Understanding Quality and Safety Problems in the Ambulatory Environment: Seeking Improvement With Promising Teamwork Tools and Strategies

John S. Webster, MD, MBA; Heidi B. King, MS, CHE; Lauren M. Toomey, RN, BSBA, MIS; Mary L. Salisbury, RN, MSN; Stephen M. Powell, BA, ASO; Brigetta Craft, RN, MSN, DNP; David P. Baker, PhD; Eduardo Salas, PhD

Abstract

Despite 1.2 billion ambulatory visits in 2005, from a health care quality and safety perspective, the ambulatory setting has been less subject to research and scrutiny, compared to high-risk inpatient areas like surgery, perioperative and perinatal care, and the emergency department (ED). The ambulatory environment is prone to problems and errors that include missed/delayed diagnoses, delay of proper treatment or preventive services, medication errors/adverse drug events, and ineffective communication and information flow. Once there is clarity about the nature of outpatient errors, evidence-based teamwork tools, strategies, behaviors, and principles can be implemented as countermeasures to elements of the error chain. From the resources of the TeamSTEPPS™ initiative, six effective and evidence-based tools and strategies are offered for use by clinicians in the ambulatory setting to improve the quality and safety of patient care by improving teamwork and communication.

Introduction: Realities and Harm in the Ambulatory Care Setting

Patients and health care providers have become increasingly aware of medical error and system problems causing poor outcomes in high-risk inpatient environments, including surgery, perinatal care, intensive care, and the emergency department (ED). In contrast, care provided in the ambulatory setting has received less scrutiny and is often perceived as safe and routine, focusing on relatively healthy patients. The volume of care within the United States for outpatient services is estimated at 1.2 billion visits to physician offices, clinics, and emergency rooms in 2005,[1] a rate of four visits per person annually.

Trends indicate increasing numbers of outpatient visits for primary and specialty care over the past decade, with similar trends in ambulatory procedures, which numbered 31.5 million in 1996.[2] Compared to inpatient hospital care, the outpatient environment often is dispersed geographically and lacks infrastructure support. For patients, this potentially creates problems with continuity of care and confusion.

A better understanding of the quality, safety, and system problems clinicians face while providing outpatient care will allow focused application of an increasing array of patient safety solutions, including effective communication and teamwork.[3] Recently developed medical error taxonomies[4, 5, 6] for the ambulatory care environment create structured, meaningful categories and bring greater clarity and understanding to this previously understudied area.

Quality and Safety Problems Experienced by Providers and Patients in the Ambulatory Care Setting

Missed or delayed diagnoses. One of the leading allegations in liability lawsuits is that the clinician "failed to diagnose" a significant condition (e.g., cancer), a claim made in nearly 75 percent of radiology cases, 64 percent of pediatric cases, and in about 50 percent of cases involving family medicine providers and internists.[7] Analyses of this problem have focused on the frequency, impact, causes, and potential for prevention of missed/delayed diagnoses. Analysis of closed-claim cases identified common factors, including failure to have or adhere to a cancer screening protocol, failure to include cancer in the differential diagnosis, and inadequate followup.[8]

In the ambulatory setting, a review of 307 closed claims[9] revealed that 59 percent of diagnostic errors harmed patients; of those, 59 percent caused serious harm, and 30 percent resulted in death. In these cases, common process problems included failure to order an appropriate test, create a proper followup plan, obtain an adequate history, or perform an adequate physical examination, as well as incorrect interpretation of diagnostic tests. Further analysis revealed judgment error (79 percent), failure of vigilance or memory (59 percent), knowledge deficit (48 percent), patient-related factors (46 percent), and handoffs (20 percent) as causal factors. The authors comment that no "silver bullet" can solve such complex problems. Instead, successful interventions focused on improving quality and safety will most likely target portions of the error chain.[9]

A literature review and collaborative project,[10] "diagnosing diagnosis error," formulated potential solutions to include reengineering processes for followup of abnormal tests, delineating "red flag" and "do not miss" diagnoses and situations, and standardizing the interpretation of tests/imaging, particularly after hours and in residency programs. These authors acknowledged the relationship of diagnostic errors with the cognitive process and complexity of the problem.

Cognitive errors and the decisionmaking process can be seen as failures in perception, failed heuristics, and decisionmaking biases, as recently popularized by Groopman in his book, *How Doctors Think*.[11] These failures are further explained in detailed articles,[12, 13] with thoughtful analysis recommending countermeasures to known biases and the useful suggestion to routinely ask during the diagnostic process, "What else might this be?"

Despite the seemingly esoteric view of cognitive failures, often problems seen in offices and clinics are as mundane as misfiled papers, unavailable charts and records, poorly distributed workload, ineffective communication, and reports not acted upon—system defects that can lead to potentially tragic outcomes for patients. Available solutions should address the human factors issues, system problems, ineffective communication, and information flow.

Delay in proper treatment or preventive services. Certainly, if there is substantial delay in diagnosis, there may be a corresponding delay in initiating proper treatment. However, treatment delays have many causes, some of which may or may not be preventable. Patients may not seek care in a timely manner; system issues can delay appointments, testing, or notification of results; or communication may fail along a potentially convoluted continuum of care (e.g., patient to primary care provider to diagnostic testing to and from specialists). According to The Joint Commission (2005),[14] root causes of sentinel events specifically related to delay in treatment focused on the top four problems: communication, patient assessment, procedural compliance, and continuity of care. Recent statistics reveal that only 2.7 percent of sentinel events reported to The Joint Commission occurred in the ambulatory setting, not including the ED.[14] However, underreporting is frequent outside of the hospital environment.

Similarly affected is the delivery of preventive services, such as mammograms, PAP smears, fecal occult blood testing, colonoscopies, and other monitoring/screening functions that are performed in the ambulatory setting. The failures[15] may be related to faulty processes, information technology support, time pressures, inadequately trained personnel, financial constraints, organizational culture, teamwork, and communication, as well as ineffective communication with the patient and family, which may be secondary to language and literacy issues. Solutions must address ineffective communication, lack of teamwork principles, clinical leadership failures, the apparent normalization of ineffective processes, patient-clinician roles and responsibilities, failure to followup, and mutual understanding/decisionmaking.

Problems with medications: Adverse drug events (ADEs). Extensive work has been done in the area of medication errors, including a recent comprehensive evaluation of the evidence and recommendations, broadly applicable across all domains of health care, for actions to prevent these errors.[16] The evidence for harm is extensive, with estimates in one study of 27 ADEs per 100 adult ambulatory patients, of which 13 percent were serious, 28 percent ameliorable, and 11 percent preventable.[17] For older individuals, the rate of ADEs was 50 per 1,000 person-years, of which nearly 14 percent were preventable, and 38 percent were considered serious, life-threatening, or fatal.[18] In this group, the medications most involved with preventable ADEs were cardiovascular drugs, diuretics, nonopioid analgesics, hypoglycemics, and anticoagulants. Recommended prevention strategies have focused on the prescribing and monitoring stages of pharmaceutical care.

Misunderstandings between patients and doctors were identified in a study of general practice medication use in the United Kingdom. This report[19] revealed multiple modes of failure on the part of both the physician and patient in sharing information, beliefs, and decisionmaking. A national surveillance study[20] of ED visits identified ADEs from the outpatient setting, which represented 2.5 percent of ED visits, 6.7 percent of hospitalizations for unintentional injuries, and an extrapolated annual national estimate of more than 700,000 individuals treated in EDs for unintentional problems related to medications.

Additional investigations focused on interventions and strategies in primary care and ambulatory practices to reduce the incidence and severity of ADEs,[21, 22, 23] but the systematic review[24] concluded that these interventions had little measurable effect, except for weak evidence that pharmacist medication reviews were effective in reducing hospital admissions due to ADEs. Stronger evidence[16] identifies fewer ADEs with electronic prescribing, particularly with built-in

decision support and technology-based checks for allergies, drug-drug interactions, dosing, and patient-specific information.

Solutions must address inaccurate understanding, the communication process, medication reconciliation, and interactions among providers and other health care professionals, particularly nurses and pharmacists. In addition, the human limitations to vigilance and the presence of complacency, even with high-alert medications, must be considered. The possibility of using back-up behaviors, mutual support within the care team, and standardized communication techniques may offer partial solutions.

Communication and information flow processes. The following are problem areas that can lead to medical error in the ambulatory setting:

- Ineffective communication between patient/family and clinician and among office/clinic staff members.[25]
- The communication chain: patient → primary care provider → specialty or subspecialty referral.[26, 27, 28]
- Primary care to hospital and hospital to primary care.[29, 30]
- Handoff communications along the continuum of care.[31, 32, 33, 34]
- Missing reports[35] from laboratories, imaging and other tests, consultants, procedures, and correspondence.

These problem areas would benefit from structured handoffs, proactive sharing of the patient care plan, improved feedback, and standardized processes for information handling. In addition, clinical leadership has opportunities to set expectations, use the whole team to focus on quality communication and process improvement, and expand the definition of the care team to include consultants, ancillary services, and the patient and family.

Approaches to Improve Quality and Safety in Ambulatory Care

Many organizations have developed and published important concepts, approaches, metrics, and recommendations for improving care in the outpatient setting, all ideas that deserve close attention from those trying to improve quality and safety of care. These excellent resources are summarized in Figure 1:

- AHRQ Conference on developing a strong research agenda for ambulatory patient safety.[36]
- The Joint Commission: 2008 Ambulatory National Patient Safety Goals.[37]
- National Quality Forum: National Voluntary Consensus Standards for Ambulatory Care.[38]
- American College of Physicians (ACP), an online continuing medical education series[39] on patient safety, providing seven modules:[40] Systems, Medication Errors, Idealized Office Design, Electronics, Communication, the Role of the Patient, and Human Cognition.
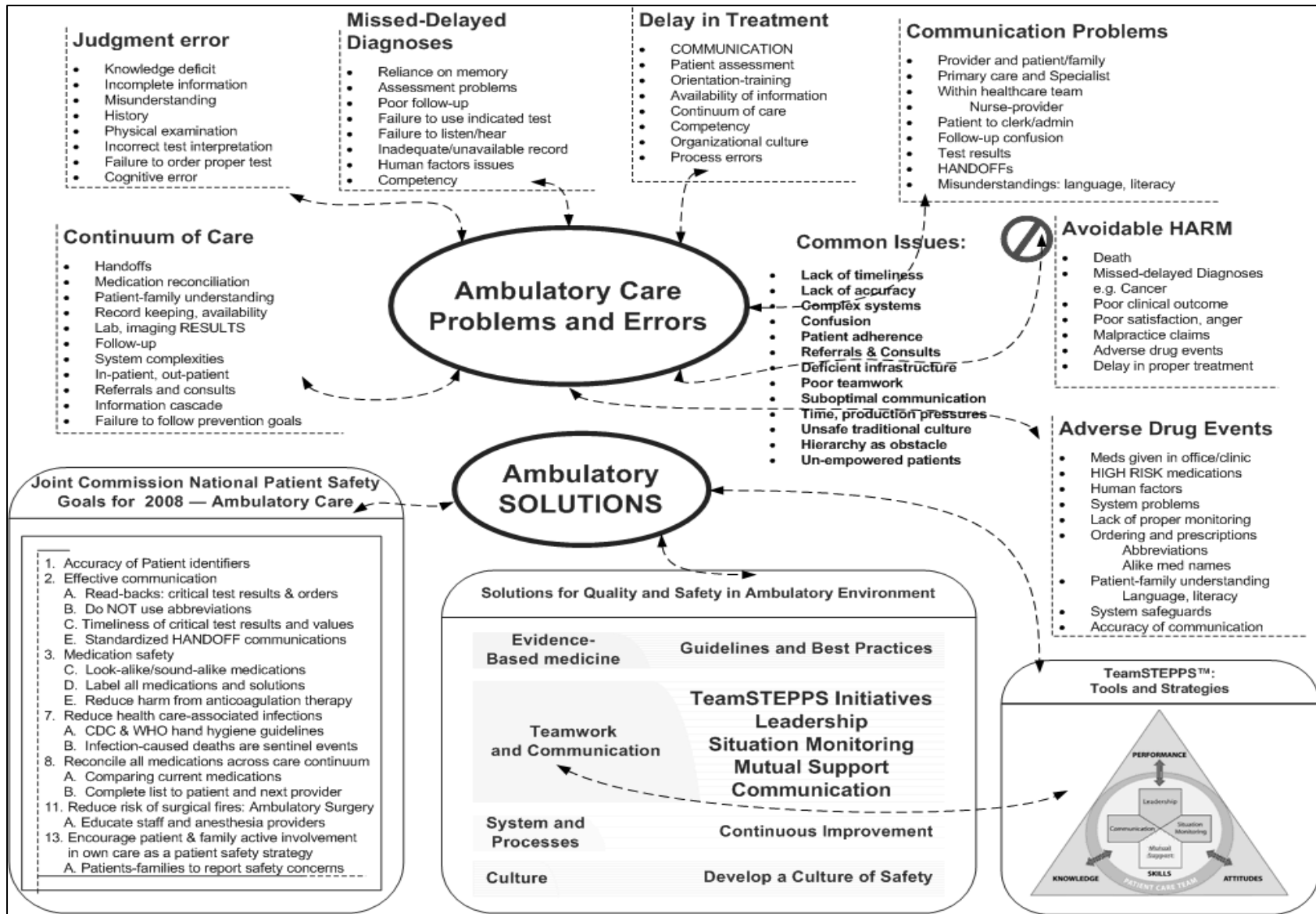
Judgment error

- Knowledge deficit
- Incomplete information
- Misunderstanding
- History
- Physical examination
- Incorrect test interpretation
- Failure to order proper test
- Cognitive error

Missed-Delayed Diagnoses

- Reliance on memory
- Assessment problems
- Poor follow-up
- Failure to use indicated test
- Failure to listen/hear
- Inadequate/unavailable record
- Human factors issues
- Competency

Delay in Treatment

- COMMUNICATION
- Patient assessment
- Orientation-training
- Availability of information
- Continuum of care
- Competency
- Organizational culture
- Process errors

Communication Problems

- Provider and patient/family
- Primary care and Specialist
- Within healthcare team
  - Nurse-provider
- Patient to clerk/admin
- Follow-up confusion
- Test results
- HANDOFFs
- Misunderstandings: language, literacy

Continuum of Care

- Handoffs
- Medication reconciliation
- Patient-family understanding
- Record keeping, availability
- Lab, imaging RESULTS
- Follow-up
- System complexities
- In-patient, out-patient
- Referrals and consults
- Information cascade
- Failure to follow prevention goals

Common Issues:

- Lack of timeliness
- Lack of accuracy
- Complex systems
- Confusion
- Patient adherence
- Referrals & Consults
- Deficient infrastructure
- Poor teamwork
- Suboptimal communication
- Time, production pressures
- Unsafe traditional culture
- Hierarchy as obstacle
- Un-empowered patients

Avoidable HARM

- Death
- Missed-delayed Diagnoses e.g. Cancer
- Poor clinical outcome
- Poor satisfaction, anger
- Malpractice claims
- Adverse drug events
- Delay in proper treatment

Ambulatory Care Problems and Errors

Adverse Drug Events

- Meds given in office/clinic
- HIGH RISK medications
- Human factors
- System problems
- Lack of proper monitoring
- Ordering and prescriptions
  - Abbreviations
  - Alike med names
- Patient-family understanding
  - Language, literacy
- System safeguards
- Accuracy of communication

Ambulatory SOLUTIONS

Joint Commission National Patient Safety Goals for 2008 — Ambulatory Care

1. Accuracy of Patient identifiers
2. Effective communication
   A. Read-backs: critical test results & orders
   B. Do NOT use abbreviations
   C. Timeliness of critical test results and values
   E. Standardized HANDOFF communications
3. Medication safety
   C. Look-alike/sound-alike medications
   D. Label all medications and solutions
   E. Reduce harm from anticoagulation therapy
7. Reduce health care-associated infections
   A. CDC & WHO hand hygiene guidelines
   B. Infection-caused deaths are sentinel events
8. Reconcile all medications across care continuum
   A. Comparing current medications
   B. Complete list to patient and next provider
11. Reduce risk of surgical fires: Ambulatory Surgery
   A. Educate staff and anesthesia providers
13. Encourage patient & family active involvement in own care as a patient safety strategy
   A. Patients-families to report safety concerns

Solutions for Quality and Safety in Ambulatory Environment

Evidence-Based medicine — Guidelines and Best Practices

TeamSTEPPS Initiatives
Leadership
Situation Monitoring
Mutual Support
Communication

Teamwork and Communication

System and Processes — Continuous Improvement

Culture — Develop a Culture of Safety

TeamSTEPPS™: Tools and Strategies

PERFORMANCE

Leadership
Communication — Situation Monitoring
Mutual Support

KNOWLEDGE — SKILLS — ATTITUDES

PATIENT CARE TEAM

Figure 1. Diagram of resources designed to improve health care quality and safety.

- Focus on measures and reporting:[41] AQA Alliance,[42] a collaborative of the ACP (and the American Academy of Family Physicians (AAFP), America's Health Insurance Plans (AHIP), and Agency for Healthcare Research and Quality (AHRQ).
- Extensive redesign and "New Model of Practice" from The Future of Family Medicine Collaboration.[43]
- Institute for Healthcare Improvement's "Planned Care Innovation Community,"[44] championing a comprehensive redesign of office-clinic practices based on a reliability concept that "…every patient should have a plan for his or her care." Changes in four key elements of care delivery are required: (1) the care team, (2) patient activation to participate in their own care, (3) effective clinical information system, and (4) leadership.
- Enhancing interdisciplinary team collaboration[45] to improve primary/ambulatory care[46] and promote a culture of safety,[47] often by implementing patient safety projects and initiatives.[48]

Relationship of Change Initiatives to Teams and Teamwork

Three important aspects of teams and teamwork in health care must be identified and clarified in order to recognize potential applications to the ambulatory care setting for quality and safety improvements:

- **Improvement teams**: Interdisciplinary teams have long worked together on improvement projects and problem solving, for example, using the PDSA (plan-do-study-act) model cycle to improve processes of care delivery. This would involve identifying a problem and bringing a team together (e.g., physician, nurse, practice manager, physician assistant, and technician) to solve the problem, such as inaccurate lab report handling. The goals might be to ensure that a laboratory report is received accurately and delivered to the provider; its information is properly acted upon; the patient is notified; the report information is recorded/documented; and appropriate decisions and plans are made. The impact could be studied for 3 to 6 months; the results could be analyzed, tracked, and evaluated; and a decision could be made about further lab report handling changes or about moving on to another problem for the team to evaluate and solve.

- **Care provision team:**[49] A multidisciplinary team within a clinic or practice that collaborates, for example, on the chronic care of a patient (or group of patients) with diabetes and comorbid conditions. This group effort—focused on diagnostic, therapeutic, preventive, and social dynamics—can be seen as effective teamwork, when the members are interdependent, proactively share information, collaborate in the decisionmaking process, and successfully relate to each other respectfully, with each having an expertise to bring to the table. This team might include the patient, family, physician, office nurse practitioner, nutritionist, social worker, home care nurse, foot care specialist, and specialty consultant(s). In fulfilling a dual mission, these team members could certainly combine their wisdom, clinic data, and process improvement knowledge to function as a diabetes care improvement team for all clinic patients with diabetes, in addition to providing daily care.[50]

- **Science of teamwork:** Based on solid behavioral research on effective teamwork, the primary focus of this article pertains to the application of evidence-based tools, strategies, behaviors, and principles of care provided in the ambulatory environment. Seemingly neglected in most of the studies on the effectiveness[51] of interdisciplinary teams on the quality of delivered care are two very basic questions: (1) whether the care providers (in the

studies) were actually using effective teamwork skills and (2) whether they were practicing in a climate that fostered effective teamwork. Recent adaptation of the Safety Attitudes Questionnaire[52] (SAQ-A) to the ambulatory arena has improved the ability of researchers to explore the safety culture and climate in offices and clinics. This third aspect of teamwork is starting to be valued as teamwork experts "team up" with medical experts and identify opportunities to augment medical knowledge with principles based on the science of human factors,[53] system and reliability theory, and team performance.[54, 55, 56] The benefit in turning a team of experts into an expert team on behalf of patient care quality and safety is significant.

Six Promising Tools and Strategies to Improve Quality and Safety in Ambulatory Care

Based on collective experience over the past 3 years of using TeamSTEPPS™ materials within the Department of Defense (DoD) and a broad range of institutions around the world, the following strategies, tools, behaviors, and principles, selected from dozens within the initiative, are offered as potentially the most useful for making an impact in the ambulatory setting. Their selection was based on these factors and considerations: usability, implementation effort, understandability, acceptance, rationale, usefulness, potential positive impact on quality and safety, ability to improve communication and team performance, impact on staff satisfaction, role in meeting regulatory goals, leadership support, and patient satisfaction.

Team Events: Briefs, Huddles, and Debriefs

Briefs. To create a shared mental model that enables all team members to "be on the same page," a leader conducts a briefing: bringing team members together, sharing important information, seeking input from others, and creating a plan for an event, procedure, shift, or day. The classic example for a briefing would be a "preflight" brief in aviation. Important information shared with all team members includes environmental conditions, status of the crew and plane, a clearly stated plan for primary mission and destination, and contingency plans. This translates well to a (pre-procedure) brief prior to a surgical case, outpatient procedure, clinical shift, or review of patients to be seen in the office/clinic that day. Discussion may include expectations, the plan, and any contingencies or risks.

It is important to note that a brief is not a meeting, and it must efficiently focus on the quality and safety of patients, roles and responsibilities of team members, input from the leader, and pertinent contributions from team members. Typically, when a brief does not occur, staff members presume what is going to happen; new or inexperienced team members miss an opportunity for learning and planning; and the case, shift, or day unfolds as it may—more reactive than proactive, more on "autopilot" than with adaptive decisionmaking.

Initial responses among staff about conducting briefs could include negative comments, cynicism, and resistance related to time constraints, scheduling issues, and questionable added value. Possible strategies for managing this resistance include an educational event focused on patient safety, medical error, and harm in the ambulatory setting; portrayal of the leadership vision; stories or data from the practice; and agreement on a trial period.

Compelling reasons for conducting briefs should focus on the premise that "as is" needs to change, and time spent performing the brief will be seen as an investment. The resultant payoffs are efficiencies based on clarity of the plan and team roles, fewer reworks, better communication, less confusion, and improved staff satisfaction, resulting in retention of personnel.

Several publications clarify successes from briefing interventions,[57, 58, 59, 60, 61] and one clearly identifies the opportunity for "next steps" in spreading the briefing project to the ambulatory care setting. Specifically within the DoD, ambulatory clinical leaders almost always choose the briefing tool as the starting point for their teamwork and communication interventions. When roles and responsibilities are clarified, problems are identified/prevented/mitigated, all of the professionals are clear about patient plans, contingencies are considered, accuracy is emphasized, information is gathered from all sources, the climate is conducive to questioning and clarifying, the outcome is enhanced quality and safety for patients in the ambulatory setting.

Huddles. Huddles differ from leadership-driven briefs, in that any member of the team may call a huddle to address new or changing circumstances and to problemsolve about adapting the earlier plan. There may be urgency with an emergent patient, workload issues, unpredicted staffing challenges, environmental problems related to weather or traffic, or unexpected delays in clinic/office operations. In any case, a new plan is needed, and it generally takes a very short amount of time once "the right people" (generally multidisciplinary) gather for a "huddle."

The focus might be on developing quick evaluation plans for some patients. This is not rocket science, and most ambulatory staff members already do meet to solve problems. Giving it a name, clarifying the purpose, making it a standard process in the work day, distinguishing it from a "meeting" or "brief," and mimicking the speed and efficiency of a sports huddle allow people to trust that it will be ultrafocused and ultrabrief, yet effective in solving the problem(s).

Much that is written about huddles does not distinguish the rapid huddle, just described, from a pre-procedure briefing, a short safety meeting,[62] a process-improvement PDSA event,[63] or a brief prior to a shift, case, or day. Some authors have used the term huddle for the time-out prior to a procedure, as per the Universal Protocol.[64] This interdisciplinary event, immediately prior to the procedure, verifies the correct patient, correct site/side, the intended procedure and possibly the correct implant. It is useful to distinguish among a brief, huddle, and time-out, each of which adds significant value to the care quality and safety for patients in many venues, including ambulatory settings.

The team huddle is powerful and effective, but the keys are: short, patient-focused, efficient, problemsolving, information sharing, and action oriented. The huddle is a tool for getting the team to work together effectively; it is easy to implement and a great team-builder. Huddles can change a practice, improving teamwork and communication on behalf of patient care quality and safety. These team events become partial solutions to the ambulatory error chain by proactively sharing information, clarifying patient care issues, providing back-up behaviors with nurses, technicians, and providers, and helping each other with error avoidance.

Debriefs. The debriefing process is central to improving team performance, yet it is seldom used in health care, in marked contrast to other high-reliability teams and high performance teams, for

which debriefing is expected and used routinely. Although supervisors typically give individual performance feedback to employees as a managerial function, the idea of high quality feedback, in real time, focused on team performance, is foreign to most health care team operations, with the exception of code team or resuscitation team debriefs.

When communication and feedback are open, fair, respectful, and focused on team performance improvement, the enhanced learning environment creates remarkable opportunities for the team to improve. A report describing benefits of the debriefing process[65] in the operating room and intensive care unit settings, indicated a rapid spread to hospitalwide implementation following a grand rounds and information campaign. In aviation, the crew debriefs after every flight so as to incorporate lessons learned in real time. In health care, there is great opportunity to increase use of debriefs with very little burden, with the benefits being improvement in team performance.

In the ambulatory environment, making these team events—briefs, huddles, and debriefs—the usual way of working together could result in improved care, decreased error, learning from mistakes and near misses, and possible disruption of the error chain for the problems of missed diagnoses, medication errors, and ineffective communication that are so prominently presented in the literature and medical-legal arena.

Communication: Closed loop and structured techniques. Communication skills are the lifeblood of teamwork, yet communication failures[66, 67] are the root cause of nearly 70 percent of sentinel events reported to The Joint Commission.[68] When information is critical, it should be verified so that both the sender and receiver clearly have the same understanding of the situation. For the pilot cleared by the air traffic controller to ascend to 35,000 feet, the "check-back" includes an exact identifier for that specific plane/flight and a restatement of what was heard, "cleared to three-five thousand feet."

For medication orders—given verbally in an emergency or written for routine orders, even in the ambulatory setting[69]—an exact repeat of the patient, medication, dose, and route of administration and a further acknowledgment of accuracy by the original sender complete the verification process. After the order, the nurse says, "Let me repeat that. Mrs. Getta Medication, ID number (stated) to receive 40 (four-zero) milligrams of drug X-Y-Z subcutaneously now." "Yes, that's correct." This process is easy to do but requires some discipline. Institutionalizing the process in one's practice avoids some of the problems with wrong medication, wrong dose, wrong person, and wrong route problems that may result in ADEs.

For telephone orders, actually writing down the exact order then reading back what is written and verbally acknowledging accuracy completes the "read-back" and ensures accuracy of the information exchange. Read-backs have also been effective in giving and receiving critical lab values[70] and other reports, with minimal time investment. Simple advice: agree as a team what key operational orders will be checked/read back, practice doing this, and take pride in checking back and verifying that what was heard was exactly what was said. Another part of success with this process is for the receiver to speak up if there is any concern with the order creating a quality or safety problem.

In many organizations, staff members use a tool known as the "two-challenge rule," in which the receiver states two times, if necessary, the safety concern, and the sender is obligated to

acknowledge the concern. Typically, a misstated dose or erroneous drug order results from a momentary lapse or slip, and the sender is appreciative of the assistance and avoidance of error. This is particularly true when the team has agreed to the process, practiced it, and all members see the direct benefit to patient care quality and safety by taking the "ego problem" and hierarchy out of the interaction. Using these methods of closed-loop communication methods, check-backs, and read-backs offer the benefits of redundancy and engagement to decrease medication errors.

Structured communication and handoffs: SBAR. A key lesson from high-reliability organizations is to standardize processes to decrease error and improve performance. SBAR (**S**ituation, **B**ackground, **A**ssessment, and **R**ecommendation) is a structured communication technique that allows information to be packaged in an expected and accepted format, which is concise, pertinent, and well-framed for the receiver of the information. SBAR is a superb tool[71] for updating clinical circumstances or relating patient information. In the ambulatory setting, among DoD personnel, SBAR has been used effectively in emergency transport settings, provider-to-provider, nurse-to-provider, technician-to-provider, and telephonically in nearly every clinical scenario.

The following is an example of a telephonic communication using SBAR:

S   **SITUATION**: This is (medic) John Smith in the field. I'm calling about a patient we are dressing and splinting for transport shortly to your clinic with an apparent isolated open

B   fracture of the left ankle. **BACKGROUND**: Mr. XXX is 22 years old, otherwise healthy, who was playing basketball, twisted his ankle and fell. **ASSESSMENT**: Open fracture of

A   the ankle. The alignment is satisfactory, and the pulses and sensation are normal, and the

R   pain level is tolerable, now that the splint is on. **RECOMMENDATION**: We will keep the patient from eating, have the leg at neutral elevation, run the IV at 100cc/hour, and transport in the next 5 minutes to your location. Tetanus status is up to date, but on arrival, suggest IV antibiotics, immediate x-ray, repeat neuro-circ checks, and immediate orthopedic consultation for wound and fracture care. We'll monitor for any other injuries.

This is a tool that allows concise, focused transfer of information. SBAR may need to be expanded with disease-specific, age-specific, or circumstance-specific agreed upon data sets for handoffs and referrals for more complicated patients. Clinicians in both inpatient and outpatient settings are designing handoff and referral forms based on SBAR or the mnemonic I PASS THE BATON.[72] For the perioperative arena, including ambulatory surgery, the Association of peri-Operative Registered Nurses (AORN) has provided online examples of handoff tools prepared by its members.[73]

Clinical Team Leadership and Membership

The major goals of health care teamwork are to reduce clinical error, enhance patient outcomes, improve process outcomes, raise the level of patient and staff satisfaction, and reduce

malpractice claims. While these are admirable goals, how does a clinic or office begin to apply the strategies and tools that teamwork science suggests are effective? Much is written about models for change.[44, 74] Consistently recommended, key in the TeamSTEPPS curriculum, and fundamental to success in implementing and sustaining teamwork innovations are the actions of clinical leaders.[75]

As a strategy, frontline physicians, nurses, and other professionals in the ambulatory setting have a great opportunity to fully understand the problems/solutions, create a vision for staff related to quality and safety, demonstrate the "will" and cultivate staff buy-in for change, keep the patient and family central to the process changes, commit time and resources to the change effort, and encourage the open feedback that improves care delivery and team performance. The role of an effective team leader is to organize the team, articulate clear goals (e.g., via briefs), make decisions with collective input from the team, empower members to speak up on behalf of patient safety, promote and model good teamwork, encourage feedback about team performance, and develop the team's ability to handle conflict.

In turn, effective team members are better able to predict the needs of others on the team, including the patient. They are better able to provide quality information and feedback and engage in higher level decisionmaking. Once trained, they manage conflict skillfully and clearly understand their roles and responsibilities (clarified by the leader). When effective members are led by team-committed leaders, the behavioral evidence strongly suggests improvement in team performance. When teamwork knowledge, skills, and attitudes improve, patient care quality and safety are enhanced, and the known errors and problems described earlier potentially can be avoided or mitigated by disrupting the error chain.

Discussion and Conclusion

For the ambulatory health care setting, the opportunity is ripe for comprehensive change, much of which will depend on the clinicians working as teams, both for care delivery and for quality improvement efforts. Both of these efforts depend on working together effectively and using principles founded on teamwork science. In applying team strategies, tools, behaviors, and principles in DoD and civilian facilities around the world, it has been helpful to clarify the problems faced in the ambulatory setting: delay and missed diagnoses, delay in proper treatment and preventive care, medication errors and ADEs, and communication and information flow problems affecting patient care quality and safety along the continuum of care.

Because of the complexity and the inability to correct all of the problems at once, the rational approach is to seek meaningful interventions that will target portions of the error chain. Within the resources that constitute TeamSTEPPS reside numerous evidence-based strategies and tools, which have the potential to improve many of the practices that have made the ambulatory environment difficult and error prone. Usable tools and strategies are described—real opportunities, with relatively low burden—for ambulatory clinicians to adopt and use on behalf of patient care quality and safety. Each targets a portion of the error chain and offers countermeasures to aid in the prevention, avoidance, and mitigation of medical error and help tocreate a safer environment for patients and families.

Author Affiliations

TRICARE Management Activity, Office of the Chief Medical Officer, Falls Church, VA (Dr. Webster, Ms. King, Ms. Toomey); The Cedar Institute, Inc., North Kingstown, RI (Ms. Salisbury); Healthcare Team Training, LLC, Peachtree City, GA (Mr. Powell); General Dynamics Information Technology, Houston, TX (Ms. Craft); American Institutes for Research, Washington, DC (Dr. Baker); Department of Psychology, University of Central Florida, Orlando, FL (Dr. Salas).

Address correspondence to: John S. Webster, MD, MBA, 5611 Kiowa Drive, La Mesa, CA 91942; e-mail: jsweb@cox.net.

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