Applying the Comprehensive Unit-based Safety Program (CUSP) To Promote Safe Surgery

PREVENT HAIs
Healthcare-Associated Infections

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CUSP

Contents

Introduction

Health care organizations around the world are increasingly focused on patient safety and health care quality. While health care providers are committed to improvement efforts, many struggle to create and sustain positive change. The Comprehensive Unit-based Safety Program (CUSP) helps providers achieve the lasting improvements they seek.

Adaptive work can be discouraging and nebulous. Creating a skin preparation checklist is far easier than managing the staff's attitudes and values, or engaging senior executives in patient safety efforts. You may be tempted to focus on technical work and leave complex adaptive problems unaddressed. Yet many change efforts fail because adaptive work is neglected. An evidence-based procedural checklist (technical work) will only impact outcomes if staff understand, value, and prioritize use of the checklist (adaptive work).

This guide highlights five steps of CUSP that bring adaptive work into the change process and help your team improve your unit's safety culture. By integrating CUSP with technical interventions, your team can achieve real and sustainable improvements in safety.

CUSP IN PRACTICE

In 2004, more than 100 intensive care units (ICUs) in Michigan implemented CUSP in their now celebrated work to eliminate central line-associated bloodstream infections. Since their success, thousands of units nationwide have used CUSP to target a wide range of safety problems—hospital-acquired infections, patient falls, and medication administration errors, among others.[1-8]

What's in This Guide?

There are two aspects to the AHRQ Safety Program for Surgery: an adaptive component and a technical component. You and your health care organization can redesign your care system through technical and adaptive work to improve patient safety and eliminate preventable harm. Technical work changes procedural aspects of care that can be explicitly defined, such as surgical skin preparation procedures. Adaptive work changes the attitudes, values, beliefs, and behaviors of the people who deliver care. This guide addresses the adaptive component. For the technical component, please refer to the Surgical Complication Prevention Guide, the companion guide in the AHRQ Toolkit To Promote Safe Surgery.

By using this guide and tools in your perioperative area simultaneously with the Surgical Complication Prevention Guide, your team will become part of a national effort to reduce surgical complications. However, this guide is not a prescription for success. The authors of this guide do not work in your perioperative area. Only your team understands your specific obstacles and your opportunities for improvement. The materials presented here provide a structure for your efforts to implement evidence-based practices and protect your patients from surgical complications. Success requires creative energy, persistence, leadership, and teamwork.

CUSP Is Local

CUSP is an intervention that has improved teamwork and safety culture on a large scale. Large-scale change is achieved when multiple teams implement CUSP *locally*. Patient safety culture improvement efforts are crucial at the local unit level. Local norms have a powerful influence on the attitudes and behaviors exhibited by care providers. Unit culture influences the extent to which providers participate in quality improvement efforts, adhere to evidence-based guidelines, or even speak up when they are concerned about the care of a patient.

How Does CUSP Change Local Culture?

Frontline providers cultivate wisdom by delivering care within their local systems. They encounter patient safety hazards on every shift and develop tactics to safeguard their patients against them. CUSP helps your team improve local safety culture by tapping frontline wisdom. It provides a mechanism to change systems and eliminate safety hazards for all patients. Far too often, frontline staff feels that patient safety improvement efforts are done *to* them, not *with* them. When frontline providers *own* the improvement process, local safety culture improves.

Respect the wisdom of frontline providers.

CUSP Steps: An Overview

Though CUSP comprises five steps, the program is a continuous process designed to incorporate an evidence-based patient safety infrastructure into your unit. The steps are briefly described below.

Step 1: Science of Safety Training
Introduce your teams to the principles that promote and support patient safety and quality. Help them develop lenses to focus on system factors that can negatively impact care and lead to preventable harm.

Step 2: Staff Identify Defects
Identify patient safety defects in your work area. Your team can identify defects from incident reports, liability claims, or sentinel events. In this step, ask frontline staff how the next patient will be harmed through a short written survey.

Step 3: Executive Partnership
In this step, you'll partner with a senior hospital executive to develop a shared understanding of local defects, build consensus and a plan for how to mitigate those defects, and develop shared accountability for implementing and evaluating the plan.

Step 4: Learning From Defects Through Collective Sensemaking
Your teams will use a practical and valid tool to learn from defects, answering four basic questions:

1. What happened?

2. Why did it happen?

3. What did you do to reduce risk?

4. How do you know that risks were reduced?

Step 5: Tools To Improve
Use tools to improve teamwork and communication in the perioperative area. Teamwork and communication tools include operating room (OR) briefings and debriefings, and tools from the national TeamSTEPPS program. TeamSTEPPS is an evidence-based teamwork system to improve communication and teamwork skills among health care professionals.

Who Is Accountable for CUSP?

CUSP is a transdisciplinary process that incorporates the wisdom and unique perspectives of all providers and staff. However, in order to ensure timely completion of project activities, your team will need to choose a team leader. This leader will oversee the implementation of CUSP, and additional team members can help implement each of the steps.

Pre-CUSP Work

Assemble a CUSP Safety Team

The CUSP safety team transcends discipline-focused silos. Transdisciplinary teams collaborate throughout the entire problem-solving process, instead of developing solutions in isolation and then trying to align them. The team includes your team leader, a surgeon champion, an anesthesia provider champion, and a nursing champion. The CUSP safety team leader and transdisciplinary project champions must be able to dedicate a minimum of 2 to 4 hours per week to this program. Additionally, hospital epidemiology or infection control professionals are important CUSP safety team members since they will contribute important expert advice and data to the project. Your CUSP safety team will be most effective if it includes people from across the perioperative area—frontline staff from the preoperative unit, OR, post anesthesia care unit, ICU, and surgical floors. Team members should clarify their roles and responsibilities early in the team formation process.

The CUSP safety team leader (or designee) should work with hospital management to connect with a senior executive and secure his or her commitment to the safety program. When selecting a senior executive, ensure he or she is available to contribute meaningfully to the team and is approachable. Regardless of his or her experience as a clinician, your senior executive partner should be comfortable having important discussions about difficult and sensitive topics.

🛠️ Tools you can use	How you'll use them
Surgical Safety Team Roles and Responsibilities Tool (Appendix A)	Assign team members to core tasks listed in this form. Post the list in a visible location for staff reference.

Our quality improvement department has worked on surgical care improvement project (SCIP) measures for years. At first, we didn't understand why our hospital's chief executive officer (CEO) had signed us up for the safety program for surgery. We thought, "We are already doing this stuff." After joining a few project calls, we began to understand that CUSP would require a new quality team of frontline staff and administrators and a fundamental restructuring of how our hospital did quality work.

—Safety Team Surgeon Champion

Assess Your Culture of Safety (Baseline Assessment)

The ongoing measurement of safety culture using surveys or questionnaires is quickly becoming an industry norm in health care. If your organization has not conducted a safety culture survey, such as the Hospital Survey on Patient Safety (HSOPS), it should conduct it in the perioperative areas at the start of this project.

Safety culture questionnaires elicit frontline providers' attitudes and perceptions about patient safety topics. Individual providers complete the questionnaire anonymously, and responses can be reported by job category (for example, nurse, physician, or surgical technician), by unit, or by hospital. Your team can reassess perioperative safety culture on an annual basis.

Before administering a safety culture survey, explain its purpose to frontline providers. Emphasize that you want to seek their wisdom, opinions, and perceptions of safety on their unit, and ensure that they will receive feedback on the survey results. *All* clinical and nonclinical providers who work in your perioperative area should be included in this culture assessment (for example, nurses, physicians, and unit clerks).

🛠 Tools you can use	How you'll use them
HSOPS Survey User's Guide	Learn how to plan and administer your survey and make use of the important data you collect.

We measure safety culture across the hospital every year. But when the safety program for surgery started, we saw an opportunity to really assess our perioperative culture. Even though our staff is tired of taking surveys, we administered HSOPS through the online project platform. This time, we shared survey results and their interpretations with our staff. We told them that we needed their leadership to make things better. Our frontline staff started to realize that they were the center of our quality team.

—OR Nurse manager, Safety Team Member

CUSP Steps

Step 1: Science of Safety Training

A "system" is a set of parts interacting to achieve a common goal. All too often, we assume that patient harm occurs because of inexperience, lack of supervision, or bad luck, when in fact, care is delivered in imperfect systems. Perioperative teams must understand the system in which they work to enable change in their clinical setting.

> *Rather than being the main instigators of an accident, operators tend to be the inheritors of system defects…their part is that of adding the final garnish to a lethal brew that has been long in the cooking.*
>
> *—James Reason, Human Error*

What the CUSP Safety Team Needs To Do

Have your staff view the Science of Safety video. The CUSP safety team leader should ensure that *all* clinicians and staff members watch the Science of Safety presentation within the first month of CUSP implementation. Be sure to track training completion. For example, you can ask clinicians and staff to sign a training attendance sheet. Your CUSP champions can facilitate training for their respective disciplines. Depending on what is practical for your perioperative area, you can share the video in individual to large group settings.

🛠 Tools you can use	How you'll use them
Science of Safety Video ([Watch the video](#))	This video will help your teams to— • Identify system failures that can impact patient safety • Apply design approaches that can be used to improve patient safety and quality • Integrate CUSP steps into unit processes

> *When we introduced this project to our perioperative area, individual units were quick to blame others for our surgical infection rates. The floors blamed the OR; the OR blamed the floors and clinics. We had to teach our staff that infection rates are the result of faulty systems, not bad clinicians. Our surgical site infection (SSI) rate is not going to budge if all we do is exchange blame. After the Science of Safety training, you could see a few lights go on. Clinicians take care so personally.*
>
> *—Safety Team Nurse Champion*

Step 2: Staff Identify Defects

Frontline providers understand patient safety risks in their clinical areas and have great insight into potential solutions to these problems. Your team needs to seek frontline providers' knowledge and use

it to guide your safety improvement efforts. The Perioperative Staff Safety Assessment (PSSA) helps you access this wisdom by directly asking providers:

- How will the next patient be harmed in your unit?

- What do you think can be done to prevent this harm?

- How will the next patient develop an SSI on your unit?

- What do you think can be done to prevent this SSI?

One of the strongest determinants of safety culture is whether local and hospital leadership respond to staff patient safety concerns. It is important to follow up on the defects identified by your staff.

What the CUSP Safety Team Needs To Do
The CUSP safety team leader (or designee) should hand out the PSSA form to all clinical and nonclinical staff in the unit.

Timing: We recommend that you administer the PSSA after the Science of Safety training session.

Logistics: One person should be assigned the task of handing out and collecting the PSSA forms. To encourage staff to report safety concerns, consider placing a collection box or envelope in an accessible location where staff can drop off completed forms.

Collective Sensemaking: Group the PSSA responses by commonly identified defects (such as communication, medication process, equipment failure, supplies, etc.). Summarize the defects identified (i.e., what percent of total responses were related to communication?).

What comes first? Prioritize identified defects using the following criteria:

- Likelihood of the defect harming the patient

- Severity of harm the defect causes

- Frequency of the defect's occurrence

- Likelihood that the defect can be prevented in daily work

-

🛠 Tools you can use	How you'll use them
Perioperative Staff Safety Assessment (Appendix B)	Gauge perceptions of risks in your unit and tap into team wisdom to proactively identify improvement targets.

Our SCIP compliance rates were great, and we thought we had normothermia maintenance figured out. When we reviewed our PSSA data, the number of comments related to hypothermic patients surprised us. Our nursing champion audited OR patients' charts for more data. She confirmed what our frontline staff had reported: our patients were cold postoperatively. For years, we had been telling our frontline how to improve. It became clear that they should be telling us that information.

—Quality Improvement Officer, Safety Team Member

Step 3: Senior Executive Partnership

The senior executive and frontline staff partnership is crucial to the CUSP safety teams' success. These partners hold each other accountable for reducing risk to patients. At the unit level, the senior executive stimulates discussions about safety, helps prioritize and solve safety concerns, and helps set goals for the clinical area. At the hospital level, the senior executive may lobby for policy change, promote access to resources, or resolve interdepartmental issues. Additionally, the senior executive is a bridge to the hospital's C-suite (CEO, chief medical officer, chief financial officer, etc.), and helps to share local wisdom with hospital administration and management.

What the CUSP Safety Team Needs To Do

The CUSP safety team leader (or designee) should schedule monthly safety rounds with the senior executive. He or she should also prepare the senior executive for meaningful participation in safety rounds. If the senior executive does not have a clinical background, offer a tour of your perioperative units. Schedule time with your senior executive to discuss perioperative unit-specific information. Include the following in the information packet:

1. Safety culture survey results

2. Prioritized list of safety issues compiled from the PSSA

3. Pertinent information about the unit that the senior executive may not know (for example, staff turnover rate, SSI rate, or other outcomes and process measures data)

Executive Safety Rounds

Executive safety rounds may begin with a senior executive walk-through of the clinical area, led by a frontline clinician. The focus of executive safety rounds, however, is the collaboration between the senior executive, CUSP safety team, and frontline providers to address safety issues. Your team can solicit collaboration with sit-down discussions open to all staff. Review identified safety issues together. The senior executive can help prioritize your perioperative unit's safety concerns. You can use quantitative methods (for example, numerically rating risk of harm) or informal methods (for example, discussion until group reaches a consensus) to prioritize the greatest risks. Informal methods tend to be less burdensome and can accurately reflect unit level risks.

🛠️ Tools you can use	How you'll use them
CEO and Senior Executive Checklist	That first meeting is very important for engaging your senior executive. You can use this template for suggested activities and talking points.
Safety Issues Worksheet for Senior Executive Partnership	Senior executives can use to note patient safety issues observed during safety rounds.
Engage the Senior Executive (Watch the video)	This six and a half minute video focuses on engaging a senior executive to partner with a unit, will bridge the gap between senior management and frontline providers, and will facilitate a system-level perspective on quality and safety challenges that exist at the unit level.

We discussed our PSSA data with the team at a monthly CUSP meeting. Our clinicians were concerned that the esophageal probes used in the OR were inaccurate. They wanted to trial more expensive bladder temperature probes. We knew we had to build our project around temperature measures our clinicians believed were valid. Our executive advocated for our team and got us the bladder probes. Her ability to remove high-level barriers was a crucial component of our success.

—Safety Team Leader

Step 4: Learning From Defects Through Collective Sensemaking

Once defects are identified and prioritized, the CUSP safety team must learn from them and implement improvement efforts. The Learning From Defects Through Sensemaking (LFD) tool helps frontline providers investigate safety defects.

The LFD tool guides CUSP safety teams through a structured process to answer four questions:

1. What happened?

2. Why did it happen?

3. What did you do to reduce risk?

4. How do you know that risks were reduced?

What the CUSP Safety Team Needs To Do

Take a defect identified in your clinical area (incident report, sentinel event, liability claim) or one identified from the PSSA. Complete the LFD worksheet with your team. You may want to start with "low-hanging fruit" problems—those that are easy to fix—and progress to more difficult problems as you gain experience with the LFD process. After you are comfortable using and explaining the LFD process, you should discuss your LFD projects during executive safety rounds.

🛠️ Tools you can use	How you'll use them
Learning From Defects Through Collective Sensemaking Tool	Use this tool to lead discussions that engage frontline staff in characterizing defects, uncovering system-level causes, and developing plans for improving patient safety and quality. We recommend learning from at least one defect a quarter.

After piloting the bladder probes, sure enough—some of our patients were still hypothermic at the end of their surgeries. It was time to fix the problem. We went through the Learning From Defects Through Sensemaking process at our next monthly meeting. It wasn't easy to develop an intervention that everyone could agree on, but we knew our intervention was more likely to succeed because we incorporated different perspectives. It wasn't a top-down approach.

—Senior Executive

Step 5: Use Tools To Improve

Throughout this document, we've identified tools you can use as you implement the Safety Program for Surgery. In this section, we've listed some additional practical tools to help your team improve communication and teamwork. Each tool comes with detailed instructions.

What the CUSP Safety Team Needs To Do

Review your safety culture scores and determine which areas need improvement (for example, poor teamwork climate). Collaborate with frontline providers to select a tool that can best address their concerns.

🛠️ Tools you can use	How you'll use them
Briefing and Debriefing Tool (Appendix C)	Improve team communication and role clarity while caring for a patient in the surgical unit. **When to use?** With every surgical case. Research shows it can make a big difference when used in a meaningful way.
Briefing and Debriefing Audit Tool (Appendix C and Surgical Complication Prevention Guide)	Assess the quality of briefings and debriefings in your surgical unit. **When to use?** When you want to evaluate how well your staff is implementing briefings and debriefings.
Shadowing Another Professional	Identify and improve communication, collaboration, and teamwork skills between different disciplines. **When to use?** When staff believes that disciplines need to walk a mile in each other's shoes.

After a few project gains, we realized that we could tap frontline wisdom after every OR case by implementing briefings and debriefings. Now, after every case, the surgeon leads a brief discussion about what went right with the case, and what went wrong. The circulating nurse documents concerns on the debriefing form, and submits it to our CUSP safety team. We are not just "implementing CUSP." We are building a patient safety infrastructure.

–Anesthesia Champion

CUSP Is an Ongoing Process, Not an Endpoint

CUSP is an ongoing process, and is never truly finished. Prepare frontline providers who are new to your unit by including a Science of Safety presentation or video in their orientation. Revisit the PSSA on a periodic basis (e.g., monthly or quarterly) or make the tool readily available for staff to complete on an ongoing basis.

For More Information

There are two aspects to this intervention program: an adaptive component (pertaining to safety culture, teamwork, and communication) and a technical component. This guide addresses the adaptive component. For the technical component, please refer to the Surgical Complication Prevention Guide, the companion guide in the AHRQ Toolkit To Promote Safe Surgery.

You can access more learning materials on the Web site of the Toolkit To Promote Safe Surgery.

References

1. Berenholtz SM, Pham JC, Thompson DA, et al. Collaborative cohort study of an intervention to reduce ventilator-associated pneumonia in the intensive care unit. Infect Control Hosp Epidemiol. 2011 Apr;32(4):305-14. PMID: 21460481.

2. Cooper M, Makary MA. A comprehensive unit-based safety program (CUSP) in surgery: Improving quality through transparency. Surg Clin North Am. 2012 Feb;92(1):51-63. PMID: 22269260.

3. Dixon-Woods M, Bosk CL, Aveling EL, et al. Explaining Michigan: Developing an ex post theory of a quality improvement program. Milbank Q. 2011 Jun;89(2):167-205. PMID: 21676020.

4. Eliminating CLABSI: A National Patient Safety Imperative. AHRQ Publication No: 11-0037-EF. Rockville, MD: Agency for Healthcare Research and Quality. April 2010. http://www.ahrq.gov/professionals/quality-patient-safety/cusp/clabsi-final/index.html. Accessed Aug 20, 2015.

5. Pronovost PJ, Needham D, Berenholtz S, et al. An intervention to decrease catheter-related bloodstream infections in the ICU. N Engl J Med. 2006 Dec 28;355(26):2725-32. PMID: 17192537.

6. Sexton JB, Berenholtz SM, Goeschel CA, et al. Assessing and improving safety climate in a large cohort of intensive care units. Crit Care Med. 2011 May;39(5):934-9. PMID: 21297460.

7. Timmel J, Kent PS, Holzmueller CG, et al. Impact of the comprehensive unit-based safety program (CUSP) on safety culture in a surgical inpatient unit. Jt Comm J Qual Patient Saf. 2010 Jun;36(6):252-60. PMID: 20564886.

8. Wick EC, Hobson DB, Bennett JL, et al. Implementation of a surgical comprehensive unit-based safety program to reduce surgical site infections. J Am Coll Surg. 2012 Aug;215(2):193-200. PMID: 22632912.

Appendixes

Appendix A   **Surgical Safety Team Roles and Responsibilities Tool**

This tool will help your safety program team understand the core tasks of your improvement project and will help you organize your team to complete the work. Just like clinical teams, effective improvement teams have clearly defined roles and responsibilities. Explicit delegation helps share leadership, ownership, and accountability.

Appendix B   **Perioperative Staff Safety Assessment**

Empower your frontline to voice their patient safety concerns. Gauge perceptions of risks in your unit and tap into team wisdom to proactively identify improvement targets.

Appendix C   **Briefing and Debriefing Tool**

This tool will help your safety program team standardize your briefing and debriefing process to reduce or eliminate the potential for surgical site infections and other complications.

Operating Room Briefing and Debriefing Audit Tool
This tool will help your safety program team understand how appropriately you are using briefings and debriefings throughout the perioperative period. It can help your team identify practice patterns, so you can more easily pinpoint opportunities for intervention. You will find a real-time identification of defects and real-time system of learning.

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