Patient Safety Checklist: Keys to Successful Implementation

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No doubt exists regarding the importance of developing patient safety programs in all clinical care settings. The size, complexity, and multiple interactions among the components of health care delivery systems cause implementation of these programs to be a difficult and daunting task.

When thinking about a safety program, there are 11 key concepts to keep in mind:

• Key implementation components
• Communication
• Culture
• Key tips for medication safety
• Medication system steps
• Methods to create favorable conditions for change
• Key techniques to measure the medication process
• Medical errors and prevention
• Process
• Knowledge
• Electronic medical records

When implementing a patient safety program it is helpful to remember that all of the rules around change management must be deployed. These include dividing the process into incremental steps, seeking buy-in from the staff, marketing the improvements the change will produce, speaking to existing best practices and touting the competitive advantages in the marketplace.

Specific successful approaches to implementing a patient safety program include:

• Demonstrating error reductions
• Forecasting risk reduction

During the 2005 ACPE Fall Institute, a group of physician executives gathered to discuss key lessons learned while implementing patient safety programs and agreed to record, summarize and expand on this topic so that others could benefit from this meeting.

• Identifying quality improvement
• Calculating the resources required
• Generating a business case with an adequate ROI

Two components central to the implementation of patient safety programs are communication and culture. Key implementation techniques recommended by experienced change management leaders include:

Initial culture and communication assessment survey

It is important for each organization to complete a self-assessment of its patient safety culture and communication strengths and weaknesses prior to implementation of programmatic changes. This self-assessment serves as a baseline measure and a mechanism to raise awareness.

Some organizations attempt to generalize data obtained from others as a shortcut. As physicians we are aware of the risks attendant with “treating the most likely causes” rather than establishing an accurate diagnosis and initiating effective therapy.

Most organizations discover that identification of issues specific to their situation is well worth the effort of administering a survey tool. The U.S. Dept. of Health and Human Services Agency for Healthcare Research and Quality (AHRQ) provides a standardized hospital survey on patient safety culture on its website (http://www.ahrq.gov/qual/hospculture/).

Areas of query include: assessment of whether reporting incidents/errors results in punitive actions or positive changes, whether workload and staffing levels
are appropriately matched, perception of managerial emphasis on safety or working faster, and assessment of channels of communication.

**Conduct periodic culture and communication reassessment surveys**

These measurements serve as information gathering mechanisms, as well as reinforcement of necessary culture and communications techniques. It is important to work early and often on building a culture focused on patient safety, emphasizing everyone’s role in patient safety efforts. These cultural changes should be supported by both top down and bottom up approaches.

**Build buy-in**

These efforts need to be inclusive of all health care providers and support personnel. Early efforts should be aimed at influencing opinion leaders to facilitate development of a patient safety culture. Using external drivers such as the Institute for Healthcare Improvement, the National Quality Forum, and the Joint Commission on Accreditation of Healthcare Organizations, among others, can help develop buy-in.

**Develop robust reporting tools**

Encourage reporting of near misses and use these as learning tools to improve patient care processes. Whether reporting tools are paper-based or Web-based, ease of completion and clarity are important. In many cases, reliable and easy-to-use systems can be acquired “off the shelf” rather than investing in self-developed tools.

Reports should be equally easy to produce so that personnel close to the work unit can easily access the data. The easier to use, the more likely the system is to be successful.

**Develop educational tools**

These may include live training exercises, videotaped or CD lectures, case discussions, etc.

**Effectively use RCA and FMEA processes**

A root cause analysis (RCA) is performed following the occurrence of a significant incident or near miss. The RCA should be performed by a multidisciplinary team with membership appropriate to the incident. This team focuses on the various causes or potential causes of the incident with emphasis on a systems approach rather than people approach.

The failure mode and effects analysis (FMEA) utilizes an analogous process by selecting a process that could result in an incident, i.e., a proactive approach. These processes help direct attention to the importance of potential errors and prioritization of change efforts.

**Develop robust feedback mechanisms**

This allows for continual culture development and assessment. These mechanisms include alternatives ranging from written and graphic reports, newsletters, personal stories, frequent senior leader safety walk-arounds, and other types of communication.

**Foster the development of a system focused, non-punitive safety culture**

In most cases health care professionals involved in errors are sincerely making their best efforts to provide excellent care. Rather than identifying the individual as the fault, we should make a concerted effort to identify in what ways the system allowed the error to occur.

To focus on people as the problem does a disservice to dedicated staff who can be set up to fail by a poorly designed system and to our patients who remain exposed to an unsafe system that is never addressed when we jump to blame staff for problems.

A non-punitive environment encourages staff to report errors and near misses. The system focus allows an organization to use the reports to redesign processes for higher reliability. This is a marked contrast to a culture of blame and shame where staff live in fear of punishment for mistakes that they must hide.
Reinforce safe behaviors, refuse to tolerate unsafe behaviors

Reinforcing the importance of safety policies by recognizing people and teams that consistently demonstrate safe care supports the transition to a safety culture. Likewise, clear and consistent non-tolerance for behaviors that breach patient safety policies is critical.

This non-tolerant approach can coexist with a non-punitive safety environment. Some organizations have implemented self-reporting “safe-harbor” polices that provide staff with protection from disciplinary action when they self report an error.

Develop effective communication techniques

Emphasis on the interactions between various members of the care team enhances patient safety efforts.

Once culture and the communication of the need for change has been addressed, the next step is to look at specific areas where safety programs can be deployed.

Medication safety

The medication system is one of the main areas of focus for any comprehensive patient safety program. Functional integration of the inpatient medication system and the outpatient medication system is increasingly being recognized as a critical requirement for effective improvements in patient safety.

The less structurally integrated ambulatory and inpatient care processes are, the more important it is to take steps to provide some measure of functional integration. While ambulatory medication system safety is clearly important, much of the existing literature on medication system safety focuses on the inpatient process.

The medication system can be considered to consist of several steps:

Ordering—Was the right drug and dose prescribed? This process can be improved by:

- Obtaining a reliable drug therapy history that can be reconciled with current medications
- Checking that there is not a conflict between prescribed drugs and recorded allergies

Transcribing—Was the order correctly transmitted to the pharmacy? Transcribing can be improved by:

- Avoiding the use of high-risk abbreviations. Institutions can educate staff about unsafe abbreviations. Some facilities place stickers on the charts or post signs in physician work areas reminding staff of the unsafe abbreviations. One effective strategy is to place a laminated card listing unsafe abbreviations as a chart divider at the front of the physician order section of the chart.
- Establishing standards for order legibility. It is appropriate for the pharmacy to refuse to dispense medication for orders with significant unaddressed safety concerns such as illegibility.
- Avoiding verbal orders whenever possible and use of read-back verification processes if verbal orders cannot be avoided.
- Using high resolution scanning technology to transmit physician orders to the pharmacy.
- Installing computerized physician order entry. CPOE is a very promising innovation that is capable of providing real-time decision support input to the physician about drug selection and dosing, as the order is being written. CPOE promises to eliminate problems of legibility and miscommunication. A major challenge of CPOE system implementation is fine tuning the decision support component to provide useful physician prompts and suggestions without becoming intrusive and disrupting the workflow.

Dispensing—Did the pharmacy provide the right medication to the right clinical unit?

The reliability of the dispensing step can be improved by the use of automated drug dispensing technology. This is an exciting development and is likely to be much more successful than interventions that rely on increased human vigilance such as double-checking medication carts.

Other useful safeguard strategies include routine pharmacy review of certain drugs, access control with special labeling and dispensing precautions, use of standardized protocols for ordering, dosing and administration which include standardized solution concentrations and preprinted protocol order sheets.

For drugs with narrow therapeutic windows, standardized mandatory drug level (or therapeutic endpoint) testing with pharmacy review of the results is an effective safety measure.
Another focus should be on medication reconciliation. Transitions of care and patient hand-offs from one care environment to another can be a source of preventable adverse medication events. Important medications may be inadvertently discontinued, or patients may receive dangerous duplicate doses of medications.

For inpatients, the medication reconciliation process should include a process to obtain a “reasonable best effort” documentation of outpatient drug therapy that is provided to the physician and the pharmacy compares with the patient’s admission orders. Potential discrepancies are identified and resolved by communication with the physician.

Upon transfer from one level of care to another, there should be a process to reduce the chances for drug omissions or duplication. And finally, pharmacy professionals should be involved in a review of discharge medications, which includes pre-admission outpatient therapy and inpatient medication.

**Administration**—Did the nursing staff correctly administer and document the medication?

This is typically one of the most problematic areas. For all of the other steps, there are opportunities for other professionals to provide a safety net for errors.

For example, the pharmacist can identify a dosing error in a physician’s order or clarify an illegible order and a nurse can identify that the wrong drug was dispensed, but there are limited safeguards for administration errors. Strategies that can help improve the reliability of the administration step include:

- Better monitoring of the accuracy of the process through correlation of automated dispensing unit activity logs with medication administration records and intermittent direct observation of medication administration by trained observers.
- Involving patients and families in the process. Patients should be told what medications they are being administered and encouraged to ask questions if they are being given an unfamiliar medication.
- Double-checking processes for the administration of high-risk medications. This can be effective if used very selectively but is a poor substitute for automated methods.
- Using bedside scanning technology to allow real-time verification of proper administration and automated documentation. This technology is not widely available but holds great promise to revolutionize the reliability and safety of drug administration.

It will be hard to achieve meaningful change if the medical staff is not convinced that change regarding medication safety is necessary or desirable. Experienced health care leaders believe that these are effective methods to create favorable conditions for change:

- Use examples of system failures. Examples of situations in which the medication system failed should disturb all health care professionals and motivate them to prevent future similar harm to patients. This can be achieved by use of confidentiality protected real-life examples. Video dramatization of how failures occur can be particularly effective. The Partnership for Patient Safety® (p4ps.org) produces the “First Do No Harm” videos. The Institute for Health System Improvement (IHI.org) provides a video of the production “Charlie Victor Romeo” which is a dramatization of a series of aircraft disasters. These dramatizations are effective because they engage the audience in a story that shows exactly how systems fail.
- Make the malpractice case. Malpractice premiums are a ubiquitous concern for physicians. Input from malpractice insurance carriers that effective medication system safety initiatives can help curb malpractice rates and protect physicians can be a very effective message. Establishing system-focused programs to improve systems and prevent future liability has been called “proactive risk management.” Colorado Physicians Insurance Company (COPIC) is a physician-sponsored malpractice insurer that provides coverage for 75 percent of Colorado physicians. COPIC’s proactive risk management approach includes near-miss reporting,
risk assessment surveys of practice patterns and a malpractice price structure tied to safety survey scores, corrective action and participation in risk reduction programs. While the COPIC initiative is the best example of a direct linkage between adoption of patient safety practices and reductions of malpractice premiums, other malpractice insurance carriers such as Medical Mutual have begun to emphasize proactive risk management.

- Make the business case. Improved patient safety has been shown to reduce health care costs by decreasing costly adverse events. According to the American Journal of Health-System Pharmacists, over 3 percent of hospital admissions result from a need to treat a medication error. Over 4 percent of hospitalizations are complicated by an adverse drug event and the average additional cost of an admission attributable to an ADE is over $2,000. Educating staff about the financial benefits can be effective as long as it is made clear that patient welfare, not finances, is the primary driver of the change initiative.

- Educate staff about external drivers of change. It is impossible to get full buy-in from everyone. There are always some staff members who will argue and resist any change. The need to comply with national standards, particularly those mandated by regulatory or accrediting agencies such as CMS and JCAHO can be cited as an effective reason for change for those staff who don’t get it.

**Medication process**

It is difficult to change a process that cannot be measured. Effective change requires effective measurement so that improvement goals can be set and progress can be monitored. Patient safety advocates recommend these techniques to measure the effectiveness of medication system safety initiatives:

**Establish and measure indicators for medication system safety.**

Institutions can measure process indicators (such as the percentage of illegible orders received or the number of orders written which fail to adjust dosage for renal function) and outcome indicators (such as the frequency of adverse events such as hypoglycemia or anticoagulant related hemorrhage). These indicators can help an institution prioritize areas that need improvement and are critical to assessing whether system changes are having the desired beneficial effects.

**Use external benchmarks.**

While it is important for every institution to have its own goals for improving patient safety, it can be instructive to compare performance with similar organizations. This benchmarking can help identify areas that may need particular attention for improvement.

**Track and trend events.**

When adverse events occur, it is important to try and identify and trend common contributing factors such as lost orders or poor legibility. This tracking can help the institution identify priorities for systematic improvement.

**Institute near miss reporting.**

Organizations with an effective safety culture will not just focus on adverse events but will actively measure near miss events. These are situations where some aspect of the system failed, but a vigilant staff member intervened to prevent or significantly reduce the actual patient harm. Institutions should view near miss reports as patient safety “treasures” since they can teach us valuable lessons about potential deficiencies in our systems, without having to pay the price of an adverse patient outcome. Institutions with a healthy patient safety culture do not ignore multiple near miss events and wait for a serious adverse patient outcome to take effective corrective action.

**Assess risk.**

While effective measurement of adverse events and near misses are important, there are some medication safety practices that should be instituted as a routine matter. These are issues that have been demonstrated to be important safety concerns at other institutions. JCAHO Sentinel Event Alerts and Institute for Safe Medication Practices Quarterly Action Agendas (formerly Safety Alerts) are notable examples.

While it is important to measure patient safety performance, measurement alone is not enough. The goal of the measurement process is to provide the necessary environment to support effective change. The use of an effective strategy such as rapid cycle testing in a series of PDSA (Plan Do Study Act) cycles is essential in order to improve the safety and reliability of the medication system. It is critical to act upon the information provided by measurement systems and then re-measure the process to assure that the desired outcome has indeed been achieved.

In addition to investigating root causes of adverse events and learning from other institutions, organizations can engage in proactive risk assessment activities such as failure mode effect analyses.
FMEA involves mapping out a process from start to finish into component steps. A team of staff members who are familiar with the process will then consider how the process might hypothetically fail, step-by-step. Each possible failure is scored based on the anticipated frequency, severity and likelihood of detection of the failure. This gives an overall risk score for each step and for the entire process. Steps with the highest risk scores generally contribute the highest risk and should be redesigned.

These different risk assessment methods are complementary and will often identify the same high risk areas of the medication system such as administration of insulin, opiates and narcotics, benzodiazepines, anticoagulant therapy, injectable KCl, hypertonic saline and cancer chemotherapy agents.

Medical error prevention

Another major area to focus on regarding patient safety is medical errors because they result in highly significant morbidity, mortality and excess costs.

Medical errors can be classified into two categories:
1. Process errors— those related to administrative tasks, initial investigation, treatment delivery, communication and payment
2. Knowledge errors— those related to a lack of access to clinical knowledge or skills

Administrative errors and knowledge errors related to information access and delivery are among the most preventable of all medical errors. What all of these errors share is a direct relationship to health care documents, including patient records, physician orders, prescriptions, test results, insurance forms and many others.

Typically, administrative errors can be traced back to an inaccurate source document as a result of poor document management.

Electronic medical records

Paper records are subject to errors from poor or misinterpreted handwriting. Many medical errors can be attributed to the slow, tortuous and unreliable process of paper record retrieval and review prior to providing care.

So how can an EMR help to address medical errors? How is an EMR better than a paper system if they contain the same materials? There are many facets of an EMR that can prevent medical errors:

Health maintenance prompts and proactive care

An EMR will prompt a physician to order a health maintenance test such as a mammogram. The EMR prompt can prevent a patient safety issue from developing if the test is ordered. Most patient care is reactive and episodic. When an EMR is used reactive visits can include more proactive care and all visits can include optimization of disease management. An EMR can also use a disease registry for population management and this can be integrated with a secure patient portal for eVisits.

Medication management

Using an EMR with a medication manager, a clinician can reduce a variety of medication prescription errors. These errors include mistakes related to illegible handwriting, selection of the wrong dose of medicine, and prescribing two or more different medications that end up causing an adverse drug interaction, etc.

Complete patient history

In a properly executed EMR all information is available at the clinician’s finger tips without having to sort through a voluminous paper chart that may be incomplete. Organization of the records is much easier in the electronic format and data can be mined very efficiently for the management of the patient.

Interoffice communication

With an EMR, clinicians can send intra-office messages to one another that are time-sensitive and high-priority which leads to timely care of the patient and reduction of medical errors.

Complete documentation

In an ideal EMR, all of the relevant clinical reports including those from lab, imaging, physical therapy, etc.,
and those from consultants are loaded into a preformatted matrix and cross-linked for continuity of care. Even patient inputs are included in some EMR systems. There is less chance of an error when care is being provided by many sources and all the information from those sources is placed in a medical record.

Electronic decision support systems

Information systems that provide evidence-based medical knowledge at the time of care can standardize clinical decision-making and reduce the clinical decision error rate. This enables practitioners to benefit from expert advice at the point of care. Decision support system designers can never anticipate every possible set of circumstances. Optimal decision support system design and management allow the system to evolve and improve through feedback from users.

Having information that is standardized, usable, and shareable is the very essence of error reduction An EMR allows a health system to easily audit the quality of care and develop patient safety programs with the knowledge that the audits obtain. A comprehensive information system will provide an extension to the future National Quality Forum’s patient safety event taxonomy, which is intended to facilitate a common approach for patient safety.

While increasing sophistication is slowly reducing medical errors, all efforts must start with awareness. As staff members understand their own limitations and that of the system, improvements can be made.

We hope that some of these key tips will prove helpful to your efforts to improve the safety and reliability of existing systems while we work together to build the systems of the future. Preventing even one misadventure can be a compelling justification for these efforts.

First, do no harm.

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