THE COMMONWEALTH FUND

Case Study

Keeping the Commitment: Progress in Patient Safety

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Advancing Patient Safety in the U.S. Department of Veterans Affairs

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Issues Research, Inc.

ABSTRACT: As part of a systemwide transformation, the VA formed its National Center for Patient Safety to foster an organizational culture of safety within its nationwide network of hospitals and outpatient clinics. A recent medical team training program designed to improve communication among operating room staff was associated with a reduction in surgical mortality and improvements in quality of care, on-time surgery starts, and staff morale. The program is now being expanded to other clinical units, along with a patient engagement program that prevents errors by facilitating communication relating to patients' daily care plans. A recognition program stimulated facilities to conduct timelier and higher-quality root-cause analyses of reported safety events to identify stronger actions for preventing their recurrence. Other initiatives have reduced rates of health care–associated infections, patient mortality, and post-operative complications. Success factors include leadership accountability for performance and organizational support for testing, expanding, and adopting improvements.

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OVERVIEW

In the decade since the Institute of Medicine (IOM) issued its landmark report *To Err Is Human,* there have been a number of successful efforts to improve patient safety in the United States.[1] Nevertheless, the nation appears to be far from realizing the goal of eliminating the harm inflicted on some patients by care that is meant to help them.[2] A series of Commonwealth Fund case studies conducted on the fifth anniversary of the IOM report identified several health care organizations that had taken promising steps toward realizing one of the IOM's key recommendations: creating an organizational culture of safety.[3]

This case study, part of a new series documenting the progress that can be achieved with sustained effort, provides a fifth-year update on patient safety initiatives at one of the sites profiled earlier: the U.S. Department of Veterans

Affairs (VA).[4] The VA's National Center for Patient Safety has led a decade-long effort to equip staff with the analytic tools and know-how to improve patient safety. The center recently tested and implemented a series of team-training programs, adapted from the aviation industry, to help staff develop an attentiveness to situations in which human errors can occur as well as teamwork skills for effectively communicating safety concerns and correcting unsafe conditions.

Early results of team training for operating room staff, following implementation of checklist-guided preoperative briefings and postoperative debriefings, include significantly improved staff perceptions of safety, a 50 percent greater reduction in risk-adjusted surgical mortality at trained versus untrained facilities, a 12 percent increase in the provision of treatment to prevent blood clots, increased on-time surgery starts, and a 33 percent decline in nursing turnover. In a related pilot program to engage patients in safety, floor nurses reported that errors were averted on 21 percent to 35 percent of shifts during which patients were educated about their daily plan of hospital care.

The VA also established an Inpatient Evaluation Center and a Surgical Quality Improvement Program to develop valid and comparable measures of patient outcomes at the facility level, as well as resources for clinicians and managers to improve performance over time. This capability supports patient safety and quality improvement initiatives that have contributed to:

- a more than threefold reduction from 2006 to 2010 in rates of device-associated bloodstream infections and pneumonia in intensive care units (ICUs);
- a 76 percent reduction in antibiotic-resistant health care–associated infections in ICUs and 28 percent lower rates in other acute-care units from 2007 to 2009;
- reductions in hospital and 30-day mortality rates of 20 percent and 33 percent, respectively, among ICU patients between 2002–2004 and 2010; and
- reductions in 30-day postoperative mortality and morbidity rates of 59 percent and 51 percent, respectively, between 1991 and 2009.

> "We must and will transform VA into the high-performing, well-disciplined, transparent, and accountable organization we know it's capable of being. Three hundred thousand good people come to work every day to serve veterans. We must focus all of their efforts on providing veterans the highest quality and safety in benefits and services."
>
> *Secretary Eric K. Shinseki, Department of Veterans Affairs, Strategic Plan, June 2010*

A culture of attentiveness to patient safety appears to be taking hold. For example, in a recent survey, VA staff gave significantly higher ratings to some important dimensions of their facility's safety culture, such as senior management's awareness of risks to patient safety and actions taken to promote safety. A facility recognition program, meanwhile, has led to a doubling over four years in the proportion of root-cause analyses completed in a timely manner following reported safety incidents, and in analyses that identified stronger actions with metrics and management support for improvement. And there was a fivefold increase from 2000 to 2010 in analyses undertaken on a discretionary basis.

The VA's commitment to improving patient safety and quality of care has given rise to a number of approaches: holding leaders at multiple levels accountable for adopting system improvement, while also recognizing their successes in doing so; improving communication and teamwork so that staff are empowered to voice concerns about safety; and providing individual facilities with training, practical tools, data feedback, coaching, and opportunities to initiate and participate in safety-improvement pilot programs that may be expanded within a facility and throughout the VA as a whole.

ORGANIZATIONAL CONTEXT FOR PATIENT SAFETY IMPROVEMENT

Organization

The Veterans Health Administration, a component of the U.S. Department of Veterans Affairs, operates the nation's largest publicly funded integrated health care system, serving 5.8 million patients in 1,400 care sites located in every state, the District of Columbia, and some U.S. territories. Facilities include 153 VA medical centers, 783 community-based outpatient clinics, and 135 nursing homes, as well as residential rehabilitation treatment programs, readjustment counseling centers, and home-care programs. During the 1990s, the VA health care system was decentralized into 21 regional networks throughout the U.S. that manage funding and provide accountability to individual sites (Exhibit 1).[5]

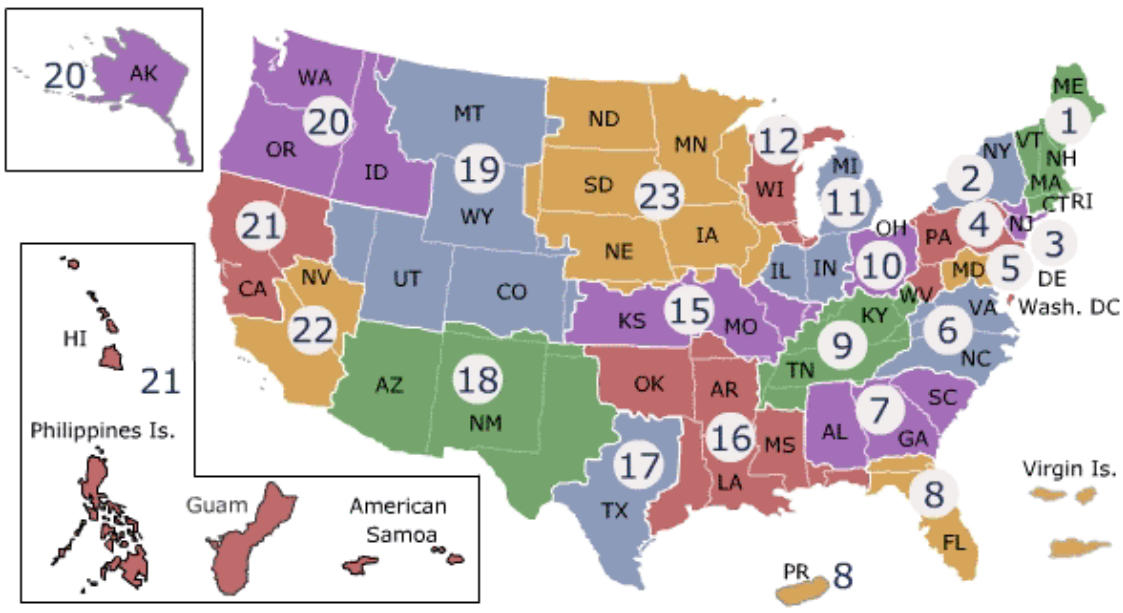
More than 8 million of the nation's 23 million veterans have enrolled to receive services from the VA. Access to care is prioritized based on veterans' service-connected disabilities and exposures, income, and other factors. Hence, many veterans who receive health care from the VA also receive services from other providers. The VA essentially acts as a safety net for veterans' health care; those who depend on the VA for care tend to be sicker and older, with lower incomes than the general population.

Responding to widespread concerns about the quality of care in its facilities, the agency undertook a transformation during the 1990s to reorient its health care system toward higher performance, while at the same time shifting its focus toward outpatient primary care.[6] The VA was an early leader in developing a systemwide electronic health record (EHR), which enables performance measurement and accountability for improvement.[7] A recent study found that adherence to recommended processes of care was generally better in the VA than in other care settings in the U.S., while rates of risk-adjusted mortality were similar.[8]

Laying the Foundation

Patient safety has been an important thrust in the VA's transformation efforts since 1997—two years before the publication of *To Err Is Human*—and is one aspect of the agency's strategic plan for veteran-centric care.[9] In 1999, the VA created its National Center for Patient Safety (NCPS) under the direction of James Bagian, M.D.,

Exhibit 1. Veterans Integrated Service Networks



Source: U.S. Department of Veterans Affairs.

its recently retired chief patient safety officer. Based in Ann Arbor, Michigan, the NCPS develops and disseminates programs that engage frontline staff and management in systems learning by encouraging safety event reporting without punishment—which in turn requires distinguishing errors from blameworthy acts—and by providing training and tools to help staff analyze the causes of errors and identify effective means of preventing them. (These efforts have been described in previous reports.[10])

The VA's patient safety efforts are noteworthy in that they have the potential to influence medical practice both in the U.S. and abroad. The vast majority of physicians trained in the United States receive at least some of their residency training within the VA system, which exposes them to the VA's approach to patient safety through participation in activities such as grand rounds (medical education sessions attended by physicians and medical residents to discuss illustrative patient cases) and the team-training programs described below. The VA and the NCPS also developed Patient Safety Curriculum Workshops that train faculty to teach patient safety principles and techniques to medical residents and students.[11] The VA's tools, methods, and/or educational materials have influenced, and in some cases been adopted by, safety programs in Australia, Denmark, Sweden, the U.S. Department of Defense, and private health care systems throughout the United States, according to the NCPS.

STRATEGIES AND TOOLS FOR CHANGE

This report focuses on several recent efforts to improve patient safety at the VA, which are first described in general and then illustrated through the example of the James H. Quillen "Mountain Home" Veterans Affairs Medical Center in rural Johnson City, Tennessee. These efforts include:

- medical team training to institute checklist-based briefing and debriefing methods in operating rooms and intensive care units;
- nursing crew resource management training to enhance communication and teamwork around critical nursing tasks in general patient care units; and
- the "Daily Plan," which educates and actively involves patients in helping to ensure safe and patient-centered care.

Medical Team Training

In 2006, the NCPS, under James Bagian, began systemwide implementation of a medical team training program that it had been pilot-testing since 2003, with an initial focus on operating rooms and intensive care units.[12] Bagian had purposefully delayed implementing the program across the VA until after the organization had accomplished other key goals, such as achieving widespread use of safety event reporting and effective root-cause analyses of critical events. "You have to have a base level of understanding or acceptance of safety culture to even start to do it," he notes.

The VA adapted its medical team training program from the crew resource management (CRM) concept used in the aviation industry to improve communication, leadership, and decision-making in airline cockpits, where human error can have devastating consequences.[13] CRM emphasizes the need to anticipate human performance limitations and to adopt countervailing behaviors and techniques—such as assertive inquiry by crew members when they observe potential safety threats—to prevent mistakes or mitigate their effects. The VA focused its medical team training on improving communication among staff, since communication problems had been implicated in three-quarters of safety incidents examined across VA facilities.[14]

The NCPS implemented the medical team training program in three phases at each VA facility (as described below). This approach reflected the national faculty's belief—subsequently validated by experience—that adequate preparation and follow-up mentoring would be essential to achieve successful behavior change.[15]

1. The participating facility formed a local implementation team consisting of key medical, nursing, and administrative leaders as well as

frontline providers. National program faculty held preparatory calls with the local team to discuss the program and help develop a project plan (including metrics) for improving communication at the facility.

2. The facility hosted a day-long interactive training session conducted by national faculty, during which the operating suite was closed to elective cases so that all staff would be available to participate (Exhibit 2). The training featured lectures, discussions, role-playing, video, and simulation to demonstrate both effective and ineffective communication scenarios, to teach communication skills such as voicing safety concerns, and to introduce tools such as briefings guided by a checklist. Following the training, the implementation team planned next steps with the goal of instituting briefings within 72 hours.
3. The national faculty conducted quarterly telephone follow-up consultations with the local team for one year to assess the progress of implementation and to offer coaching and advice on how to overcome obstacles and achieve success.

VA facilities use the checklists in two ways: 1) to guide preoperative briefings to ensure that team members have a common understanding of the specific plan for an operation; and 2) to guide postoperative debriefings in which team members assess problems for correction, such as defective equipment in need of repair, and opportunities for improvement. The ability to identify and fix problems proves very effective in overcoming skepticism and convincing staff about the usefulness of the briefing and debriefing process, Bagian notes.

The checklist was an important tool for standardizing procedure within each facility, but the VA eschewed a mechanistic approach to its use. "The briefings and debriefings create a conversation where communication can be far richer and [more] comprehensive than simplistic use of a checklist in a rote manner," Bagian says. Each facility developed its own checklist (using a whiteboard, paper document, or electronic display) based on its specific needs, though the NCPS offered guidance by developing a national template based on elements commonly used across the initial sites (Appendix A). Local customization "makes it more readily accepted and gives it a higher utility" for the local care teams, Bagian says. He notes that this process resulted in a checklist that anticipated the "spirit and intent" of the surgical safety checklist recently developed by the World Health Organization, while also being more comprehensive in its approach.[16]

Results of Medical Team Training. By 2009, medical team training had been implemented in operating rooms and intensive care units in virtually all of

Exhibit 2. VA Medical Team Training: Key Content

Communication Techniques

- "Feel the Pinch, Speak Up"
- "Read Back"
- "Call Out"
- "Assertiveness"

Patient Safety Tools

- Briefings and Debriefings
- Structured, Standardized Handoffs
- Interdisciplinary Patient-Centered Rounds
- Administrative Rounds

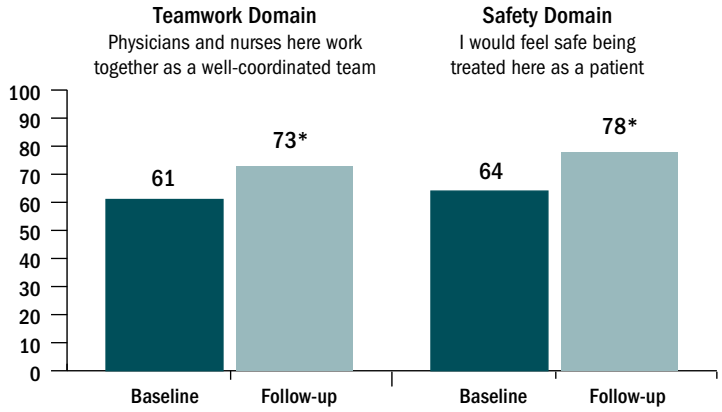
Source: VA National Center for Patient Safety.

the 130 VA medical centers that provide surgical services through on-site training, involving almost 14,000 staff members. The NCPS evaluated the clinical and operational effects of the program through quarterly follow-up phone calls to the training sites, staff surveys, and standardized outcomes data collected by the VA Surgical Quality Improvement Program (described below).

All facilities implemented surgical briefings, although smaller facilities were more likely to do so across all surgical cases and services.[17] Based on the observations of program faculty, the strongest predictor of a successful uptake and dissemination of surgical briefings within a facility was the involvement of the facility's leadership at the time of the on-site training session.[18] Involvement of the operating room nurse manager in the planning stages of the program also led to higher rates of briefing implementation.[19] Most facilities (95%) reported implementing at least one other related activity such as administrative briefings, interdisciplinary rounds in patient units, or other structured communication techniques. Results to date include the following:

- **Improved teamwork.** Eighty-two percent of the operating room staff surveyed using the *Safety Attitudes Questionnaire* reported that teamwork improved.[20] Across 37 of the facilities that were the first to implement training, surgical staff ratings of patient safety and teamwork improved significantly from the baseline period prior to training through the follow-up period nine to 12 months later (Exhibit 3).
- **Improved quality of care.** Across 74 of the facilities that first implemented training, receipt of treatment to prevent blood clots increased from 85 percent of patients before training to 95 percent after training; timely receipt of prophylactic antibiotics increased from 92 percent to 97 percent of patients.[21] Most facilities reported a "success story" or the prevention of at least one undesirable event as a result of checklist-guided briefings.
- **Improved efficiency.** Operative time per case decreased in 29 percent of 110 facilities surveyed; on-time surgery starts for the first case of the day increased in 54 percent of the facilities; and 63 percent reported better use of equipment. Moreover, most operating room staff surveyed (79%) agreed that efficiency had improved.
- **Improved staff morale.** Nursing turnover decreased by one-third in the year following team training at initial sites, from 9 percent to 6 percent in 45 operating rooms and from 12

Exhibit 3. Effects of Medical Team Training in the Operating Room: Safety Attitude Questionnaire Scores



*p < 0.05 paired, students t-test.
Source: VA National Center for Patient Safety, N=37 Facilities and 3,138 Safety Attitudes Questionnaires.

percent to 8 percent in 35 surgical intensive care units.

- **Improved patient outcomes.** The 30-day postoperative mortality rate declined by 18 percent over one year among 74 VA facilities that implemented medical team training in 2007 and 2008, as compared to no significant decline among 34 facilities that had not yet been trained. The reduction in risk-adjusted mortality was 50 percent greater in the trained facilities after controlling for potentially confounding factors. The intervention exhibited a "dose-response" effect—facilities with longer periods of implementation and greater reported use of checklist-guided surgical briefing and debriefing had lower mortality rates (Exhibit 4).[22,23]

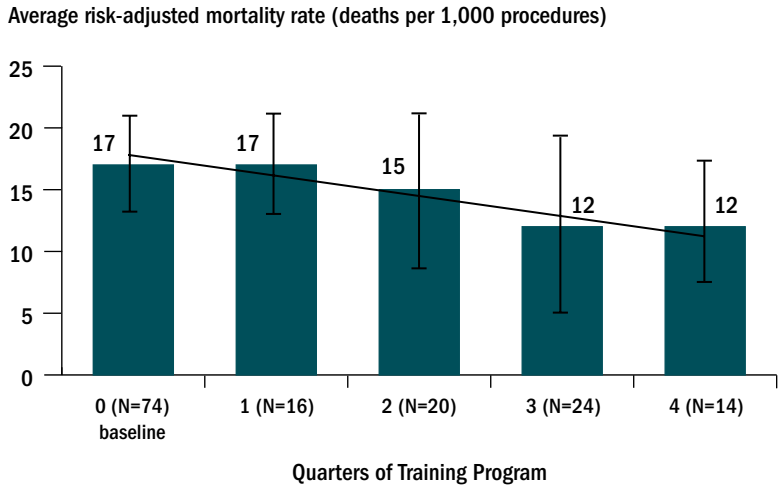
Bagian believes that pilot-testing the CRM program before implementing it systemwide allowed for the creation of an effective program that was widely accepted by participants. Staff surveys bear this out: 90 percent of participating staff report that CRM training is a good idea. This experience appears to validate the hypothesis that safety principles of the aviation industry can be successfully adapted to health care and that communication and teamwork skills are important to ensuring good patient outcomes.

Extending the Teamwork Approach: Nursing Crew Resource Management

In the summer of 2009, the VA expanded its CRM strategy to reach additional patient care units. A team of nurses led by Gary Sculli, R.N., M.S.N., who had experience using and teaching aviation CRM as an airline pilot, developed a nursing CRM program geared toward frontline nurses. The goal of the program is to enhance patient safety by improving the communication and teamwork essential to critical nursing tasks. The NCPS selected 10 of the 40 pilot sites that applied to test the program. (The experience of one of those pilot sites is described on page 10.)

NCPS staff conducted a six-hour interactive learning session at each pilot site. The training used simulations of common clinical scenarios to educate nurses on risks to patients and how to reduce them by maintaining situational awareness, using tools such as checklists and briefings, improving communication about patient care, and avoiding distractions during

Exhibit 4. Relationship Between Medical Team Training and 30-Day Postsurgical Mortality at 74 Veterans Affairs Medical Centers



 Note: Quarters represent implementation of checklist-guided briefings following receipt of medical team training (baseline = no training). Mortality was defined as patient death in or out of the hospital from any cause within 30 days after a major noncardiac surgical operation performed at the VA medical centers. Linear trend line was fitted to the average risk-adjusted mortality rate (N=5). Error bars indicate 95% confidence intervals.
Source: J. Neily, P. D. Mills, Y. Young-Xu et al., "Association Between Implementation of a Medical Team Training Program and Surgical Mortality," *Journal of the American Medical Association*, Oct. 20, 2010, 304(15):1693–700.

Exhibit 5. Nursing Crew Resource Management Training Topics/Modules

1. Introduction: Crew Resource Management and the Culture of Safety
2. Leadership, Teamwork, and Communication
3. Situational Awareness
4. Briefings, Debriefings, and Checklists
5. Distractions and Fatigue
6. Simulation

Source: VA National Center for Patient Safety.

critical tasks (Exhibit 5). Following the training, each pilot site implemented at least one CRM-based tool.[24]

The training program introduces two general types of checklists. "Read and verify" checklists serve as a quick reference to ensure that all appropriate steps are completed for normal and routine tasks, such as inserting intravenous lines (e.g., as a reminder to dispose of needles properly and remove the tourniquet from the patient's arm when done). "Read and do" checklists are meant to be used as a step-by-step guide to ensure an effective response to unusual or "abnormal and emergent" events, such as deteriorating vital signs in an unresponsive patient. In general, checklists are designed to:

- standardize procedures and guide clinical actions and decisions in order to reduce errors of omission and commission,
- guide less-experienced staff in appropriate technique,
- increase situational awareness, and
- increase accurate clinical assessments and decisions.

One of the "human factors" addressed by nursing CRM is the asymmetric communication styles adopted by individuals within a professional hierarchy, whether among captain and crew in airline cockpits or among physicians and nurses in health care settings.[25] Junior staff are often hesitant to "speak up" to authority, leading them to adopt a communication style of "hinting" at what is meant and "hoping" that the meaning is taken. Likewise, those in authority often fail to listen to and consider the concerns of subordinates, with serious implications for safety. CRM seeks to reduce this authority gradient through assertive communication techniques that help all members of a team focus on safely and reliably completing a common task (Exhibit 6).

Early Results and Next Steps. Pilot sites such as the Mountain Home VA report that nursing CRM is improving teamwork and communication in nursing units and that nurses are asking for more tools to support their improvement efforts. The program's effect will be formally measured through the use of a nursing questionnaire, the VA's *Survey of Healthcare Experiences of Patients*, and a distraction observation tool. Based on experience with other similar programs, anticipated outcomes may include reduced distractions and errors during critical tasks, improved task efficiency, and increased patient and staff satisfaction.[26]

The VA is planning to broaden the program's scope to encompass a clinical team-training initiative geared toward all staff with a direct or indirect role in patient care on medical/surgical floors. "We envision our health care being delivered by a team that includes nurses, unit clerks, even the housekeeping staff on the ward…as well as the physicians," says William Duncan, M.D., Ph.D., the VA's associate deputy undersecretary for health for quality and safety. "You have to improve communication between everybody on the team" to realize the full potential of such a program, Duncan says.

Exhibit 6. Example of Assertive Communication Using the "Three Ws"

A physician orders an intravenous fluid infusion for a patient. Upon assessment, the registered nurse notes that the patient is developing respiratory distress. The nurse notifies the physician using a communication technique called the three Ws:

- *What I see:* a patient who is short of breath.
- *What I am concerned about:* possible fluid overload if the intravenous fluids are administered.
- *What I want:* that you assess the patient prior to administering intravenous fluids.

The outcome is the discontinuation of intravenous fluids, early intervention for respiratory distress, and the prevention of further complications.

Source: VA National Center for Patient Safety.

The Patient's Role in Patient Safety: The Daily Plan

The NCPS initiated a pilot program, led by Beth J. King, R.N., B.S.N., M.A., at six local sites in 2007 to see if informing patients daily about their plan of care would increase their participation in care planning and identify opportunities to prevent errors, whether of omission or commission. "We wanted patients to be involved in their care and in safety," said Amanda Fore, R.N., M.S., nurse coordinator and program analyst for the VA's NCPS, "but we realized that oftentimes they didn't know what to say because they didn't know what was going to happen to them in the hospital."

In response, the VA developed the Daily Plan to facilitate direct, purposeful communication between the patient and the medical team. At a typical pilot site, such as the Mountain Home VA Medical Center in rural Johnson City, Tennessee, a floor nurse will check a patient-specific printout or "itinerary" generated by the VA's EHR and then sit with the patient to review his or her Daily Plan for the day (patients may choose not to participate). The patient is given a copy to keep in an envelope by the bedside. The Daily Plan includes:

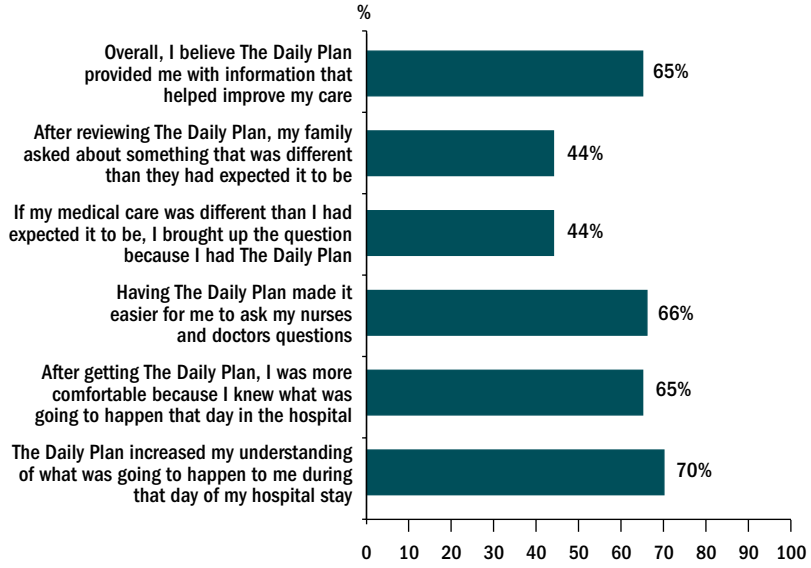
- what medications are to be administered, and when,
- which tests or procedures are scheduled,
- dietary needs as they affect meals, and
- laboratory tests to be done.

Nurses encourage patients to share the information in the Daily Plan with family and to ask questions and raise concerns about its accuracy. The process empowers patients (and family members) to speak up when they observe that something is not going as planned, such as when an expected test is not done or when an unexpected medication is given. It also helps patients set expectations about their stay, such as knowing when they will be skipping a meal because of a scheduled test. The Daily Plan can also facilitate shared decision-making with patients, as physicians and medical residents make daily patient rounds, especially regarding changes in medications during the course of the hospital stay.

Results of the Daily Plan. The initial pilot demonstrated that patients liked receiving the Daily Plan and that it was an effective tool for preventing medical errors. VA nurses at five pilot sites reported that on 21 percent to 35 percent of shifts during which the Daily Plan was employed, errors of commission and omission were averted through the collaborative interaction of the patient and the nurse.[27] For example, the Daily Plan identified and helped to correct or prevent errors such as incorrect allergy information, unintended exams, incorrect medication orders, and misidentified next-of-kin for emergency notifications.

In a survey of patients who volunteered to complete an anonymous evaluation, 70 percent agreed that the Daily Plan increased their understanding of what

Exhibit 7. The Daily Plan: Patient Perceptions at Five VA Medical Center Pilot Sites



N=108 patient responses.
Source: VA National Center for Patient Safety.

was going to happen to them that day (Exhibit 7). Two-thirds agreed that they were more comfortable because they knew what was going to happen that day, that the Daily Plan made it easier to ask questions, and that the Daily Plan provided information that helped improve their care. Moreover, 44 percent reported asking about discrepancy between planned and actual care, and 44 percent reported that a family member had done so. Feedback has been consistent from surveys conducted in a second phase of the intervention in which additional pilot sites joined the program.

The Daily Plan is now being used in 30 VA facilities nationwide and work is underway to improve its usability for both patients and staff.

TAKING SAFETY TO THE LOCAL LEVEL: THE CASE OF MOUNTAIN HOME

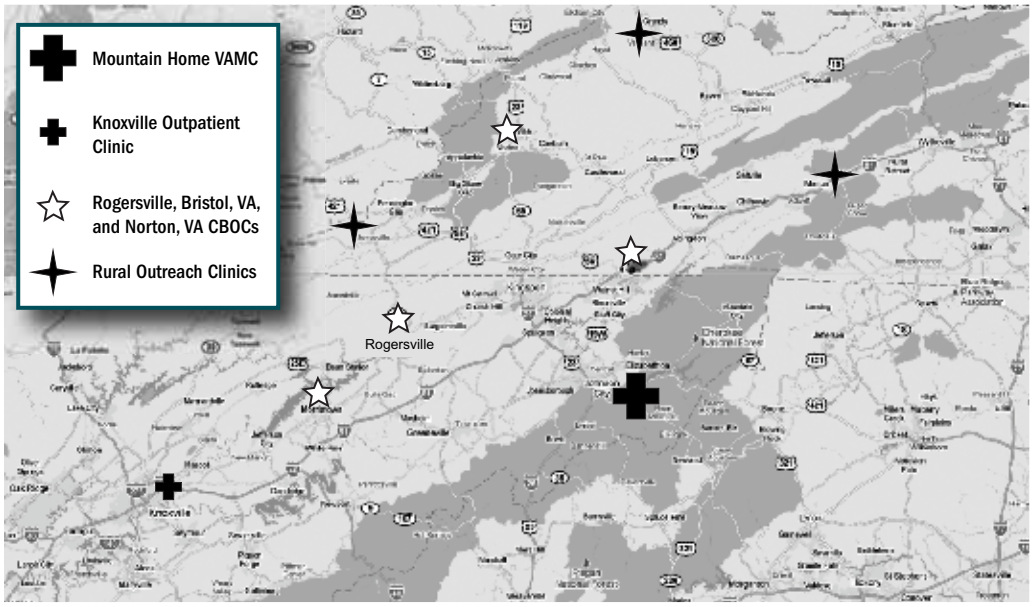
The ultimate success of the VA's national programs depends on their uptake within the VA's individual facilities. To illustrate that relationship, this report offers a closer look at one of those facilities: the James H. Quillen Veterans Affairs Medical Center, in rural Johnson City, Tennessee (population 62,000) (Exhibit 8). The medical center, known as Mountain Home in recognition of its origins as a soldiers' home, has embraced the safety strategies and tools offered by the VA's national office and in so doing has promoted the transformation of its local organizational culture and practices to emphasize patient safety.

Instituting Surgical Briefings at Mountain Home

The Mountain Home VA medical center completed medical team training in January 2008, and implemented preoperative briefings and postoperative debriefings guided by a paper checklist. For the preoperative briefings, all surgical team members participate in a short meeting in the operating room just prior to anesthesia induction. The briefing strengthens the team's situational awareness through checklist-guided items (Appendix B) that:

- highlight vital patient characteristics such as medication allergies,
- verify the readiness of needed equipment and supplies,
- assure that standard infection prevention protocols have been followed, and

Exhibit 8. Mountain Home VA Service Area



Note: CBOC = Community-Based Outpatient Clinic.
Source: U.S. Department of Veterans Affairs.

- review the fire safety risk (for example, related to the use of oxygen).

Conducting the briefing before the patient is anesthetized allows time to correct any last-minute problems, such as missing equipment, or to cancel the surgery if necessary without putting the patient at risk, according to Brenda Collier, R.N., M.B.A., the operating room nurse manager. A subsequent time-out, conducted by the circulating nurse in the operating room just prior to the surgical incision, allows the team to reverify critical information (e.g., patient, procedure, and surgical site) as required under the Joint Commission's universal protocol.

The surgeon leading the briefing offers all staff members the opportunity to raise questions or concerns. "Surgeons used to be captain of the ship," says surgeon Thomas Scott, M.D., who had prior experience with CRM during a tour of duty in the military. "Now, we have a classroom structure that empowers everyone to question or stop." Staff also call for a "safety check" during longer surgeries where everyone in the operating room pauses to verify critical issues such as antibiotics, patient glucose levels, and other patient vital signs as well as equipment functioning.

During debriefings, which are led by a registered nurse immediately following the surgical procedure, team members are encouraged to raise issues they noticed during surgery, without fear of criticism. Any problems or potential problems are analyzed with the goal of identifying and correcting minor issues before they become major ones.[28] The facility also identifies improvement needs by analyzing standard data on patient morbidity and mortality derived from its participation in the VA Surgical Quality Improvement Program.

Mountain Home implemented interdisciplinary administrative briefings following medical team training. The surgical team—including the head surgeon, surgical nurse, and technician—and a supply, processing, and distribution (SPD) representative meet biweekly to ensure that everyone is prepared for each surgical procedure scheduled for the following two weeks. The meetings allow the team to resolve equipment, scheduling, and staffing issues, offer opportunities for staff to ask questions, and allow for organized discussion of and planning for postsurgical needs. The day before the surgery, key staff members meet again to confirm the surgical case lineup as well as supply and/or equipment needs. The team reports that

The VA's Mountain Home Medical Center

The Mountain Home VA medical center includes a 114-bed teaching hospital that annually admits 5,300 patients and conducts 4,130 surgeries. It also provides outpatient and long-term care on its campus and operates five community-based outpatient clinics in outlying cities and towns, linked by the VA's EHR. Altogether, the medical center and affiliated clinics employ 2,000 full-time-equivalent staff, including 566 nurses and 162 physicians, serving 194,000 eligible veterans living in a 41-county area encompassing portions of northeast Tennessee, southeast Kentucky, western North Carolina, and southwest Virginia (Exhibit 2). Mountain Home VA is affiliated with East Tennessee State University's Quillen College of Medicine, which the VA helped develop on the Mountain Home campus.

these briefings have improved care coordination and decreased delays and cancellations of surgical cases.

Surgical briefings at Mountain Home have achieved results similar to those seen nationally, according to the facility's leaders. For example, nursing turnover rates declined from 19 percent to 2 percent among nursing staff in the operating room and post-anesthesia care unit in the period from 2008 through 2010. Cumulative starting time delays fell 90 percent in the main operating room, from a total of 11 hours and 43 minutes at the end of the third quarter of fiscal 2008 to a total of one hour and 13 minutes by the end of the third quarter of fiscal 2010.

Pilot-Testing Nursing Crew Resource Management at Mountain Home

The NCPS trained 200 Mountain Home staff on nursing CRM in March 2010, most of whom were nursing staff assigned to the pilot unit. Other clinical staff, including physicians, pharmacists, and social workers (as well as nursing faculty from East Tennessee State University), also attended to learn about the program. According to nursing leaders, this team learning approach—combined with many physicians' prior exposure to CRM through the medical team training program—created the supportive environment that nurses needed to adopt CRM principles in their interactions with the medical staff.

Mountain Home nurses chose to focus their yearlong nursing CRM project on implementing a "sterile cockpit" paradigm in an inpatient medical–surgical oncology care unit. Sterile cockpit refers to an aviation rule requiring airline pilots to avoid distractions from nonessential activity during critical phases of flight such as takeoff and landing, when there is heightened risk of mishaps. In health care, administering medications to patients at the bedside is considered a common critical task because errors during this time can cause significant harm to patients.[29]

Floor nurses deployed a medication administration checklist to ensure correct dosage, correct medication, correct patient, and correct time of drug administration (Appendix C). They also began using visual aids to help avoid distractions when giving medication to patients. The visual aids include wearing an orange vest, displaying a warning sign on the medication cart, or simply raising the palm of the hand.[30] Once unit nurses gain experience using these techniques for general medication administration tasks, nursing managers plan to expand it to address specific high-risk tasks such as heparin and chemotherapy infusions.

Nursing unit managers at Mountain Home (who typically have master's-level training) have built evaluation into the design of the project by testing the benefit of adding a registered nurse and/or nursing assistant to "run interference" against potential distractions (e.g., intercepting phone calls, responding to patient call lights, answering questions unrelated to medications) in addition to using visual aids. Results are being assessed by tracking the number of distractions observed by the medication nurse and the time required to complete medication administration.

The nursing CRM program also enhanced the use of a structured communication technique known as the situation background assessment recommendation (SBAR) that nurses at Mountain Home incorporated into a "handoff reporting tool" to facilitate accurate

communication of patient information at the end of a shift. SBAR facilitates sequential, logical thinking and responsiveness when communicating critical information.[31]

Following nursing CRM training, nurses at Mountain Home appear to be moving toward a more assertive communication style with medical staff (and other members of the care team) using techniques such as SBAR and the "three Ws" (Exhibit 6). "One of the key points of the training is that our main job as nurses is to do critical thinking," says Elisa Broadway, R.N., M.S.N., a nursing manager at Mountain Home, "and I think that's what physicians want, too." Clinical leaders report that these communication tools greatly increase mutual accountability and effective communication among medical and nursing staff.

Finding Additional Opportunities to Enhance Teamwork at Mountain Home

The Mountain Home VA has built on these national programs by developing local team-oriented innovations to improve both patient safety and clinical quality of care. These include expanding the inpatient care team to include a team nurse and a clinical pharmacist and instituting a "discharge time-out" to facilitate better transitions in care.

Improving Teamwork in the Hospital. Senior-experience nurses have been reassigned to support patients and their families on inpatient care teams consisting of an attending physician, medical residents, and interns. (Previously, some of these nurses had performed case-management duties, which made it difficult for them to track and meet the needs of patients cared for by different physicians.) In their new role, the team nurses act as a liaison between the medical team and nursing staff by attending patient rounds (bedside meetings to review each patient's progress), communicating with the patient and family to identify and resolve unexpressed needs or concerns (facilitated by the Daily Plan), and making a follow-up call within two days after a patient is discharged from the hospital to check on the patient's recovery.

This team nursing role reinforces the tenets of nursing CRM by giving the nurse the freedom and opportunity to "see what needs to be done for the patient through a nurse's eyes that the doctors may not be aware of" and to "look longitudinally over the hospitalization to think, 'what needs to be in place to have a successful transition?'" says Roger Jones, M.D., chief of medicine at Mountain Home. Through follow-up contact, the nurse also may alert the patient's ambulatory care team if early intervention is needed to avoid readmission.

In another pilot program, a clinical pharmacist has been assigned to the inpatient care team on a full-time basis to review patients' medications and attend daily patient rounds to offer advice on appropriate medication use. Based on experience and published research, the facility's leaders expect that this expert advice will help the care team make better medication decisions, leading to a reduction in unnecessary drug use and fewer potentially harmful drug interactions.[32] The medical center plans to extend the clinical pharmacist program to all care teams in the future.

Improving Transitions in Care. At most teaching hospitals—including those in the VA system—the medical resident (physician in training) is responsible for discharging the patient. During routine follow-up with patients after discharge, Mountain Home nursing staff discovered that critical information was often missing from discharge plans and that there was a need for better communication during the discharge process. In response, Mountain Home instituted a policy change requiring the staff physician to meet with the medical resident to conduct a "discharge time-out" before the patient can be discharged.

During the discharge time-out, the physician and resident review a discharge note constructed to ensure that all correct medications are listed, that the plans for going home are appropriate and accurate, and that interventions, follow-up care, and equipment are in place. The patient receives a copy of the note, which is available electronically to ambulatory care physicians in the VA system to facilitate follow-up care. While

physicians were at first resistant to this change in roles, they came to believe in its value as they saw how it improved the accuracy and timeliness of information and the coordination of care, according to Jones. The discharge time-out is now a hospitalwide requirement.

Results of Local Teamwork Innovations. Mountain Home's clinical leaders believe that by improving teamwork and communication, these interventions contribute to a shorter length of stay (about 1.5 days less than average for a similar patient population) and a reported 10 percent reduction in the facility's readmission rate since 2009. As a trade-off in pushing for a more thorough discharge process, fewer discharges have been occurring before noon—a performance metric tracked across the VA. Nevertheless, Jones strongly believes that this trade-off in discharge timing is worth the benefits afforded by safer transitions in care. Levels of inpatient satisfaction have also increased over the last eight months, especially ratings of the responsiveness of staff, which leaders believe is related to improved communication supported by the Daily Plan.

Physician leaders at Mountain Home report that the teamwork approach has integrated inpatient and outpatient care, because all personnel are working together toward the same goal. The ability to connect facilities and providers electronically also enables more coordinated care, such as electronic consultations when needed.

OTHER RESULTS OF VA PATIENT SAFETY PROGRAMS

Fostering a Safety Culture

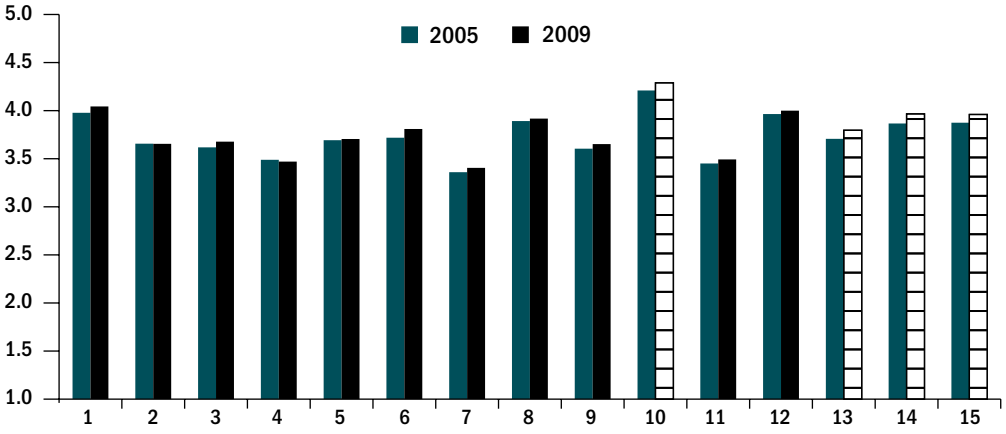
To assess whether its efforts are effective in fostering a culture of safety, the NCPS developed a patient safety culture survey that it fielded in 2000, 2005, and 2009. The NCPS has seen significant improvements in staff ratings of the safety culture over the past four years on three of the survey's 14 dimensions—staff morale (job satisfaction), perceptions of senior management's awareness of patient safety and actions in promoting it, and perceived frequency of event reporting—as well as in a summary rating of the facility's "overall patient safety grade" (Exhibit 9).[33]

Local VA facilities can use survey results to identify where they perform relatively poorly among a particular class of employees or in comparison to peer facilities. The Kansas City VA Medical Center, for example, saw a dramatic improvement in staff perceptions of safety culture after undertaking a series of actions to enhance patient safety, such as improving communication with staff, involving senior management in greeting patients, asking patients how safe they feel about their care, establishing a facility patient safety log, and improving root-cause analyses. The facility's ratings rose from below-average performance on the 2005 survey to systemwide-average VA performance four years later.[34]

The VA reports that 129 (84%) of all VA facilities improved their patient safety programs in fiscal year 2010, compared to 71 (46%) in 2008, as evidenced by the results of its Cornerstone Recognition Program.[35] The program was launched in 2008 to offer nonmonetary awards (conferred by regional network leaders) to VA facilities based on the timeliness and quality of root-cause analyses (RCAs) conducted following critical safety events, and on how often the facility reported outcomes of actions taken. These data are reported to an electronic patient safety information system and analyzed by NCPS, which identifies issues of common concern across facilities. To ensure that local safety programs maintain accountability and focus on priorities, an external panel reviews proposals from local facilities and makes recommendations for funding and other support from NCPS.

- The percentage of RCAs completed within 45 days (the Joint Commission standard to help assure that timely actions are identified and taken to correct unsafe conditions) rose from 44.5 percent in fiscal 2006 to 97.8 percent in fiscal 2010 (Exhibit 10).[36]
- RCAs characterized as having "strong strings" for improvement increased from 41.7 percent to 84.9 percent of all RCAs from fiscal 2006

Exhibit 9. VA Patient Safety Culture Survey Results



1	Overall perceptions of patient safety	8	Organizational learning/Continuous improvement
2	Nonpunitive response to error	9	Feedback and communication about error
3	Education/Training/Resources	10	Job satisfaction
4	Shame	11	Patient safety in comparison to other hospitals
5	Communication, openness	12	Perceptions of patient safety at your facility
6	Teamwork within hospital units	13	Senior management awareness/Actions in promoting patient safety
7	Teamwork across hospital units	14	Frequency of event reporting
		15	Perception of overall patient safety grade

Note: Results represent dimension means (except category 15 represents a single question) on a scale of 1 to 5. Bars with hashing indicate a significant improvement from the previous period (p<.05).
Source: VA National Center for Patient Safety (N=45,250 employee respondents in 2005 and 54,000 in 2009).

to 2010. An RCA has a strong string if its root cause/contributing factor statement exhibits 1) an action judged to have stronger or intermediate strength in preventing the recurrence of similar events based on human factors engineering principles, 2) a quantifiable outcome measure, and 3) management concurrence on the action. Facilities with at least one "strong string" in every RCA increased from 6.5 percent in fiscal 2006 to 42.4 percent in fiscal 2010.

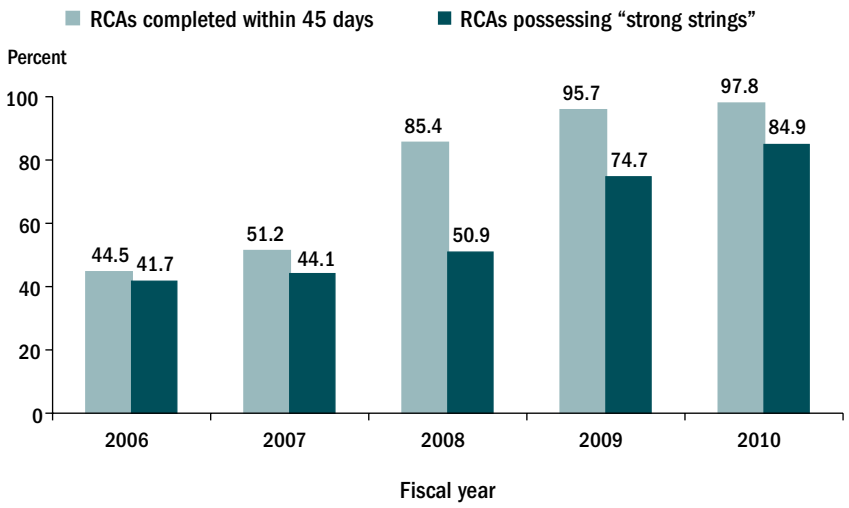
- RCAs conducted by facilities on a discretionary basis, when not required because of severity or probability of recurrence, rose from 5 percent of RCAs in the first two years of the program (fiscal 2000 and 2001) to nearly 23 percent in 2010.[37] This voluntary effort suggests to NCPS's Bagian that a safety culture is taking hold in which facilities are internally motivated to improve safety.

Reducing Health Care–Associated Infections

As part of its commitment to the Institute for Healthcare Improvement's 100,000 Lives Campaign, the VA engaged its Inpatient Evaluation Center in 2005 to support a systemwide initiative to reduce selected health care–associated infections in intensive care units (ICUs).[38] The program consisted of five related components:

1. A "kickoff" teleconference with clinicians and infection-control practitioners in the field during which three hospitals shared their experience in implementing a "bundle" of evidence-based practices to reduce infections in the ICU.

Exhibit 10. Timeliness and Quality of Root Cause Analyses Conducted by VA Medical Centers



RCAs = root cause analyses. Note: Data on "strong strings" represent the average of regional network averages for 2007–2009. A "strong string" means that the RCA possesses: 1) an action with stronger or intermediate strength; 2) a quantifiable outcome measure; and 3) management concurrence on the action. Source: VA National Center for Patient Safety (data for 2006–2009 were reported in the Department of Veterans Affairs, *2010 VA Facility Quality and Safety Report*).

2. A Web site with resources including learning modules, guidance, procedures, and tools such as checklists to help local teams implement the interventions.
3. A data-collection Web site for quarterly reporting on "bundle" adherence and infection rates using standard metrics defined by the Centers for Disease Control and Prevention.
4. A help desk to support local efforts and mentoring for "struggling" sites (those with infection rates above the 75th percentile) to help them overcome barriers to change.
5. Inclusion of ICU infection rates in facility and regional leaders' annual performance contracts to create accountability for results.

The initiative has contributed to a more than threefold reduction in reported systemwide rates of central line–associated bloodstream infections (CLABSI) and of ventilator-associated pneumonia (VAP) in VA medical center ICUs during the period from fiscal 2006 to 2010. Specifically, the CLABSI rate declined from 4.9 to 1.5 per thousand line days, while the VAP rate fell from 7.6 to 2.1 per thousand ventilator days during this period (Exhibit 11). The number of ICUs reporting no cases of CLABSIs rose from 35 in 2009 to 65 in 2010, while the number reporting no cases of VAP more than doubled from 35 to 77 ICUs. By way of comparison, the CDC's National Healthcare Safety Network reported that participating medical/surgical ICUs in major teaching hospitals had an average CLABSI rate of 2.1 per thousand line days and an average VAP rate of 2.9 per thousand ventilator days during 2006–2008 (the latest available benchmarking data).[39]

In January 2007, the VA secretary directed all VA medical centers to implement an initiative to reduce health care–associated infections caused by MRSA (methicillin-resistant *Staphylococcus aureus*), which is a growing problem in many health care settings.[40] The MRSA Prevention Initiative was modeled after a successful program developed by the VA Pittsburgh Healthcare System using industrial engineering principles of the Toyota Production System and was propagated in 17 pilot sites.[41] It included four related components, which became known as the MRSA Bundle:

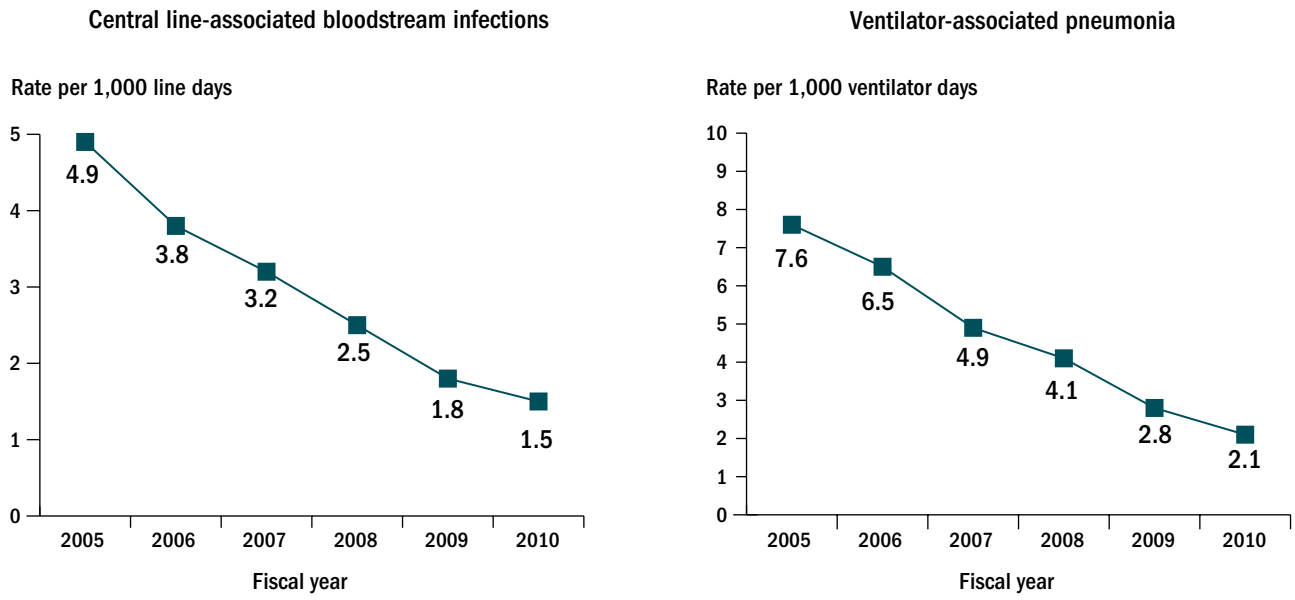
1. Active surveillance for MRSA through screening cultures from nose swabs of all patients admitted and discharged from targeted hospital units (starting in intensive care units and eventually expanding to all acute-care units except for inpatient psychiatry).
2. Use of contact precautions (e.g., gloves, mouth/nose/eye protection, gowns) for interactions with patients colonized or infected with MRSA.
3. Training of staff on proper hand hygiene for all patients, using a VA program called "Infection: Don't Pass It On."
4. Encouragement of culture change so that preventing infections is perceived as "everyone's job and thus a natural component of care at each patient encounter each day."

The VA reported that monthly rates of health care–associated MRSA infections declined by 76 percent in ICUs and by 28 percent in other acute-care units of VA medical centers from October 2007, when the initiative was fully implemented, to June 2009.[42] Researchers who interviewed program coordinators at 17 facilities reported that barriers to implementation included staff resistance and supply issues, while facilitating factors included staff communication and the presence of an "MRSA champion" on each unit. The coordinators reported that culture change had been necessary for success, but indicated that less than complete transformation took place during the pilot, suggesting that further improvement may be possible.[43]

Measuring and Reporting Systemwide Performance for Accountability and Improvement

The VA Inpatient Evaluation Center also has developed and validated methods for measuring risk-adjusted outcomes among intensive care patients in VA medical centers, using clinical data from the VA's EHR to account for patients' severity of illness and risk of dying.[44] The center reports standardized mortality ratios (observed to expected deaths), both for deaths that occurred in the hospital and within 30 days of admission, as well as risk-adjusted (observed minus expected) length of stay for ICUs on a quarterly basis. Benchmarks are calculated by ICU type and severity level.[45] The center started in 2004 as a pilot program in six regions and expanded to all 21 VA regions by 2006.

Exhibit 11. Rates of Health Care-Associated Infections in Veterans Affairs Intensive Care Units



Source: Department of Veteran Affairs, Inpatient Evaluation Center.

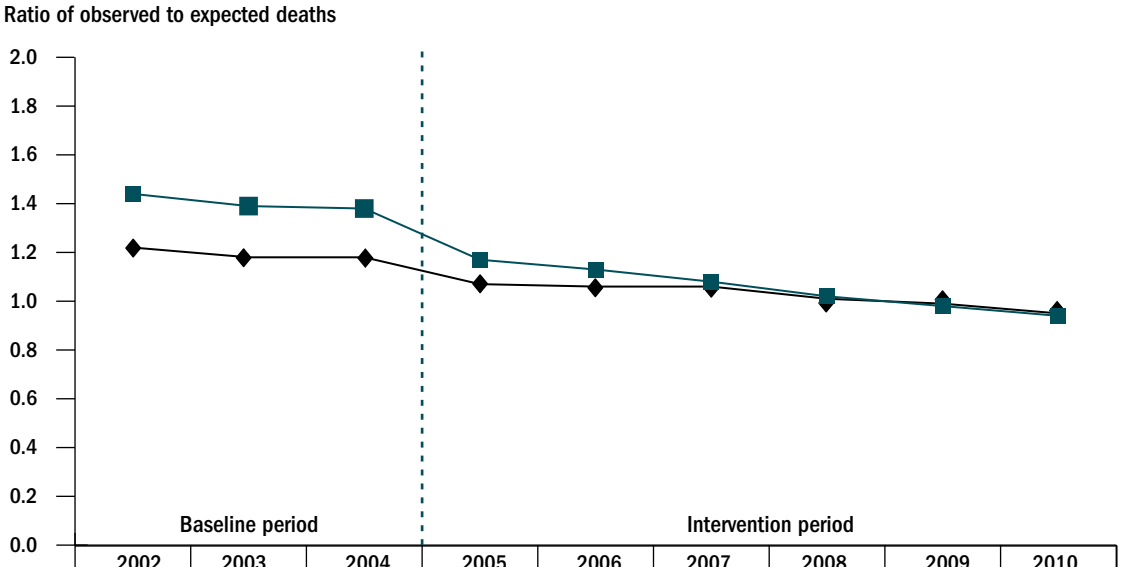
It recently expanded its measurement and reporting to encompass all medical/surgical acute-care patients.

From the fiscal 2002–2004 baseline period to 2010, risk-adjusted in-hospital mortality declined by about 20 percent, and 30-day mortality by about 33 percent, across all VA ICUs (Exhibit 12).[46] This improvement, which was seen across all risk groups, was concurrent with efforts to improve quality of care and reduce health care–associated infections. "The ability to link outcomes to process improvement increases the likelihood that the improved processes will be maintained," noted Marta Render, M.D., the center's director. Mortality also fell by one-quarter among patients transferred to ICUs from other acute-care units, suggesting that facilities have improved the ability to detect patients at risk of clinical deterioration and intervene as appropriate, such as through the use of rapid response teams.[47]

Managers use these outcomes, along with readmission rates, to assess quality, efficiency, and availability of care in a region. For example, length of stay that is longer than expected based on patients' severity of illness indicates an opportunity to improve efficiency.[48] Lower-than-expected in-hospital mortality, paired with higher-than-expected 30-day mortality and/or readmissions, may indicate a facility is discharging patients too soon. On the other hand, higher-than-expected in-hospital mortality, paired with lower-than-expected 30-day mortality, may indicate an insufficient supply of postacute care and palliative care resources in a region.

These metrics are part of broader performance dashboards that allow the VA's managers to assess performance at the national, regional, and facility levels. Results are color-coded to indicate facilities that are performing better or worse than systemwide averages or achievement targets. Underperforming facilities receive oversight, starting with telephonic consultation and escalating to onsite visits, as needed, to identify causes of deficiencies and take corrective action. As part of a recently announced transparency program, the VA is now making its dashboards publicly available

Exhibit 12. Standardized Mortality Ratios for Patients Treated in Veterans Affairs Intensive Care Units



	2002	2003	2004	2005	2006	2007	2008	2009	2010
In-hospital mortality	1.44	1.39	1.38	1.17	1.13	1.08	1.02	0.98	0.94
30-day mortality	1.22	1.18	1.18	1.07	1.06	1.06	1.01	0.99	0.95

Source: Department of Veterans Affairs, Inpatient Evaluation Center.

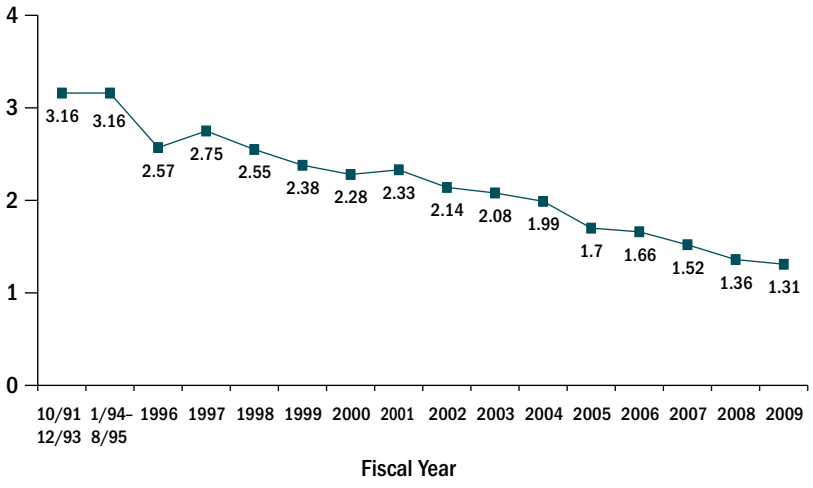
on its Web site (www.hospitalcompare.va.gov) to promote public accountability and help drive continuous improvement in care.

Reducing Surgical Complications and Mortality

Responding to concerns about surgical quality in VA medical centers, Congress in 1986 required that the VA report risk-adjusted surgical outcomes as compared with a national average. Because no methods or data for such reporting then existed, the VA developed them over a number of years starting in 1991. Those efforts culminated in the creation of the National Surgical Quality Improvement Program in 1994 to "provide the surgeons and managers in the field with reliable information, benchmarks, and consultative advice that will guide them in assessing and continually improving their local process and structures of care."[49] The program was subsequently adapted to the private sector under the auspices of the American College of Surgeons.[50]

- The average postoperative mortality rate measured 30 days after major (noncardiac) surgery in VA medical centers declined from 3.16 percent of patients in the initial 1991–1995 period to 1.31 percent by fiscal year 2009 (Exhibit 13), a 59 percent improvement. As described earlier, implementation of medical team training and checklist-guided briefings have contributed to lower postsurgical mortality since they were initiated in VA medical centers in 2006.
- Similarly, the VA's average postoperative morbidity rate of complications—pneumonia, respiratory failure, stroke, renal failure, surgical site infections, or myocardial infarction (heart attack)—occurring within 30 days of major noncardiac surgery fell from 17.4 percent of patients in 1991–1993 to 10.6 percent in 1996 and declined further to 8.53 percent in 2009, representing a 51 percent improvement over 1991.[51]

Exhibit 13. VA Surgical Quality Improvement Program: 30-Day Postoperative Mortality Rate at VA Medical Centers



Note: Results are based on samples of patients who underwent general, orthopedic, urologic, vascular, neurologic, otolaryngologic, thoracic, or plastic surgery at a VA medical center during the specific time period.
Sources: Data for 1991–2008 were reported by the Congressional Budget Office, *Quality Initiatives Undertaken by the Veterans Health Administration,* Aug. 2009, p. 17. Data for 2009 were reported in the *2010 VA Facility Quality and Safety Report,* Jan. 2011, p. 22.

THEMES AND INSIGHTS

Improving Patient Safety Requires Leadership and Accountability at Multiple Levels

At the VA, leaders at all levels—executive, administrative, and clinical—help to foster a culture of safety by implementing and modeling specific safety practices. At the Mountain Home VA, for example, clinical and facility leaders promote open communication, allow staff to innovate, and support the application of tools and training offered by the national office. In addition, executives at the VA are expected to achieve certification as mentors and coaches in leadership and quality improvement methods.

Leadership commitment is reinforced through the VA's performance evaluation system, which offers a financial bonus at both regional and local levels for achieving agreed-upon goals related to patient safety, among other performance dimensions. Nonmonetary recognition, such as the opportunity for facilities to earn a Cornerstone Award for improved root-cause analyses, can also be a strong motivator for change. "It is remarkable that the desire of individuals—especially facility directors—to be recognized…has resulted in an unbelievable increase in interest in the day-to-day operation of their patient safety program," NCPS's Bagian says.

At the highest level of the organization, the VA's undersecretary for health hosts a morning report among senior staff during which safety concerns can be brought forward and given attention in order to foster understanding of their importance alongside operational issues, according to William Duncan, M.D., Ph.D., the associate deputy undersecretary for health. The VA's national office and regional leadership also monitor performance metrics to identify underperforming facilities and intervene as needed, though delays in data collection can be problematic.[52] The VA's National Center for Organizational Development is examining whether employee surveys on safety culture and other issues also can be used as leading indicators to alert managers to the need for action at facilities that may be at risk of poor quality and outcomes.

At the same time, local facility leaders must create an environment that is receptive to new practices and changing norms of behavior. Leaders must eliminate the element of fear by allowing staff to voice concerns without punishment. Staff, particularly nurses, find relief in formalizing safety practices because it empowers them to call attention to often long-held concerns. Facility leaders—administrative and clinical—need to demonstrate through concrete behaviors that it is acceptable for everyone to question without fear, especially in a public system subject to higher levels of public scrutiny.

"I sometimes tell the nurses, 'You need to be the bad guy'" when it comes to being assertive about patient safety concerns, says Charlene Ehret, M.P.A., Mountain Home VA medical center's director. Rather than seeking to avoid healthy conflict, Ehret says, "I want people [on the medical staff] to come to me and say, 'That nurse is trying to tell me what to do'"—a sign that a more assertive style is taking hold among nurses and that the culture is changing.

Collaboration and Teamwork Are Key Ingredients in Culture Change

Safety initiatives at Mountain Home focus on improving communication, empowering frontline staff, and facilitating collaboration so that all staff—nurses in particular—are given a voice in improving patient care. Although the emphasis is on patient safety, nursing leaders report that these efforts improve overall communication between nurses and physicians and develop a stronger sense of teamwork that has the effect of leveling the organizational hierarchy.[53]

Mountain Home's leaders emphasize the importance of engaging nurses and physicians together in patient safety efforts. "Collaboration is an important part of the culture of change," says Linda McConnell, R.N., M.S.N., associate director for patient care at Mountain Home. "Collaboratively, the physician and the nurse are at the bedside day to day. They can reflect on why it's important to communicate and think, 'patient safety first.'"

Discrete Projects "Add Up" to Help Transform Organizational Culture and Patient Care

The Mountain Home VA began with discrete initiatives—in the form of pilots and individual unit-based projects—that have cumulatively contributed to a facility-wide transformation. An initial focus on specific patient safety interventions transcended into a broader focus on improving overall organizational performance and culture—an approach that has permeated daily management and practice to improve the quality and efficiency of care as well as morale at the institution, according to the facility's leaders. Systems improvement practices have spread beyond the specific initiatives for which they were first introduced. For instance, during morning reports at Mountain Home, it is now a normal part of the conversation to ask for a checklist to facilitate greater reliability in any process requiring standardization.

Ehret and other leaders acknowledge that the organization must sometimes learn through the hard experience of mistakes. For serious events, the medical center convenes a "cure team" that assesses root causes and devises a corrective action plan within 24 hours to prevent the mistake from recurring. "We always say, 'What could we learn from this, and how could we do better?' You learn by fire sometimes," Ehret says.

Duncan cites the fact that the VA's staff are increasingly reporting and conducting root-cause analyses on near misses, or close calls (events that could have caused harm), as an indication that a safety culture is taking hold in a concerted way within local facilities. Joseph Francis, M.D., M.P.H., the VA's chief quality and performance officer, sees team training as part of an evolution in the VA's safety program that is translating the systems engineering focus on root cause analyses into a broader philosophy of human performance.

Physicians and nurses at the Mountain Home VA appear to take great pride in their jobs and in their roles as caregivers for veterans, and are therefore continually looking for ways to improve safety and quality. Roger Jones, M.D., Mountain Home's chief

> "Quality is a dialogue—it starts with measurement and numbers but requires a conversation to understand the context for improvement."
>
> *Joseph Francis, M.D., M.P.H., VA Chief Quality and Performance Officer*

of medicine, notes that he left private practice and university leadership positions to join the VA because of his desire to practice in an innovative environment. The facility's commitment to patient safety is evident in the decision to expand discharge time-outs to reduce readmissions despite the resulting delay in the time of day of discharge. Sustaining this trade-off has required understanding and support from leaders at higher levels of the VA. "Quality is a dialogue"—it starts with measurement and numbers but requires a conversation to understand the context for improvement, Francis notes.

As Mountain Home leaders plan to enhance a medical home model of primary care delivery in the outpatient setting, they are applying strategies and lessons learned from patient safety initiatives. In particular, they are focusing on how to translate communication, coordination, and collaboration practices developed in their safety efforts to the outpatient setting. The medical center's leaders also report a shift in expectations among younger veterans, who are more active in requesting specific kinds of treatment and wanting to be involved in their care. Mountain Home executives say that the challenge of meeting these expectations is a welcome one, as doing so in a determined way can ultimately reinforce the facility's efforts at transformation.

Organizational Supports and Integrated Delivery Facilitate Investments in Patient Safety

The advantage of a national delivery system lies in the ability to offer resources across facilities, drawing on knowledge from both local experts and the national office to replicate expertise at each local site through tools, training, data feedback, and opportunities to participate in pilot programs. The VA's National

Center for Patient Safety has helped the organization apply its philosophy and skills—such as "just culture" and human factors engineering, along with practical tools, algorithms, and templates—at the local level. In other cases, such as the development of risk-adjusted ICU mortality measures and the MRSA Prevention Initiative, innovations have come from the field as various facilities or regions within the VA's network develop and test new approaches and then spread them with central office support.

Patient safety efforts also benefit from the VA's prior investment in creating a robust EHR system, which facilitates coordination of care between inpatient and outpatient settings and enables interventions such as the ability to create a standardized Daily Plan. The VA's leaders also see the need for enhancing its information technology capabilities to provide real-time performance feedback and more sophisticated decision support tools, such as highly calibrated clinical reminders triggered by health factors in the EHR.

Implementing broad-based, systemic safety strategies requires a shift in emphasis from short-term to long-term thinking about the costs and benefits of care improvement. For example, some strategies for improving patient safety and quality of care may initially increase staffing costs. Mountain Home hired additional discharge nurses, staff to sit at the bedside to help prevent patient falls, and clinical pharmacists to participate more actively in bedside care. The medical center's leaders believe that these investments will pay for themselves in time through more efficient and higher-quality care.

Because the VA is an integrated system that provides both financing and delivery of care, it realizes the financial benefits of clinical improvements such as reduced readmissions and fewer adverse drug events, as well as the benefit to patients of safer care and fewer return trips to the hospital. Integrated delivery systems must maintain a healthy tension between reducing unwarranted variation as they strive to create highly reliable processes across the organization and recognizing the benefits of allowing local facilities some freedom to innovate in meeting local needs in ways that may be adaptable elsewhere, says Francis.

Implications for the Broader Health System

The VA is a challenging environment in which to implement patient safety initiatives. It serves a historically vulnerable patient population, with multiple complex conditions and higher rates of poverty than the nation as a whole. Moreover, many VA patients also receive care outside the VA system, creating challenges for care coordination. Although the VA has not fully overcome those challenges, its leadership and achievements in the patient safety arena offer support for the proposition that organizational transformation is possible even in challenging settings. "This is not rocket science," Ehret says. "This is doing the right thing for the patient—always thinking first about the patient, thinking about what's right for the VA, thinking about what's right for the employees that you are responsible for. It's good common sense."

The need for a systemic approach to patient safety in a complex national organization spurred the VA to build a model for change that engaged local facilities to test and adapt national initiatives to their local environment. While every local VA medical center has adopted national programs to some degree, variability in efforts undertaken and success achieved persists across the organization, offering opportunities for cross-site learning and improvement.[54] Facilities such as Mountain Home appear to have excelled in stepping up to the challenge of making safety programs their own, bolstered by a strong commitment to improvement among facility leaders and staff. Such examples reflect the importance of inculcating in local leadership and culture a commitment to realizing the core mission of an organization.

Many of the patient safety approaches developed by the VA are potentially replicable outside the VA, and might be propagated through learning networks or collaboratives among independent institutions. For example, the VA's use of its EHR system to develop risk-adjusted mortality and other performance metrics presages what may become possible more

broadly across the health system as hospitals and physicians implement similar health information technology. But performance data alone are not enough; they must be combined with leadership and accountability to motivate improvement. "You have to put the data to use, and there must be consequences if you don't improve," said Peter Almenoff, M.D., assistant deputy undersecretary for health for quality and safety. Overall, the VA's experience underscores that achieving widespread uptake of patient safety initiatives and culture will require similar organizational commitment, driven by local institutional culture and governance and reinforced through board oversight and public accountability mechanisms.

CONCLUSION

In summary, the VA's experience demonstrates how the leaders of an integrated delivery system can provide direction, expertise, tools, and accountability for successful systemic change at the local level. Its experience may be applicable to other integrated delivery systems and to multi-hospital systems, collaborations, and other virtually organized groups that seek to harness and share central resources to disseminate patient safety improvement strategies. The fact that many physicians receive some medical training in VA facilities may help pave the way for other health care organizations to adopt similar approaches as they seek to foster a culture of safety.

A summary of findings from all case studies in this series, *Keeping the Commitment: A Progress Report on Four Early Leaders in Patient Safety Improvement,* will be available in spring 2011 on www.commonwealthfund.org.

Notes

[1] D. M. Berwick, D. R. Calkins, C. J. McCannon et al., "The 100,000 Lives Campaign: Setting a Goal and a Deadline for Improving Health Care Quality," *Journal of the American Medical Association,* Jan. 18, 2006 295(3):324–27; and P. J. Pronovost, G. A. Goeschel, E. Colantuoni et al., "Sustaining Reductions in Catheter Related Bloodstream Infections in Michigan Intensive Care Units: Observational Study," *British Medical Journal*, Feb. 4, 2010 340:c309.

[2] R. M. Wachter, "Patient Safety at Ten: Unmistakable Progress, Troubling Gaps," *Health Affairs,* Jan. 2010 29(1):165–73; and C. P. Landrigan, G. J. Parry, C. B. Bones et al., "Temporal Trends in Rates of Patient Harm Resulting from Medical Care," *New England Journal of Medicine*, Nov. 25, 2010 363(22):2124–34.

[3] D. McCarthy and D. Blumenthal, *Committed to Safety: Ten Case Studies on Reducing Harm to Patients* (New York: The Commonwealth Fund, April 2006); and D. McCarthy and D. Blumenthal, "Stories from the Sharp End: Case Studies in Safety Improvement," *Milbank Quarterly,* March 2006, 84(1):165–200.

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[5] Background on the VA was derived from several publications of the Department of Veterans Affairs: *Facts About the Department of Veterans Affairs* (Jan. 2009); *VA Organizational Briefing Book* (June 2010); and *FY2010 Performance and Accountability Report* (Nov. 2010); as well as the Congressional Budget Office, *Quality Initiatives Undertaken by the Veterans Health Administration* (Washington, D.C.: CBO, Aug. 2009).

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Appendix A. Generic Preoperative Briefing Guide

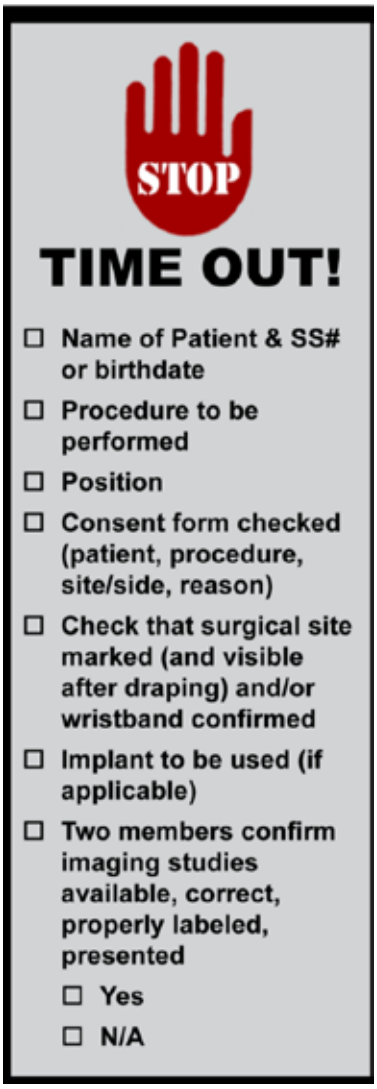
VETERANS HEALTH ADMINISTRATION

Preoperative Briefing Guide for Use in the Operating Room

✓ **Read and Verify Checklist, Local Facilities Decide When Checklist Completed.**

- ☐ **Patient Name**[1-4]
- ☐ **Social Security #, Birthdate, or Other VA-Approved Identifier**[1]
- ☐ **Names & Roles of Team Members**[2]
- ☐ **Procedure**[1-4]
- ☐ **Surgical Site**[1-4]
  - ☐ Marked or on Wristband
- ☐ **Laterality/Side**[1-4]
- ☐ **Known Allergy**[2]
  - ☐ No
  - ☐ Yes
- ☐ **Anesthesia**[2]
  - ☐ Difficult Airway, Aspiration Risk?
    - ☐ No
    - ☐ Yes
    - ☐ If Yes, Equipment & Assistance Available
    - ☐ Safety Check Completed
    - ☐ Pulse Oximetry
- ☐ **Instruments & Special Equipment**[2-4]
  - ☐ N/A
  - ☐ Yes
- ☐ **Implant (s)** [1,4]
  - ☐ N/A
  - ☐ Yes
  - ☐ If Yes, Specifics
- ☐ **Pertinent Lab Results**
- ☐ **Risk of >500 ml Blood Loss**[2,4]
  - ☐ No
  - ☐ Yes, and adequate IV access and fluids planned, and blood availability confirmed
  - ☐ If Yes,
    - ☐ Type & Screen

    OR
    - ☐ Type & Cross
- ☐ **Prophylactic Antibiotics Given Within 60 Minutes of Incision**[2-4]
  - ☐ Yes
  - ☐ N/A
- ☐ **DVT Prophylaxis**[4]
  - ☐ Yes
  - ☐ N/A
- ☐ **Anticipated Critical Events**[2]
  - ☐ Surgeon
  - ☐ Anesthesia
  - ☐ Nursing
- ☐ **Postop Disposition & Bed Availability**[4]



[*]**This checklist contains the elements of the WHO checklist and also includes a sampling of the majority of elements as suggested by frontline OR teams from the VHA. The WHO Surgical Safety Checklist is available at http://www.safesurg.org/uploads/1/0/9/0/1090835/sssl_checklist_finaljun08.pdf**

[1]VHA Policy/Directive, [2]WHO Checklist, [3]Joint Commission, [4]Medical Team Training

Appendix B. Mountain Home's Surgical Briefings Checklist

Prior to /after Induction ⇨ Before the Incision ⇨ Before the patient leaves the OR

PREOPERATIVE BRIEFING

- Roll Call
- Patient confirms identity, site, procedure & consent
- Any known allergies
- Site marked or arm band in place
- Patient positioning
- Difficult airway/aspiration risk
- ASA Classification
- Fire Risk Score _____
- Prophylactic antibiotics given
- VTE chemoprophylaxis given
- Pneumo stockings on
- Special equipment/supplies available
- Blood products available
- Correct Implants available
- X-Ray available
- Safety Topic

_____

Surgical Scrub Checklist:

- Do you have all the instruments?
- Any instruments missing?
- All instruments working?
- What special instruments do we need?
- Any questions about instruments

TIME OUT

Surgeon, Anesthesia, Resident, Scrub Technician, & Nurse Confirm:

- Patient full name
- Patient full SS#
- Scheduled Procedure
- Site Marked and Visible
- Valid Consent
- Proper Position
- Sterility confirmed
- Correct Implants noted

PATIENT SAFETY CHECKS EVERY 2-4 HOURS

- Antibiotic re-dosing?
- Position re-check
- Glucose check (for diabetics)
- Patient temp
- SCDs functioning properly
- Blood/irrigation warmers operating correctly?

WAITING TIME DELAY EVENTS

Equipment: _____

Supplies: _____

OPERATIVE DEBRIEFING

Nurse verbally confirms with the team:

- Instrument, sponge and needle counts correct
- What procedure was performed?
- How is the specimen to be labeled?
- Any changes in wound classification?
- Any equipment malfunctions?
- Any changes in disposition of patient post surgery?
- Surgeon of Record

_____

LESSONS LEARNED/OPPORUNITIES

_____

_____

_____

SATISFICATION SCORE

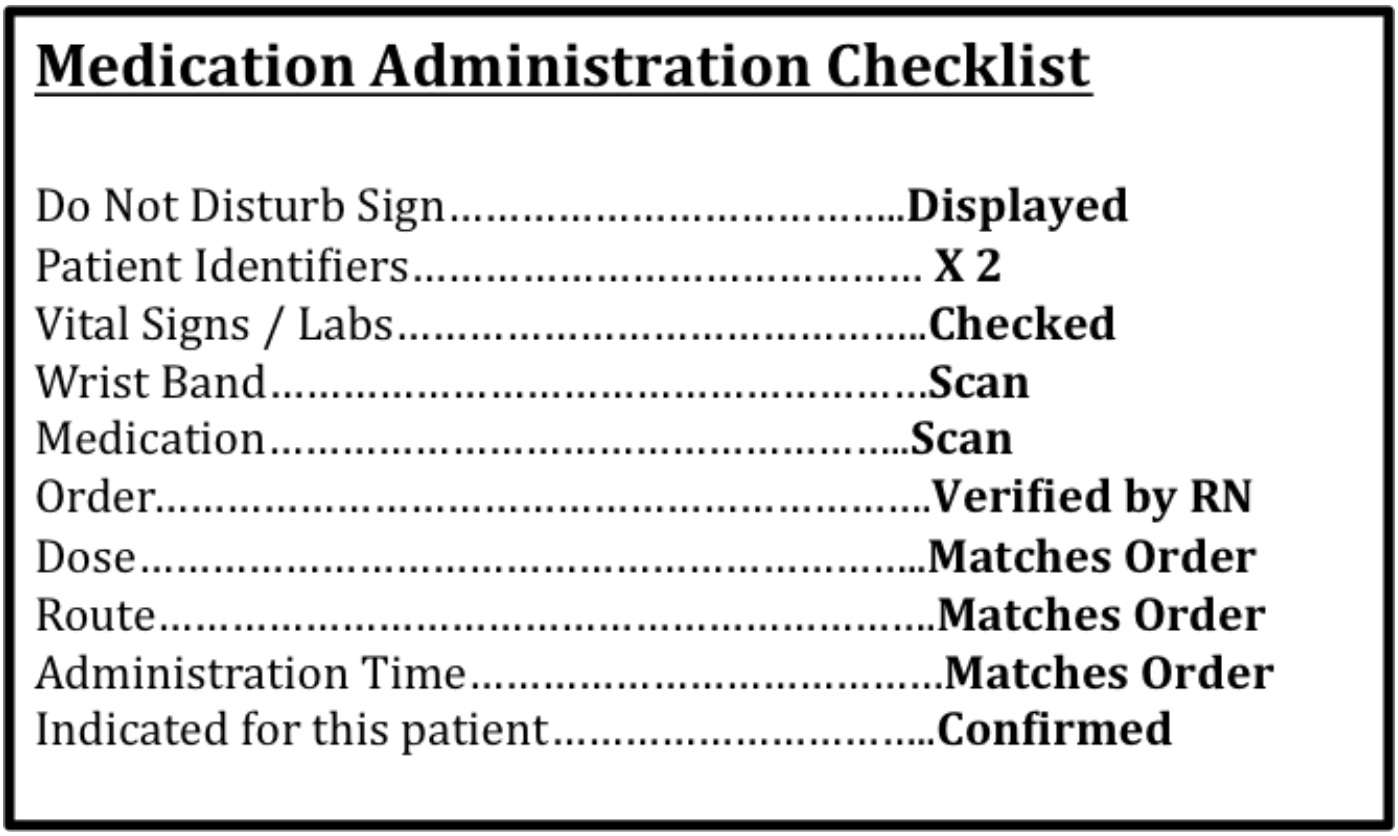
1 Poor 3 Good 5 Excellent

Surgeon: 1 2 3 4 5

Anesthesia: 1 2 3 4 5

Nursing: 1 2 3 4 5

Appendix C. Medication Administration Checklist



Medication Administration Checklist

Do Not Disturb Sign.....**Displayed**
Patient Identifiers..... **X 2**
Vital Signs / Labs.....**Checked**
Wrist Band.....**Scan**
Medication.....**Scan**
Order.....**Verified by RN**
Dose.....**Matches Order**
Route.....**Matches Order**
Administration Time.....**Matches Order**
Indicated for this patient.....**Confirmed**

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The aim of Commonwealth Fund–sponsored case studies of this type is to identify institutions that have achieved results indicating high performance in a particular area of interest, have undertaken innovations designed to reach higher performance, or exemplify attributes that can foster high performance. The studies are intended to enable other institutions to draw lessons from the studied institutions' experience that will be helpful in their own efforts to become high performers. It is important to note, however, that even the best-performing organizations may fall short in some areas; doing well in one dimension of quality does not necessarily mean that the same level of quality will be achieved in other dimensions. Similarly, performance may vary from one year to the next. Thus, it is critical to adopt systematic approaches for improving quality and preventing harm to patients and staff.