



How One Hospital Stopped Paying \$200,000 for \$1 Sponges and Saved \$1,200,000*

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Abstract

Reports indicate that one in 5,500 surgeries results in an incidence of retained foreign objects (RFO) — 68% of the time the object is a sponge.[1] The operating rooms (OR) at the University of New Mexico (UNM) Hospital had an error rate of 1-2 retained foreign objects per quarter. Associated malpractice costs averaged \$200k per case.

To address the issue, leaders at UNM made the decision to implement a TeamSTEPS[®]-based patient safety program from LifeWings Partners LLC that combines the best of teamwork and communications training with process improvement methods based on Lean principles. The hospital implemented a six-phase program and has trained approximately 350 staff, faculty and residents.

Recently the OR team created and implemented the communication, safety and debriefing process tools taught in the LifeWings program and the hospital has had zero cases of objects retained. Savings are estimated at \$1.2M per year based on that experience. Additionally, the hospital became more efficient and increased OR volumes without additional resources while also reducing surgical infections.

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An Outstanding Legacy of Service, But Leaders Knew They Could Improve

Exceptional quality medical care has always been the norm at the UNM Hospital. They have the distinction of being deemed one of the 100 top-performing hospitals and top 10 academic facilities in the U.S. This is especially impressive because it is the only Level 1 Trauma Center in New Mexico and provides a critical public safety net for patients who are uninsured.

The demands of being the only Level 1 Trauma Center in the state were the catalyst for a sweeping improvement program to gain efficiencies, reduce errors and improve staff and patient satisfaction.

Hospital leaders started with the OR. Due to the high volume of trauma cases, the operating rooms were used to capacity. The high utilization resulted in inefficiencies, errors and poor communication. Because of the financial demands associated with its public safety mandate, simply adding more resources was not an option. Hospital leadership knew it needed to make culture changes that were measurable, quick-to-implement, and most importantly, sustainable.

Due diligence on successful improvement programs convinced hospital leaders that a sound place to start their ambitious program was with crew resource management (CRM) training. Leaders reviewed proposals from several CRM providers and selected LifeWings because of their program's results and focus on sustainable process improvement.

Dr. David Pitcher, chief medical officer at UNM, emphasized that leaders made the decision to implement CRM as a "gateway" to the whole improvement plan because "before we made policy and process changes, we knew we needed to get staff to communicate better or else those new policies would not be successful." In April 2009, LifeWings' team of physicians and facilitators started the six-phase program and has since trained approximately 350 staff, faculty and residents.

Methodology

Step 1. Develop change-initiative skills for key leadership positions and an organizational structure that will support the new culture. Realizing no change would occur without partnership with the institution's physicians, UNM recruited physician champions, briefed all physicians in perioperative services through monthly meetings and surgery Grand Rounds, and made sure each physician understood the methodology, potential results and the "what's in it for you" for supporting the initiative. This was an important step, as UNM already had very high levels of patient safety in other areas. Next, key leaders at both the institutional and departmental level were trained on leading change initiatives. Skills learned included:

- Responding to difficult questions about the initiative
- Recruiting champions and coaching low performers
- Conducting rounding (a version of Gemba walks) for patient safety



Organizational development to support the initiative included:

- A project oversight and steering committee
- Revisions to policy and procedure manuals
- Alignment of leadership assessment systems to support the culture
- A data collection and analysis plan for project measurement
- Making the training and new safety tools mandatory for all physicians and staff—including consequences for non-compliance

Step 1 was perhaps the most important part of the methodology because research shows that “end user” adoption of culture-changing behaviors and tools is primarily a function of effective leadership.

Step 2. Provide training in teamwork and communication to support desired culture-changing behaviors. Following a site visit, a thorough patient care processes review and preparation of a teamwork scorecard as part of their needs analysis, LifeWings prepared customized courseware targeting the needs of UNM and presented it to physicians and staff. The training was interdisciplinary, experiential, and based on healthcare case studies. It provided evidence-based teamwork skill sets based on team training from the aviation industry—called Crew Resource Management (CRM) in aviation, and TeamSTEPPS in healthcare—and adapted for the needs of the OR team. CRM/TeamSTEPPS is based on the best science and research on high performing teams.

Step 3. Create and implement site-specific safety tools to hardwire the teamwork behaviors into daily work life. Using Lean methods, a small work group of physicians and staff met to 1) identify points in their workflow where improvements in patient safety were most needed; and 2) create safety tools such as checklists, structured handoffs, protocols, and communication scripts to facilitate the needed improvements. An education and implementation plan was created for each tool. Tools were implemented over a period of weeks. The first tool completed and implemented was a Pre-Procedure Briefing for surgical cases that incorporated the Universal Protocol. The tool also included checklist items to ensure all staff and needed equipment were available and operational, and that the patient was completely ready for the procedure to begin.

Step 4. Collect and analyze data to document results. UNM created a measurement plan to analyze results by examining safety measures including safety climate surveys, teamwork and communication issues, and process reliability and efficiency.

Step 5. Conduct training for “master trainers.” UNM wanted to bring the culture-changing initiative in-house as quickly as possible and avoid an extended engagement with an outside consultant. To develop their internal capacity, trainers were chosen to learn to provide teamwork skills training and to create and implement the safety tools. Once qualified by LifeWings, these trainers assumed responsibility for the roll out of Steps 1 through 4 in other departments of the hospital. UNM continues to roll out the system with plans to implement the culture change in its entire hospital.



Results: Dramatic Results Have Other Departments “Clamoring” for Training

Since the CRM program was implemented, hospital leadership can draw a direct line to significant improvements that have immediate and long-term effects on the hospital.

Before the implementation of CRM, the OR had an error rate of 1-2 RFOs per quarter. In addition to the harm to the patient and substantial malpractice cost associated with each case (typically \$200k each), staff time and energy spent on dealing with an RFO case was demoralizing and wasteful. Patients incur further risk such as infections or conditions that require additional procedures that put them at risk. The cumulative effect of multiple cases for many years exacted an incalculable toll on the OR department. Eliminating these errors was just one of the many objectives of the OR improvement plan at UNM—but it was one of significant priority.



The results of the hospital’s focus on this issue are remarkable. Since the OR team has learned and implemented the communication, safety and debriefing tools taught in the LifeWings program and added the use of radiofrequency-based scanning devices to help track sponges (this does not help with instruments), the hospital has had zero cases of objects retained.

Dr. Pitcher acknowledged that the CRM had a “direct effect on the elimination of retained objects. There is no doubt in my mind that the communication techniques we learned from LifeWings were the catalyst.” Based on the hospital’s history, eliminating this type of error has resulted in a potential savings of \$1.2M per year—and that is just one of the benefits the hospital has noted.

Keeping in line with the original objective of the training, leadership leveraged the CRM skills to implement new “rules of the road” for the department. The results of these new policies are:



- Higher OR volumes without additional resources
- Reduced surgical infections
- Faster physician response times
- Operating rooms utilized far more efficiently with more surgeries done during the day instead of in the evenings

Benefits of CRM Have Greatly Enhanced Nurse Satisfaction

A significant benefit of the CRM has been improvements in nurse staffing. Prior to the adoption of the CRM principles, the reputation and experiences in the OR made recruiting and retaining nurses difficult. The hospital had to supplement their staff with 30-60% travelling nurses. The additional expense and administrative demand of the staffing problems weighed on the department's performance, morale and budget. Since the adoption of CRM principles, the improved experience in the OR has garnered UNM the reputation of a desirable place to work. Dr. John Russell, Chairman of the Department of Surgery expressed his perspective that the most remarkable result of the LifeWings program was that when new staff and travellers are in the OR now, they "actively comment that the culture and communications are better than any other place they have ever worked." Further, Dr. Russell stated that he can "guarantee that was a result of the skills gleaned in the LifeWings program. They would not have said that prior to that implementation."

They are now able to recruit and retain more full-time nurses and only have to use travelers to supplement approximately 10% of their staffing needs. Even hospitals that implement CRM well can be challenged with suboptimal adoption rates. But, due to the overwhelming success of its program, Dr. Pitcher estimates that 95% of the UNM OR physicians champion the CRM tools.

Dr. Russell was also part of the group that evaluated and helped implement the CRM/improvement effort. He stated that the most important aspect of the program's success was without a doubt "having physician champions. If people thought it was an effort directed just by administrators, people would not buy into it at all. Having physicians who are seen as influential with other staff is critical."

Moving Forward

Even though the overall improvement program has been consistently viewed as a success, hospital leaders acknowledge that continual improvement is a priority and the key to long-term ROI and patient safety improvement. Dr. Russell stated that implementing post-surgical debriefs with more regularity is an area that would help ensure progress.

UNM leaders selected LifeWings because of their program's pathways to sustained culture change; hospital leaders wanted to ensure that results would be maintained after the programs ended. The positive buzz of the initial implementation created demand from other departments eager to replicate the OR's results. Several CRM champions have completed the LifeWings Train-the-Trainer program and will start providing classes this year.



The notoriety of the program has also resulted in a plan to teach CRM to new doctors and graduates in the medical school.

LifeWings, located in Collierville, TN, was founded in 2005 with the sole mission of helping healthcare providers improve safety with the proven teamwork, safety tool and communications methodologies used successfully in high-reliability industries. Their leaders, experts in healthcare and aviation, were the pioneers in effectively adapting tools proven in the aviation world to healthcare. Their program succeeds where others have failed because they require their clients to measure results and have a plan for sustainability. Because they teach clients how to create safer cultures and teach future employees the methods, the improvements are systemic, not one-time quick fixes. As a result of industry-wide recognition of the LifeWings program, their team has helped providers nationwide improve their service delivery, patient survey scores, and employee satisfaction. Providers that employ the methods in LifeWings programs also reduce exposure to malpractice and loss of reimbursement due to errors.

*Savings of \$1.2M estimated on one year without malpractice claims for RFOs.

About the Author

Stephen Harden is Chairman and CEO of LifeWings Partners LLC – a team of physicians, astronauts, nurses and pilots that have helped over 110 healthcare organizations in the U.S. and abroad implement the best safety practices from aviation and other high reliability industries. He is the author of two books on patient safety, including “CRM: The Flight Plan for Lasting Change in Patient Safety,” the definitive how-to text on implementing aviation-based safety tools in healthcare, published by HCPro. Results of his patient safety work have appeared in over 35 publications and news outlets. Mr. Harden has been involved in safety training for over 20 years, producing over 40 separate training programs for commercial aviation, military flight squadrons, heavy construction, military contractors, and healthcare. He is a certified TeamSTEPPS master trainer and has personally trained over 20,000 physicians, nurses, staff and administrators in the last 12 years.

[1] <http://www.ncbi.nlm.nih.gov/pubmed/18589366>

[2] JSHIP does not endorse nor evaluate LifeWings