

## Hospital Quality Institute

### Vanguard Award

Healthcare System: Sutter Health Valley Area  
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Title of application: Applying the Science of High Reliability to Eliminate Patient Harm

Identify topical area of focus: Patient Safety

Brief statement by an executive leader in support of the application

Nothing is more important than the safety of the patients we care for in our organizations. At Sutter Health, the focus on providing affordable, high quality, safe care is central to our mission. In our quest to support this mission, and based on an urgent call to action due to a series of events resulting in harm to patients, the four southern affiliates within the Sutter Health Valley Area sought to find a gold standard approach for eliminating patient harm. We searched for, and partnered with a nationally recognized partner to implement culture of safety work utilizing high reliability science. In addition, Sutter Health was involved in Lean improvement culture for performance improvement and the high reliability science approach for safety work aligned to this methodology. The journey involved creating a burning platform for safety improvement with full board support and engagement of leadership and medical staff leadership. A three-phase approach took us through diagnostics, implementation, which included prevention, detection, and correction, and finally sustainment. In the fourth year of this multi-year journey, the organizations have experienced a significant impact on the safety culture and excellent results related to reducing and eliminating preventable patient harm. The safety culture has taken hold and the results reflect this fact. The high reliability science approach was the first of its kind in our system and because of the positive outcome, a plan for spread across the entire Sutter Health system is underway.

Dr. Ash Gokli, Chief Medical Officer  
Sutter Health Valley Area

## Executive Summary (*limit 200 words*)

In response to multiple safety events from December 2011 to January 2013 in Sutter Health Valley Area (south), we searched for a gold standard approach to safety improvement. We partnered with a nationally recognized consultant that used high reliability science to improve safety and aligned to the Sutter Health Lean improvement culture, allowing us to lay safety work on a foundation of Lean culture.

Initially, we purposefully invested time to gain full engagement of our physicians and healthcare team. Over three months the chief medical officer, quality executive, and consultants traveled around, sharing safety stories and educating on high reliability science for safety to create a burning platform for safety and consensus for change.

In 2013 the journey began with a three-phase approach, diagnostics, implementation (including prevention detection, and correction), and sustainment. We invested heavily in training, including nine hours of training on leader standard work, three hours of error-prevention training for nearly 5000 physicians and employees, and 50 individuals were trained on state-of-the-art root cause analysis.

The results are phenomenal and the safety culture is taking a strong hold. This work was so successful; it set the stage for spread of high reliability science for safety across the system.

*(Limit the sections 3-8 to a total of 2,400 words)*

### 3. Background and relevance of the problem being address and effort undertaken

Sutter Health Valley Area south, (three hospitals and a multi-specialty medical foundation), experienced a cluster of serious safety events between December 2011 and January 2013 resulting in patient harm leading to regulatory survey activity and penalties.

Reviewing the events with medical staff leadership created a burning platform for change. In follow up, a national search was initiated to identify a gold standard for improving safety culture to eliminate harm, leading us to partner with a nationally recognized consultant who utilized science of high reliability to support safety culture improvement. To create clear understanding of the current state of safety and to build consensus for change, the chief medical officer, quality executive, and consultant attended medical staff, administrative, and management meetings sharing the safety experience. With approval and full engagement from executives and medical staff leadership, and with strong board support, a multi-year safety journey began.

According to consultants, patients have three important goals for their care, don't hurt me, heal me, and be nice to me (in that order). Quality and safety is the core of healthcare and is the most important issue for patients and healthcare teams. Measures of quality, safety, and affordability are also important to regulators and payers and are the foundation of consumer reports, such as The Leapfrog Group and Truven Health Analytics.

### 4. Describe the effort, including scope, process, strategies and tactics utilized, challenges encountered and how they were addressed

As we decided to pursue the use of high reliability science for safety, we purposefully invested time to gain the full engagement of our physicians and healthcare team. Over three months the chief medical officer and quality executive traveled around, sharing the stories of harm, educating on the application of high reliability science to improve safety and operational excellence, in order to create a burning platform for safety and consensus on the need for change.

A planning team worked to establish a project plan, milestones, and timelines. An implementation steering committee led by the area president and site-specific implementation teams led by affiliate CEOs, clearly assigned responsibility for safety culture at the highest organizational levels.

The safety plan was structured in three phases, diagnostics, implementation (further organized into areas of prevention, detection, correction), and sustainment. (Attachments A-D) The diagnostic phase included the classification of events into levels of harm, type of event, involved professional groups, GEMS error type, individual, and system failure modes, resulting in deep understanding of safety drivers and culture. We established a baseline serious safety event rate and developed internal capability to classify harm to measure safety performance over time.

Diagnostic results were shared broadly from the governing body to front line staff. Results lead to four strategies for improvement; leader standard work, error-prevention methods, cause analysis approaches, and the ability to learn from safety lessons. A multidisciplinary design team was established to develop these evidence-based interventions, moving us from diagnostics to implementation.

Implementation included three areas, prevention, detection, and correction. Prevention involved defining leader standard work for safety to support leader adoption of skills to build and sustain a culture of safety and performance excellence, tied to our Sutter Lean improvement methods. (Attachment E) Key features such as a daily huddle to discuss safety issues, a Swift Chain of Command to notify and activate the highest levels of leadership when a critical safety issue is identified to promptly resolve issues, and a Fair and Accountable Culture (Just Culture) approach using a performance management decision guide (PMDG) to make decisions about how to manage the human component of safety events using an algorithm. The PMDG for staff was so successful that the medical staff leadership developed a physician version for use as a peer review tool. A safety dashboard including leading and lagging measures was developed to track performance against goals established by the steering committee.

The steering committee determined that every medical staff leader and employed leader, including charge nurses would attend a series of in-person training on leader standard work. Nine hours of training was delivered to nearly 600 leaders in four segments over four months.

The design team developed error-prevention tools, organized into a SAFE toolkit based on what we believe about safety and what we do to address the beliefs. (Attachment F) Our certified trainers taught over 400 classes, in three-hour sessions to nearly 4700 active medical staff members and employees. The training was interdisciplinary, supporting team coaching/checking for safety. The medical staff participation in these classes was mandated by two of the medical executive committees while the other two worked through influence to gain participation.

For detection a state-of-the-art approach to cause analysis was developed, including a toolkit designed with best practices for investigation and analysis of safety events, including use of apparent cause analysis, a shortened but credible investigatory method for less significant safety events and root cause analysis for significant events requiring a deep and rigorous investigation with action plans for root causes. Administrative members are the RCA champions to lead the process and to provide support for identified barriers. All RCAs are presented to medical staff leadership and the governing body. A two-day training was provided to 50 staff, teaching gold standard of cause analysis. We provided a second session to reinforce the tools in order to reach full implementation.

Finally, we moved to correction, which includes hard-wiring changes related to root causes and spreading lessons learned to prevent future occurrences. We established various methods to communicate issues, findings and corrections but have found this to be one of the greatest challenges that we continue to explore and evolve. We know that the optimal process includes multiple vehicles of delivery to the various stakeholders as well as the need to include accountability.

Sustainment, the final phase is described in detail in the sustainment and scalability section.

5. Describe the results of the effort

To track results, a safety dashboard was developed including leading, lagging measures and goals. (Attachment G)

Leading measures included annual culture of safety survey result, training compliance for leaders, medical staff and staff, and turnaround times for RCAs.

Lagging measures included serious safety event counts and rates and counts of precursor (reached the patient but minimal or no harm), near misses, and details by event types, harm levels, hospital-acquired conditions/infections, and medication events. To promote event reporting, a goal for increased reporting was included as well as a goal that we should not learn of a safety event from any outside entity as a first notice.

- We trained 3802 staff, 870 physicians, nearly 600 leaders, and 50 RCA experts.
- This year we are on track for a 24% reduction in serious safety events. Based on our foundational work, we are utilizing Lean to improve patient safety indicators and hospital-acquired infections, such as CAUTI that has shown a 50% median improvement for the three hospitals this year.
  - In two hospitals, we saw significant improvements in the serious safety event rates including reductions in hospital-acquired infections. One hospital is at 750 days since the last serious safety event and the second is at 400 days. The third hospital experienced an increase in safety events during the first two years post implementation but is now seeing significant improvements including 11.5% increase in safety event reporting.
    - Within this hospital, a focused review identified three specific types of events leading to the increase; surgical site infections, delay in diagnosis/treatment, and other care management issues. Specific improvement efforts were put in place and are showing positive results.
- The foundation had low numbers of safety events and showed a 400% increase in reporting of potential safety events. There was complete buy in for mandating physician-training resulting in 100% compliance. Daily safety huddles are rigorous and occur across all clinics.
- 2016 RCAs have been conducted utilizing gold standard tools within required timeframes 100% of the time.
- There has been no safety events identified by outside entities as a first notice.

#### 6. Discuss the significance of the results. How do the results demonstrate outstanding achievements?

Reducing/eliminating harm has a profound impact for patients and our healthcare team. The alignment to Lean culture has reinforced and supported the safety approaches. The training of nearly 4700 staff and medical staff was a feat in itself. The safety culture has taken hold and no longer do we hear that safety is not an issue. Leader standard work such as rounding and daily safety huddles continue and maintain the safety focus. Error-prevention techniques are embedded and have become shared language and practice across all disciplines. The investment has reduced serious safety events, created a culture that is laser focused and reinforces team-based, patient-centered care.

One organization has gone two years with no preventable serious safety events, and another over one year, a proud accomplishment. These organizations have seen reductions in hospital-acquired infections and ended 2015 at full performance for quality goals, as did the medical foundation.

The third hospital drilled into the types of events, finding there were three types of events driving the increase in their rate, surgical site infections, delay in diagnosis/treatment and other care management issues. As a result, launching intensive improvement efforts are proving effective in 2016.

As noted previously, the results have been significant with reductions in serious safety events, including hospital-acquired infections.

Finally, the interest that was generated at the system level laid a strong foundation for Sutter to embark on a safety journey.

#### 7. Describe sustainability and scaling of the achievements.

Safety is a core value in our organizations and as a result there is a significant, sustained focus on safety. As an example, the practice of stopping the line for safety and using ARCC (Ask a question, make a Request, voice a Concern, and use the Chain of command) is part of the expectation for everyone and crosses professional groups, without reservation. Examples include environmental services reminding clinical staff to stop and use alcohol-based hand rub, nurses stopping surgeons during a timeout process, and cross-checking medications that have prevented medication errors. There are daily examples of people working with safety as a first consideration.

There is ongoing oversight and accountability from the governing body to meet safety dashboard goals. The safety dashboard is reported at organizational safety/quality, and medical executive committees. The implementation steering committee is now the safety governance committee and is responsible for oversight of the program and guiding new activities.

Daily safety huddles continue at each campus and is embedded as leader standard work for safety, focusing medical staff and operational leaders on safety by reviewing safety issues within the last 24 hours, safety concerns for the next 24 hours, and accountability for any issues that require follow up.

The performance management decision guide is used regularly as part of our fair and accountable safety culture (Just Culture), promoting the support of our medical staff and staff who are involved in error that are caused by process and system-based issues and addressing accountability.

New providers and staff receive error-prevention training as part of orientation and new leaders receive leader standard work training. Safety orientation imparts the message that safety is a core value and as such is a priority to daily activities.

A safety coach program was implemented for sustainability. The safety coaches are front line staff who round and coach their teammates on error-prevention tools, providing feedback and capturing safety stories.

This safety work is scalable and reproducible across all care settings. The ability to classify harm events, determine special causes or common causes drives the content for the leader standard work, error-prevention tools, and techniques to foster a fair and accountable culture, as well as sustainability approaches. According to our consultant, there is tremendous commonality in most organizations. Common causes lend themselves to common solutions such as those designed for our safety program. A safety dashboard with leading and lagging measures with granular information about types of events is reproducible in part, with existing information available in most organizations.

Sutter Health is in the process of taking the elements of the SHVA program and applying the tools, techniques, and approaches to plan for system spread.

8. Describe key lessons learned and any advice to colleagues who might try to undertake a similar effort.

Using high reliability science to enhance the culture of safety has been one of our most successful programs. We would take the journey again without reservation. Most implementation strategies were very effective and we would not change them. We spent tremendous time and effort setting the stage and sharing actual data and safety stories with our medical staff and other key stakeholders. This was time intensive but was key to getting broad consensus and engagement.

Creation of safety culture is important to laying a foundation for improvements. The typical approach is to target a single area of safety, instead of working on culture and deploying broad applications of safety improvement techniques. The use of fair and accountable culture (Just Culture) supports the individual and is hard on the process/system issues.

Providing the three-hour error-prevention training in interdisciplinary groups was powerful. While this posed some scheduling challenges for physicians, we were able to accommodate schedules and we would recommend this as a key success factor.

The harm classification process is fundamental to measure and understand the nature of events. Investing in the training of interdisciplinary teams and including physicians to classify events is extremely important.

Physician ownership and engagement in safety activities is crucial, including participation in RCAs, huddles, and identified improvement opportunities.

Involving the board, senior/medical staff leaders, medical staff and front line staff in safety supports the pre-occupation with safety and contributes to keeping safety first constantly.

Additionally, training front line leaders to do initial investigations of reported potential events should be done early. We're doing this in the sustainment phase which has caused the harm classification process to be more challenging.

Having a good mechanism to capture and share stories of near misses and a rigorous approach to spreading lessons learned and insuring accountability for completion of recommended actions is a must. We continue to look for ways to effectively communicate and spread lessons to all disciplines and confirm accountability for action items.

In closing, we would say culture of safety is a journey, not a destination. It requires a systematic approach with board and senior leader ownership, physician engagement, and takes commitment and investment of time, but is absolutely worth it.

*Applicants are welcome to upload any supplementary materials in support of their application, such as graphs, data displays, photographs.*