</p>
<p>Flipchart page marked "Parking Lot Issues" Post-It Note pads on tables</p>	<p>C. Parking Lot Issues</p> <p>Tell participants that they will keep a "Parking Lot" of issues and questions that arise during training. The issues and questions may be tangentially related to simulation training or to medical procedures but not directly related to this course. Tell participants to write these questions on Post-It Notes (one question per note) and stick the notes on the flipchart page you pre-labeled "Parking Lot Issues." Tell them that, to the extent possible, those questions and issues will be addressed at the end of this course.</p>	<p>(2 min.)</p>

Note: Post on the wall the flipchart page marked "Parking Lot Issues." Also place a Post-It Note pad on each table. Throughout the course, ask participants to write their questions on the Post-It Notes, one question per note, and place the notes on the flipchart.

Materials	Activities	Times
	D. Evaluation Form	(5 min.)
Evaluation Form	Call participants' attention to the course evaluation form that you are using to collect information about participants' reactions to the course (See sample Course Evaluation Form under Tab B, Appendix A, of the <i>TeamSTEPPS Instructor Guide</i>). Remind them that they will be asked to complete the evaluation form at the end of the course but that they may wish to make notes on the form as the course progresses because it may be easier for them to keep a running commentary of their experiences throughout the course rather than try to remember everything at the end.	

II. Background	30 min.
-----------------------	----------------

PPT slide 4	Show PPT slide #4, Simulation . Explain that, as a training approach, simulation offers an opportunity to teach and engage health care professionals in a manner far superior to traditional methods of lecture and demonstration. Simulation provides opportunities for learners to practice TeamSTEPPS skills and strategies in a safe learning environment and, through practice and feedback, acquire teamwork skills needed for safe patient care. Simulation can take various forms, from simple role play to use of high-tech simulators. The point to emphasize here is that simulation is a method of instruction and not a technology. Simulation can be effective with low- or no-tech options.	(2 min.)
PPT slide 5	Show PPT slide #5, Keys to Success , and explain that participants can have confidence that the design of their training will be successful if the course incorporates three primary elements: (1) Scenario design that focuses on specific learning objectives for their training and provides multiple opportunities for participants to practice team behaviors, (2) Measurement that includes both process and outcomes measures and accurately captures participant behaviors, and (3) Debriefing of practice activities to provide specific and detailed feedback to participants on behaviors that were performed according to acceptable standards and those that need improvement. Tell them that this course will cover these three phases plus a discussion of lessons learned. Remind participants that perhaps the most powerful learning occurs during debriefing when participants have a chance to review their performance with the training facilitator and identify those areas that need more work.	(3 min.)

Materials	Activities	Times
PPT slide 6	<p>Show PPT title slide #6, TeamSTEPPS Resources, and remind participants that <i>TeamSTEPPS Instructor Guide</i> contains valuable resources that can be helpful in planning their training. Reinforce the point that participants should be clear in the behaviors that will be targeted and the goals to be accomplished in using simulation to train TeamSTEPPS. For example, Tab I contains scenarios that can be used or adapted for the training they develop and conduct. This tab contains 131 vignettes and is organized by department and by TeamSTEPPS skill and tool. If participants have not developed scenarios, they may wish to select from among those in the <i>TeamSTEPPS Instructor Guide</i>. Emphasize that they should be sure to embed TeamSTEPPS teamwork skills into scenarios they develop. You might want to spend a few minutes having participants skim through Tab I to become familiar with the scenarios it contains. Emphasize that these vignettes are not complete training scenarios but, with the methods described in this module, can serve as a stem to be developed.</p>	(5 min.)
	<p>In addition, Appendix C under Tab A contains a sample Team Performance Observation Tool that will be helpful for observing and measuring team performance during the simulation exercises. Observers should practice using this tool, which can be adapted to reflect a specific type of care. Reinforce the concept that these resources can be customized to fit their particular situations. Encourage participants to skim through Tab A.</p>	(5 min.)
PPT slide 7	<p>Now show PPT slide #7, EBAT. Because it's important to acknowledge participants' prior knowledge and experiences, ask if anyone wishes to briefly share his or her knowledge of, or experiences with, EBAT.</p>	(5 min.)
	<p>Explain that Event-Based Approach to Training (EBAT) offers a practical application for training teams to perform in naturalistic environments. Through the creation of effective scenario-based training, EBAT emphasizes linkages among learning objectives, scenario events, performance measures, instructional strategies, and feedback—all of which are critical elements of simulation training. This scenario- or vignette-based technique has proven highly effective as a strategy for training health care providers who must coordinate their efforts, especially in environments with multiple patient safety threats (e.g., emergency departments, intensive care units). It relies on controlled exercises or vignettes in which the trainee is presented with cues that are similar to those found in the actual task environment. The training objectives are accomplished by embedding specific "trigger" events into the scenario, and trainees receive feedback reflective of their responses.</p>	(5 min.)

Materials	Activities	Times
	<p>Tell them that EBAT is not a new method. It has been used by the Department of Defense as well as the aviation industry. It is situation-based training (SBT) and is used to provide guided learning experiences that replicate real-world experiences as a means to build expertise. It has been applied to various U.S. military team-training efforts, including naval helicopter crews, teams that work in the combat information center onboard Navy ships, and attack center teams in the subsurface community, among others. In the airline industry during the 1980s, simulation became a cornerstone of Crew Resource Management (CRM), a team training program for airline pilots. Commercial aviation now relies heavily on SBT for pilot training and evaluation, particularly for simulating critical high-risk situations that cannot be performed in flight. In fact, the Federal Aviation Administration mandates that CRM scenarios be developed using an event-based method.</p>	(3 min.)
	<p>In health care, EBAT has been applied to both individual and teamwork training. The Simulation Module for Assessment of Resident Targeted Event Responses (SMARTER) approach is an event-based approach that links Accreditation Council for Graduate Medical Education, or ACGME, core competency-based assessment to SBT. The product of the EBAT process is a set of simulation scenarios and accompanying measurement tools that capture performance during SBT. EBAT has also been used for teamwork training in health care as well using the TeamSTEPPS curriculum. The EBAT approach is not the only solution, but it does offer one approach, in addition to others, in the toolbox of approaches to train and assess team performance.</p>	(2 min.)
	<p>Now explain that you will move into the heart of this course: The three phases of using simulation in TeamSTEPPS training. Ask if there are questions at this point before moving on to the three phases.</p>	
BREAK		15 min.
III. Phase I—Scenario Development		2 hours
PPT slide 8	<p>Welcome participants back from break and show PPT slide #8, Phase I. Explain that scenario development includes the following elements:</p> <ol style="list-style-type: none"> 1. Specifying teamwork skills. 2. Defining learning objectives. 3. Choosing the clinical context. 4. Defining event sets. 5. Defining targeted responses. <p>Tell participants that you will cover each of these in detail. Remind them that if they develop their own scenarios for use in training, the scenario should include the above five elements. Tell them that they will now explore each.</p>	(3 min.)

Materials	Activities	Times
PPT slide 9	<p>Show PPT slide #9, Specify Teamwork Skills. Explain that “skills” refers to the categories of behavior for which they may want to provide training. Be sure they understand that teamwork is too encompassing and too complex to train using a single scenario. As a result, each course they offer should focus on a subset of competencies. The graphic on PPT slide #9 illustrates the four core competencies of TeamSTEPPS: Leadership, communication, situation monitoring, and mutual support. Tell them that it is important that they identify the teamwork skill and strategies they wish to target for training (e.g., conducting a pre-treatment briefing with their team). Ask if there are questions.</p>	(2 min.)
PPT slide 10	<p>Show PPT slide #10, Define Learning Objectives. Explain that learning objectives state what participants will be able to do at the end of the training. They communicate to participants what is expected of them, and they help instructors/trainers focus their instruction and design appropriate learning activities for participants to apply and demonstrate their learning. Learning objectives also provide the basis for evaluating participant mastery of learning—in this case, mastery of performance expectations.</p> <p>Learning objectives should be explicit, focusing on specific TeamSTEPPS behaviors, and they should be written in measurable terms. They should include the following information:</p> <ul style="list-style-type: none"> Performance—Specifies the behavior that is the focus of the training. Condition(s)—Specifies the conditions under which the behavior occurs. Standards—Specifies the level of expected performance. 	(3 min.)
PPT slide 11	<p>Review PPT slide #11, Example Objective. Also review the following examples of learning objectives relating to different teamwork skills:</p> <ol style="list-style-type: none"> 1. Upon completing this program of instruction on mutual support, participants, when using the feedback tool, will be able to communicate information in a way that allows for ongoing improvement. 2. Upon completion of this program of instruction on team leadership, participants, when using the debrief checklist, will be able to summarize lessons learned and set goals for improvement. 3. Upon completion of this program of instruction on situation monitoring, participants will be able to use cross monitoring to monitor behavior of other team members to ensure that mistakes or oversights are caught early. 4. Upon completing this program of instruction on communication, participants will be able to use SBAR to communicate about a patient's condition using a standardized framework. 	(5 min.)

Materials	Activities	Times
H-3	<p>Tell participants that it's now their turn to write some learning objectives. Referring to Handout 3 (H-3), ask them to develop learning objectives for a simulation course that they plan to deliver in the near future. They need first to consider the teamwork skills they want participants to learn. Remind them that the objectives should be explicit, be written in measurable terms, and include statements of performance, conditions, and standards.</p> <p>Allow about 10 minutes for participants to develop learning objectives for the skills on which they plan to offer training. Provide assistance to those who indicate that they need help. When 10 minutes have elapsed, ask participants to form groups of three or four and to share their learning objectives with other members of their group. As each person shares his or her learning objectives, members of the group are to evaluate whether the objectives specify performance, conditions, and standards, and, if appropriate, they are to suggest ways to improve the learning objectives. Allow approximately 20 minutes for this small group activity. Then sample two or three learning objectives to share with the total group. Ask if there are questions.</p>	<p>(2 min.)</p> <p>(30 min.)</p>
PPT slide 12	<p>Show PPT slide #12, Choose a Clinical Context. Explain to participants that after learning objectives have been set, it is important that they choose a clinical context to frame the scenario development and to assess the mastery of learning objectives. For example, if the learning objective is to examine whether health care professionals can communicate the four elements of an SBAR, the related scenario may be one centered on a trauma event involving cardiac arrest. Explain that although many clinical scenarios lend themselves to various learning objectives, not all contexts are equal for training purposes so participants should select a clinical context that affords participants opportunities to perform.</p> <p>Remind participants that Tab I of the <i>TeamSTEPPS Instructor Guide</i> provides 131 scenarios from which they can select. Also remind them that the contexts selected should be appropriate for eliciting the team behaviors that are the focus of their training courses.</p>	(5 min.)
PPT slides 13 and 14;	<p>Show PPT slide #13, TeamSTEPPS Scenario 86, then PPT slide #14, Clinical Context. Slide #13 presents a scenario. Slide #14 presents the clinical context of the same scenario. Encourage participants either to develop their own scenarios or to select scenarios from Tab I of the <i>TeamSTEPPS Instructor Guide</i>. Now refer participants to Handout 4 (H-4) and ask them to define the clinical context for the learning objectives they developed previously in this course. They should write both a descriptive scenario as well as the clinical context. Allow approximately 10 minutes for participants to work on their scenarios and clinical contexts, and then sample responses from the group. If time permits, you may wish to have participants in groups of three or four share their scenarios and clinical contexts and encourage members of their small groups to ask questions and offer suggestions for improving the scenarios.</p>	
H-4		

Materials	Activities	Times
PPT slide 15	<p>Show PPT slide #15, Define Event Sets. Explain that a scenario contains multiple reality-based event sets that trigger team responses, thereby creating engaging learning experiences for participants. Event sets are the building blocks of a scenario. An event set provides a framework for building scenarios and for examining and debriefing team performance. All event sets consist of a trigger—the condition under which the event becomes fully activated or the incident that elicits team behavior—and one or more distracters—conditions that are inserted into the event to divert the team's attention from other events that are occurring or are about to occur. Slide #15 presents an example of a trigger and a distracter for Team STEPPS Scenario 86 that was reviewed on slides #13 and #14.</p> <p>Following is another example of a trigger and possible distracters in a scenario in which a patient is admitted to the telemetry floor to rule out myocardial infarction.</p> <p>Trigger: Patient found apneic in hospital after central monitoring alarms sound.</p> <p style="padding-left: 40px;">Team assembles in patient's room. Primary provider reports to team what he or she knows about the patient. Roles are assigned.</p> <p>Distracters: Anxious family member enters room.</p> <p style="padding-left: 40px;">Phone call announcing patient will not have ICU bed for at least 30 minutes.</p>	(10 min.)
PPT slide 16	<p>Show PPT slide #16, Define Targeted Responses. Explain that each critical event needs to be linked to targeted responses, which are objectively observable behaviors exhibited by team members in response to the critical events. Each targeted response or behavior should meet expected levels of performance or standards as presented in the example on slide #16. Targeted responses indicate the extent to which a team member possesses explicitly defined knowledge, skills, and attitudes. See example on slide #16.</p>	(5 min.)

Materials	Activities	Times
PPT slide 17	<p>Show PPT slide #17, Guidance. Explain that, in developing scenarios, participants should keep the following points in mind:</p> <p>(1) A simulation scenario should consist of three to five event sets to provide multiple opportunities for team members to demonstrate targeted responses.</p> <p>(2) Each event set should include only one trigger event to avoid introducing too many variables and making it difficult to observe targeted responses to a specific trigger.</p> <p>(3) It is helpful to break a clinical procedure into chunks and embed a trigger into each of the chunks.</p>	(2 min.)
PPT slides 18 and 19	<p>Now show PPT slides #18 and #19, Trauma Example. Each slide presents triggers and expected team behaviors of the same event set. The difference is that slide #18 represents a pre-hospital example while slide #19 represents primary survey. Review the triggers and expected team behaviors with participants. Explain that each slide can be chunked into two event sets, with one trigger for each event set. By combining the two trauma examples to make one scenario, you will have four event sets.</p>	(3 min.)
PPT slide 20; H-5	<p>Show PPT slide #20, Scenario Development. Tell participants that it is now their turn to try their hands at scenario development. Refer them to Handout 5 (H-5) and ask them to work in groups of three to select a scenario from Tab I of the <i>TeamSTEPPS Instructor Guide</i> and then for their selected scenario to identify or develop the following items:</p> <ul style="list-style-type: none"> § TeamSTEPPS skill. § TeamSTEPPS tool or strategy. § Learning objective(s). § Clinical context. § Event set with trigger and distracters. § Targeted responses. <p>Allow participants 25 minutes for this exercise. Tell them to be prepared to make a 3-minute presentation in which they share their results with the total group.</p> <p>After about 25 minutes (longer, if participants need more time and your training schedule allows), ask each team to report to the total group the scenario they selected and the skills, learning objectives, clinical context, event set, and targeted responses they have identified or developed for their scenario. As a group completes its report, suggest that others in the room ask tactful questions, such as "What do you think the result would be if you changed the trigger to....?" and "Are there other learning objectives that might be related to this scenario?", etc. After all groups report, give the groups about 5 minutes to make revisions to their scenarios.</p>	(25 min.)
<p>Note: Keep in mind that the timing listed here for each part of the training is only a suggestion. You will need to modify the timing for exercises depending on the size of the group for which you are providing training as well as for the content of the training.</p>		
<p>BREAK or Lunch</p>		

Materials	Activities	Times
IV. Phase 2—Development of Performance Measures		85 min.
PPT slide 21	<p>Welcome participants back from break and show PPT slide #21, Phase 2. Tell them that you will now move them into Phase 2, in which they will learn to develop performance measures. Explain that the preceding steps they performed in Phase 1, Scenario Development, particularly the targeted responses, lead directly to the process of generating event-based diagnostic measurement tools. These can take the form of simple checklists of observable behaviors, frequency counts, and rating scales, among other measures.</p> <p>Explain that performance measures should diagnose both individual and team performance and provide information about why things did or did not go well. Performance measures need to accurately assess performance within a scenario to determine if the objectives of training were achieved, to determine the degree to which training participants are learning, and to identify areas for improvement. Performance measurement can help you to 1) Evaluate and continually improve your simulation-based training scenarios and 2) Scaffold the process of providing feedback in team debriefs. Tell them that there are four critical actions involved in developing measures and that you will elaborate on each of these: (1) Considering the level of analysis, (2) Clarifying the purpose of the assessment, (3) Deciding what to measure, and (4) Selecting a measure.</p>	(2 min.)
PPT slide 22	<p>Show PPT slide #22, Team Performance Observation Tool, and tell them that this is an example of an observation tool. Using this tool, observer(s) can rate individual and team behaviors under each skill area of leadership, situation monitoring, mutual support, and communication. Tell them that they may also design their own performance measurement tools.</p>	(3 min.)
PPT slide 23	<p>Show PPT slide #23, Consider Level of Analysis. This slide provides examples of individual positions and of teams whose performance is to be measured. Explain that whether they select an existing performance measurement tool or develop their own, they need to consider the individual personnel and teams for which the measure is intended.</p>	(2 min.)
PPT slide 24	<p>Show PPT slide #24, Clarify the Purpose. Measurement is the only means of determining actual changes in behavior resulting from simulation-based learning. Simulations are only effective if you can follow up with participants by measuring behaviors that need to change. Measuring these behaviors starts with identifying the purpose. With simulation, measurement should be used for two purposes:</p> <ol style="list-style-type: none"> 1) Identifying deficiencies in performance. 2) Assessing whether performance has improved following learning. <p>Tell participants that before they determine the measures they will use, they need to clarify the purpose of the assessment. They will need to diagnose root causes of performance deficiencies and identify specific weaknesses to be addressed. They will need to relay information concerning strengths and weaknesses in the form of a remediation plan. They will need to determine if the purpose is to evaluate the level of proficiency or readiness.</p>	(2 min.)

Materials	Activities	Times
PPT slide 25	<p>Show PPT slide #25, Decide What to Measure. Tell participants that in developing a performance tool they must decide whether to measure performance outcomes or the processes, or both. Ideally, they should measure both outcomes and processes. Outcomes generally are more quantifiable than processes. They are the results of an individual's or team's performance and answer the questions "What happened?" and "What was the end result?" Process, on the other hand, encompasses the steps, strategies, or procedures used to accomplish a task and answer the questions "How well did the team communicate with one another?" and "Why did it happen?"</p>	(3 min.)
PPT slide 26	<p>Show PPT slide #26, Outcomes, and tell participants that outcomes are sometimes referred to as measures of effectiveness (MOEs). They provide an indication of the extent to which the outcome of the task was successful and are important for most measurement purposes.</p> <p>Typical outcomes that we can assess include the following:</p> <ol style="list-style-type: none"> 1. Accuracy—Precision of task performance (e.g., was the correct medication and correct dosage administered to the patient). 2. Timeliness—Length of time it took to perform a task (e.g., how much time elapsed from the onset of an event to the team's response). 3. Productivity—Volume (e.g., volume of patients in emergency department). 4. Efficiency—Rate of resources required versus those used (e.g., operating room supplies). 	(5 min.)
PPT slide 27	<p>Show PPT slide #27, Process, and tell participants that processes are sometimes referred to as measures of performance (MOPs). They provide an indication of why certain outcomes were obtained. They typically measure the question "Was the decision made right?" (i.e., in the right way) versus "Was the right decision made?" Process measures are extremely important in diagnosing the root causes of performance deficiencies. They also are critical in providing feedback and designing additional training.</p> <p>Explain that there are two types of processes: Taskwork and teamwork.</p> <p>Taskwork refers to the specific steps and strategies associated with a particular job. This includes team members' responsibility to understand the nature of the task, how to interact with equipment, and how to follow proper policies and procedures. Taskwork activities have been referred to as operational or technical skills. They are representative of "what" teams do. They can be procedural or non-procedural. For example, in the context of an emergency department, taskwork can refer to the act of intubating a patient experiencing trauma.</p> <p>Teamwork refers to the steps or procedures that team members use to coordinate their actions or tasks. They describe "how" teams accomplish their work, such as how priorities are established and how team members monitor each other's performance to ensure that tasks are accomplished correctly. For example, in the context of an emergency department, teamwork can refer to the communication between providers during the act of intubating a patient experiencing trauma. In other words, if a team huddles up before treating trauma patient, that is an example of teamwork.</p>	(5 min.)

Materials	Activities	Times
PPT slide 28	Show PPT slide #28, Measurement Tips . Review the tips on this slide with participants. Explain that they should strive to assess both processes and outcomes when they are diagnosing performance deficiencies or providing feedback to teams. They also should consider measuring at multiple levels to help them identify the weak link(s). They should also provide training participants multiple opportunities for practice, such as performing the same skills or task repeatedly throughout the course of an exercise.	(2 min.)
PPT slide 29	Show PPT slide #29, Select a Measure . Reiterate that performance measures can take the form of checklists of observable behaviors, frequency counts, or rating scales, as described below: <ol style="list-style-type: none"> 1. Behavioral checklists consist of items or actions that have dichotomous answers, such as Yes/No, Right/Wrong, Performed/Not Performed. An example of this is the Primary Survey ABCs. 2. Frequency counts provide an indication of the number of times that a specific behavior, action, or error occurs. An example of this is the use of CUS, SBAR, two-challenge. One way to achieve frequency counts is via videotaped performances. 3. Rating scales consist of a numerical or descriptive judgment of how well a task was performed. 	(5 min.)
PPT slide 30	Show PPT slide #30, Checklist Tips , which provides suggestions for successful use of checklists. For example: <ol style="list-style-type: none"> 1. Checklists are best used with scripted (rather than "free play") scenarios in which the observer looks for specific behaviors that are expected given the trigger and distracters that were written into the scenario. Because the checklists are event-based and the scenarios are scripted in advance, the rater knows when each event will occur and can direct his or her attention to the targeted responses. 2. Checklist items should be related to triggers that are embedded in the scenario. 3. Each checklist item should represent a single action taken by the individual or team. 4. The response category used on the checklist should be labeled. 	(3 min.)
PPT slide 31	Show PPT slide #31, Checklist , as an example.	
PPT slide 32	Show PPT slide #32, Frequency Count Tips , which provides suggestions for successful use of frequency count measures. For example: <ol style="list-style-type: none"> 1. Frequency counts are more effective when measuring overt actions or errors (acts of commission) than when measuring failure to demonstrate specific behaviors (acts of omission). 2. Frequency counts are most effective for determining how often a specific action is taken or a specific task is performed. 3. Frequency counts can be recorded during a critical event in an exercise or throughout the entire scenario. 	(3 min.)
PPT slide 33	Show PPT slide #33, Frequency Count , as an example.	

Materials	Activities	Times
V. Phase 3—Debriefing		45 min.
PPT slide 38	<p>Welcome participants back from break and show PPT slide #38, Phase 3. Explain that this phase concerns the debriefing process, which is critical to maximizing participants' learning. This phase consists of four steps, which you will cover in depth: (1) Introducing the debrief process, (2) Describing what happened, (3) Conducting an analysis of performance, and (4) Identifying lessons learned. Not all team debriefs will flow in this exact order, but you can use this framework to help guide the discussion.</p> <p>Tell them that in introducing the debrief process to their participants, they should make clear that the purpose of the debriefing is to help participants understand the complex team skills and knowledge required for quality patient care. They need to explain that the debriefing will be team centered and that all team members are expected to participate. They also need to explain the format that the debriefing will take. To describe what happened during the simulation, you can show a videotape, provide a description, or ask team members to objectively describe the outcome without making judgments of one another's behavior.</p>	(3 min.)
PPT slide 39	<p>Show PPT slide #39, Description Phase. Explain that during this phase, each team member objectively shares his or her perspectives of events that unfolded during the scenario. When facilitated skillfully, the description phase helps team members gain insight into each other's perspectives, helps the team to reach consensus on what happened during the scenario, and helps ensure that everyone takes away similar lessons from the experience. Tell participants that measurement can help during this phase because it describes human behavior in concrete terms, thereby providing a structure for understanding the scenario. During this phase, be sure to focus the discussion on critical aspects of performance related to the learning objectives.</p>	(2 min.)
PPT slide 40	<p>Show PPT slide #40, Analysis Phase. Explain that this phase entails a systematic investigation of why things happened in the scenario. In this phase, the team focuses on what went well and what could have been done better. Tell them that they should encourage team members to address each other directly. They should ask team members to discuss how they were affected by each other's actions. And they should encourage team members to discuss what they were each thinking.</p> <p>Tell them that measurement can shed some light on performance if they compare the team's performance with standards of performance for the tasks in the scenario. They can review the TeamSTEPPS behaviors associated with the tasks and determine whether the team used these behaviors when necessary. If so, they can identify whether the behaviors were performed correctly or if they could be improved.</p>	(5 min.)

Materials	Activities	Times
	<p>Share the following tips to use when they serve as facilitators for debriefings of teams that take their training courses:</p> <ul style="list-style-type: none"> • Give your analysis and evaluation only after the team being debriefed has completed its analysis and evaluation. • Ask team members to talk about what went well, what could be improved, and how it could be improved. • Push the team to go beyond just describing what happened. Ask follow-up questions that require in-depth analysis, such as asking team members to analyze why they made the decisions they made. • Encourage team members to discuss what they were thinking during the simulation. • Encourage team members to discuss the factors that enabled or impeded the team's success. 	
PPT slide 41	<p>Show PPT slide #41, Application/Generalization Phase. Tell participants that this phase helps the team to look ahead to what they learned in the simulation and apply or generalize it to their daily practice. Ask team members to discuss specific ways they can apply what they learned in the simulation exercise to their care of patients. It is helpful in this debrief phase to generate a list of lessons learned. In other words, team members can discuss what went wrong and how it can be corrected.</p> <p>Explain that measurement can shed some light on the team's performance if they use explicit event sets to draw parallels between the scenario and the actual clinical environment. Explicit measures associated with these events can help promote team members' reflections about how to transfer what went well to the actual clinical environment.</p>	(3 min.)
PPT slide 42	<p>Show PPT slide #42, Tip for Success 1. Remind participants to keep things simple. People can integrate only a few key learning points from a scenario. Observers have a limited attention span and often have to multitask, so don't ask too much of them. A good rule is that they have a key event every 1 to 2 minutes of scenario time.</p>	(2 min.)
PPT slide 43	<p>Show PPT slide #43, Tip for Success 2. Remind participants that it's not enough to tell someone that they did well. They need diagnostic feedback that is specific, behaviorally focused, and descriptive. For example:</p> <ul style="list-style-type: none"> • "The S and B of that SBAR were great. I didn't notice you making a recommendation or request, though. What did you want the team to do?" • Using the same SBAR example, ask the team to discuss what they thought about the A and R. For example, "I heard a clear S and B in that SBAR. Did anyone hear the A and R? Did you know what the assessment was or what you were supposed to do?" • "When you did that check-back, repeating the order, it was really clear that there was a mistake and they corrected it before it did any harm. That was a good catch." • "You shared the care plan with the team, but no one had a chance to speak up or ask questions." 	(3 min.)

Materials	Activities	Times
PPT slide 44	Show PPT slide #44, Tip for Success 3 . Remind participants that they will need to train observers so that measurement is systematic, reliable, and valid. In other words, the same ratings should be obtained no matter who observes and no matter how many times the selected measurement is used. They will need to ensure that everyone has common expectations about performance, and they will need to develop and use a scoring guide with rubrics that are understandable to all raters/observers.	(3 min.)
PPT slide 45	PPT slide #45 presents a sample Rater Scoring Guide . Review this with participants.	
PPT slide 46	Show PPT slide #46, Tip for Success 4 . Remind participants that they need to keep teamwork and clinical skills separate and not overcomplicate the clinical nature of the scenario when their main purpose is to train teamwork. To do this, they can use dual debriefs. In other words, they can provide feedback on teamwork skills as a team, and they can address major clinical deficiencies through individual follow-up sessions. Participants who are teamwork novices should be allowed to focus on teamwork, not on complex clinical issues, in the scenario. Remind them that, as team members become more sophisticated in their teamwork skills, more complex clinical scenarios can be used.	(2 min.)
PPT slide 47	Show PPT slide #47, Tip for Success 5 . Remind participants that event-based methods involve more than just measurement. Event-based methods involve good training design practices, good scenario design practices, and good debrief facilitation practices.	(2 min.)
PPT slide 48	Show PPT slide #48, Teamwork Actions . Review with participants the content of the training they have just completed. The following are things that facilitators of simulation training should be able to do: <ul style="list-style-type: none"> • Apply the event-based approach to training. • Develop TeamSTEPPS training scenarios. • Develop TeamSTEPPS performance measures. • Conduct effective debriefs of team performance. 	
Flipchart page marked <i>"Parking Lot Issues"</i>	Now collect the flipchart page marked "Parking Lot Issues" that you posted at the beginning of the course. Review Post-It Notes on this page to determine if the questions have been answered during the training. Provide answers to unanswered questions or, if the questions need to be referred to others or if they need research, give participants an approximate date by which they can expect to receive either the answers or referrals to other information sources. Also ask if participants have any questions, items, or issues that still need to be clarified.	(20 min.)

Materials	Activities	Times
<p>Flipchart page of pluses and deltas, + and ρ</p>	<p>Now tell participants that you would like to take the temperature of the group concerning training activities for the training they just completed. Use the flipchart page that you pre-labeled "Participant Feedback" that has two columns, one with a plus sign [+] and one with a delta [ρ]. Ask them to call out those things that they liked about the day's training. Accept all comments and write them under the [+] column. When there are no more responses, ask them to identify those things that they felt could have been improved about the day's training. Again, accept all comments and write them under the [ρ] column. Tell them that you appreciate and take their comments seriously and, to the extent possible, you will attempt to address those items in the [ρ] column that are under your control in future training courses.</p> <p>Ask them to complete the formal evaluation form (See sample Course Evaluation Form under Tab B, Appendix A, of the <i>TeamSTEPPS Instructor Guide</i> that you can adapt as needed). Thank them for their participation and enthusiasm and tell them that you look forward to seeing them at future training courses.</p>	

Participant Handouts

Your Expectations for this Training

Directions: Picture yourself at the end of this training course. It has been a successful and worthwhile experience for you because you have learned new information. Make a note of two things you hope to learn and take with you from this training.

1 _____



2 _____

You have just listed your expectations for this course! Now share these with the group so that the course facilitator(s) can either address your expectations during the course or refer you to appropriate print and Web-based resources as well as additional training courses, if appropriate.

H-1

Objectives of Simulation Training Course

At the end of this training, participants will be able to:

- Apply the Event-Based Approach to Training.
- Develop TeamSTEPPS training scenarios.
- Develop TeamSTEPPS performance measures.
- Conduct effective debriefs of team performance.
- [When rolling out this training, add here content objectives related to the procedure that is the focus of the training course you are offering].

Developing Learning Objectives

Directions

Think about a simulation course that you plan to deliver in the near future and what you want the participants to learn. Also consider the teamwork skills you want participants to learn. Now, take approximately 10 minutes to write some learning objectives for this course: At least two **content** objectives related to the simulation and at least two **process** objectives related to teamwork skills. Be sure that your objectives are explicit and written in measurable terms. They should include statements of performance, conditions, and standards, as in the following example.

Upon completion of this training on team leadership, participants, when using the debrief checklist, will be able to summarize lessons learned and set goals for improvement.

Course:	
Learning Objective #1 (Content)	
Learning Objective #2 (Content)	
Learning Objective #3 (Content)	
Learning Objective #4 (Process)	
Learning Objective #5 (Process)	

After you have developed your course's learning objectives, form a group with two or three other training participants and take turns sharing learning objectives. Listen to your team members' learning objectives and, as appropriate, identify ways to strengthen each other's objectives. Do the objectives include statements of performance, conditions, and standards? Your group has 20 minutes for this activity. Then, as a group, select two learning objectives (one content and one process) to share with the larger group.

Developing Scenarios

Directions

Form a small group with two other course participants. Using Tab I of the *TeamSTEPPS Instructor Guide*, select a scenario and to identify and develop the six elements below for your scenario.

1.	TeamSTEPPS Skill	
2.	TeamSTEPPS Tool or Strategy	
3.	Learning Objective(s)	
4.	Clinical Context	
5.	Event Set With Trigger and Distracters	
6.	Targeted Responses	

You have approximately 25 minutes for this activity. Your small group should be prepared to make a 3-minute presentation to share your results with the total group.

Bibliography

- Adams, K.A., Goodwin, G.F., Searcy, C.A., Norris, D.G., and Oppler, S.H. *Development of a Performance Model of the Medical Education Process*. Technical report commissioned by the Association of American Medical Colleges. Washington, DC: American Institutes for Research. 2001.
- American Institutes for Research. Tool for the training, assessment, analyses, and debriefing of medical teams' performance: Labor and delivery content. Washington, DC: American Institutes for Research. 2008.
- Baker, D.P., Salas, E., Barach, P., Battles, J., and King, H. "The relation between teamwork and patient safety." *Handbook of Human Factors and Ergonomics in Health Care and Patient Safety*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc. 2006.
- Baker, D.P., Gustafson, S., Beaubien, J.M., and Salas, E. *Medical Teamwork and Patient Safety: The Evidence-Based Relation*. Literature Review. Rockville, MD: Agency for Healthcare Research and Quality. AHRQ Publication No. 05-0053. April 2005.
- Beaubien, J.M., and Baker, D.P. "The use of simulation for training teamwork skills in health care: How low can you go?" *Quality and Safety in Health Care*. October 2004. 13(Suppl. 1).
- Cannon-Bowers, J.A., Tannenbaum, S.I., Salas, E., and Volpe, C.E. "Defining competencies and establishing team training requirements." In R.A. Guzzo and E. Salas and Associates (eds.), *Team Effectiveness and Decision-Making in Organizations*. San Francisco: Jossey-Bass Publishers. 1995. pp. 330-380.
- Costar, D.M., Baker, D.P., Calderon, R. *Scenario-Based Training: Understanding the Requirements for Human Performance Measurement*. Washington, DC: American Institutes for Research. 2003.
- Fanning, R.M., and Gaba, D.M. "The role of debriefing in simulation-based learning." *Simulation in Healthcare*. 2007. 2(1).
- Fowlkes, J.E., Dwyer, D.J., Oser, R.L., and Salas, E. "Event-based approach to training (EBAT)." *International Journal of Aviation Psychology*. 1998. 8, pp. 209-221.
- Gaba, D.M., Howard, S.K., Fish, K.J., Smith, B.E., and Sowb, Y.A. "Simulation-based training in anesthesia crisis resource management (ACRM): A decade of experience." *Simulation and Gaming*. 2001. 32, pp. 175-193.
- Haig, K.M., Sutton, S., and Whittington, J. "SBAR: A shared mental model for improving communication between clinicians." *Journal on Quality and Patient Safety*. March 2006. 32(1).
- Jha, A.K., Duncan, B.W., and Bates, D.W. "Simulator-based training and patient safety." In K.G. Shojana, B.W. Duncan, K.M. McDonald, and R.M. Wachter (eds.). *Making Health Care Safer: A Critical Analysis of Patient Safety Practices*. Rockville, MD: Agency for Health care Research and Quality. 2001. pp. 511-518.
- Johnston, J.H., Smith-Jentsch, K.A., Cannon-Bowers, J.A. "Performance measurement tools for enhancing team decision making." In M.T. Brannick, E. Salas, and C. Prince (eds.). *Team Performance Assessment and Measurement: Theory, Methods, and Applications*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc. 1997. pp. 311-327.

- McIntyre, R.M. and Salas, E. "Measuring and managing for team performance: Emerging principles from complex environments." In R.A. Guzzo and E. Salas and Associates (eds.). *Team Effectiveness and Decision Making in Organizations*. San Francisco: Jossey-Bass Publishers. 1995. pp. 9-45.
- Oser, R.L., Cannon-Bowers, J.A., Salas, E., and Dwyer, D.J. "Enhancing human performance in technology-rich environments: Guidelines for scenario-based training." In E. Salas (ed.), *Human/Technology Interaction in Complex Systems*. Stamford, CT: JAI Press. 1999. 9, pp. 175-202.
- Rosen, M.A., Salas, E., Silvestri, S., Wu, T., and Lazzara, E.H. "An assessment tool for simulation-based training in emergency medicine: The simulation modules for assessment of resident targeted event responses (SMARTER) approach." *Simulation in Healthcare*. In press.
- Rosen, M.A., Salas, E., Wu, T.S., Silvestri, S., Lassara, E.H., Lyons, R., Weaver, S., and King, H. "Promoting teamwork: An event-based approach to simulation-based teamwork training for emergency medicine residents." *Academic Emergency Medicine*. 2008. 15(11), pp. 1190-1198.
- Rudolph, J. W., Simon, R., Dufresne, R. L., and Raemer, D. B. "There's no such thing as 'nonjudgmental' debriefing: A theory and method for debriefing with good judgment." *Simulation in Healthcare*. 2006. 1(1), pp. 49-55.
- Rudolph, J., Simon, R., Rivard, P., Dufresne, R., and Raemer, D. "Debriefing with good judgment: Combining rigorous feedback with genuine inquiry." *Anesthesiology Clinics*. 2007. 25(2), pp. 361-376.
- Salas, E., Klein, C., King, H. B., Salisbury, M., Augenstein, J. S., Birnbach, D. J., et al. "Debriefing medical teams: 12 evidence-based best practices and tips." *Joint Commission Journal on Quality and Patient Safety*. 2008. 34(9), pp. 518-527.
- Salas, E., Rosen, M., and King, H. "Integrating teamwork into the 'DNA' of graduate medical education: Principles for simulation-based training." *Journal of Graduate Medical Education*. December 2009. pp. 243-244.
- Smith, P.C. and Kendall, L.M. "Retranslation of expectations: An approach to the construction of unambiguous anchors for rating scales." *Journal of Applied Psychology*. 1963. 47, pp. 149-155.
- Stout, R.J., Cannon-Bowers, J.A., and Salas, E. "The role of shared mental models in developing team situational awareness: Implications for team training." *Training Resource Journal*. 1996. 2, pp. 85-116.
- Stout, R.J., Salas, E., and Fowlkes, J.E. "Enhancing teamwork in complex environments through team training." *Group Dynamics: Theory, Research, and Practice*. 1997. 1(2), pp. 169-182.

Acknowledgments

Several organizations have collaborated to design and further refine this TeamSTEPPS guide to make it available for all health care organizations. For their expert input to this guide, we would like to thank:

Agency for Healthcare Research and Quality

James B. Battles, Ph.D.

Department of Defense Patient Safety Program

Heidi B. King, M.S.

Michael Rosen, Ph.D.

Wendy Martin, R.N.

American Institutes for Research

Contract to AIR with AHRQ, Contract # HHSA290200600019

Deborah Milne, R.N., M.P.A.

David Baker, Ph.D.

Alexander Alonso, Ph.D.

Mary Ann Corley, Ph.D.

Timothy Clayton, M.S.

Rachel Greenberg

Alexa Doerr

Carilion Clinic

Charlotte Hubbard, R.N.

Beth Harber

Creighton University

Chad Bauerly, M.D.

Amy Tegeder

Duke Medicine

Bryan Sexton, Ph.D.

Laura Maynard, M.Div.

Pamela Bivens, M.A.

University of Minnesota

Karyn Baum, M.D., M.S.Ed.

Marnie Huss, R.N.

Mary Tramel

University of Washington Medicine

Brian Ross, Ph.D., M.D.

Kurt O'Brien, M.H.R.O.D.

Megan Sherman

U.S. Department of Veterans Affairs National Center for Patient Safety

Lisa M. Mazzia, M.D.