Transforming Patient & Employee Healthcare Safety Culture through the Comprehensive Unit-based Safety Program (CUSP)

October 21, 2015

Susann Camus, MA, MPH, CHRP, LSSGB, NSQIP Quality Improvement Consultant
Karen Donaldson, BSN, RN, Surgical Clinical Reviewer, Royal Columbian Hospital
Alix Kite, RN, CPN, Clinical Nurse Educator, Peace Arch Hospital Operating Room

© 2015 Fraser Health NSQIP
How do you feel at the end of your work shift?
Overview

Part I: Introduction/Context
Part II: CUSP at Royal Columbian Hospital
Part III: Applying CUSP at Peace Arch Hospital
Part IV: Summary/Toolkit
What CUSP is

- A 5-step program aimed at changing a unit’s safety culture by empowering staff to assume responsibility for safety in their environment
- Engages staff, improves patient outcomes
- Aligned with Kotter’s Theory of Change, Lean/Six Sigma and other culture change methodologies
Watch Science of Safety video
Assemble a team
Measure unit safety culture
Identify exec champion
Do Safety Defects Survey
Group & prioritize responses
Sense-making: Opt for easy wins first
Measure progress
Kick-off party
Celebrate successes

Steps
Culture eats strategy for breakfast!
What does Culture mean to you?
What is Culture?

- The way we do things
- Values, attitudes, perceptions, beliefs
- How we act, how we behave
- The beliefs we share, what we expect of each other, what’s considered normal

(BC Patient Safety Quality Council, *Culture Change Toolbox, 2014*)

- Culture strongly influences how organizations function
Teamwork, communication, conflict

- Does someone lend a hand if your workload is excessive or are you the person who lends a hand?
- Is handover information complete or are there gaps?
- Do you have the equipment you need or do you make do?
- If a friend is having a bad day, do you offer support?
- If someone senior to you is having a bad day, do you tiptoe around and hope it will pass?
Teamwork, communication, conflict

- Does someone lend a hand if your workload is excessive or are you the person who lends a hand?
- Is handover information complete or are there gaps?
- Do you have the equipment you need or do you make do?
- If a friend is having a bad day, do you offer support?
- If someone senior to you is having a bad day, do you tiptoe around and hope it will pass?
How do you feel at the end of your work day?
How do you introduce new practices?

- From above: “Effective at 21h00, thou shalt…”
- From your direct supervisor
- Following in-services
- Word of mouth
- What value is placed on implementing evidence-based practice?
- Why do some things take hold while others do not?
How does your team communicate?

- Are communications respectful?
- Is what is said clear, concise and relevant?
- Are questions encouraged and answered?
- Are clarifications sought and provided?
- Is it okay to say, ‘I don’t know’?
- How frequently do you change your ‘usual’ communication style to deal with ‘difficult’ personalities?
How does your team work?

- Do you greet everyone or just the ones you know well?
- On a first name basis?
- Do team members behave differently depending on…
- Are all voices heard?
- Do experienced staff willingly help new staff?
- Do new staff speak up to offer solutions?
What happens where there is conflict?

- Are sources of conflict identified or ignored?
- When identified, what happens?
- Do stories end up on the unit gossip mill?
Science of Safety

- Medical errors and complications of care are common despite everyone’s best efforts
  - 7.5% of hospital admissions result in unintended injuries or complications resulting in mortality, disability or prolonged length of stay
  - 37% - 51% of these events are preventable (Baker et al., 2004)
  - Prescription errors occur up to 42% of the time (Kaushal et al., 2010)
Part II: CUSP at Royal Columbian Hospital
2 Question Safety Defects Survey

1) How we can cause harm to the next patient?
2) How we can prevent harm to the next patient?
RCH Survey challenges

Establishing common ground in a complex system

- Large OR/PACU
- Multiple specialties
- Complex patients
- Sophisticated surgeries
RCH Survey results

Total # responses by group,
RCH 2 question survey, Summer 2014, 89 participants

- Nurses: 55%
- Other/Not identified: 10%
- Care Aides/Housekeeping: 7%
- Perfusionists: 6%
- Surgeons: 6%
- Surgeon Assists: 6%
- Residents (GenSurg Anesth): 4%
- Anesthetists/Anesth Techs/Aides: 3%
- Periop Assists: 3%
<table>
<thead>
<tr>
<th>#</th>
<th>KEY WORD(S)</th>
<th>HARM</th>
<th>IDENTIFIED BY</th>
<th>ACTION</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SICK VISITORS /HAND HYGIENE</td>
<td>Harm: Visitors coming into PACU sick/don’t wash hands Preventing harm: Implement handwashing policy. Minimize visitors for PACU patients.</td>
<td>Nurse</td>
<td>Background: Visitors wash hands on leaving. Signs outside PACU not clear. ACTIONS: 1) Post large sign next to hand disinfectant dispenser near PACU entrance. 2) Hang sign in air above sink inside PACU. 3) Patient’s nurse to ask visitors if they have washed their hands.</td>
<td>Staff ok with signage. Awaiting refurbishment of wall space. Nurses gently asking visitors about hand washing.</td>
</tr>
<tr>
<td>2</td>
<td>STAFFING</td>
<td>Harm: Short-staffed</td>
<td>Nurses/ Surgeons</td>
<td>1) Agency nurses hired. 2) Three new nurses hired. 3) Recruitment ongoing.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>3</td>
<td>ANAESTHESIA CARTS</td>
<td>Harm: Inadequate/incorrect /infrequent stocking of anaesthesiology carts and machines Preventing harm: Have dedicated staff to deal with carts/machines or contract out stocking of trays</td>
<td>Anaesthesiologist</td>
<td>Anaesthesia aides are now restocking anaesthetic carts like it</td>
<td>Complete</td>
</tr>
<tr>
<td>4</td>
<td>HOUSEKEEPING</td>
<td>Cutting corners, incomplete cleaning</td>
<td>Nurse</td>
<td>Invite housekeeping leader to join CUSP team</td>
<td>Complete</td>
</tr>
</tbody>
</table>
CUSP at RCH: What did not work

- Asking surgeons and anaesthesiologists to join a committee on surgical culture, with no hierarchies

- 3 pm meetings
Now we hold monthly meetings Friday morning at 7am.

To encourage participation, we offered COFFEE....

LOTS OF COFFEE....

Okay, let’s be honest here, we used INCENTIVES.

*Starbucks cards were contributed by team members
Actions arising from RCH survey

- Holding bins in the OR
  - Keep it clean

- Scary signs
  - Prevent non-OR staff from
  - Taking scrubs
Royal Columbian Hospital Comprehensive Unit-based Safety Program (CUSP): Why patients get SSIs

Background
Surgical Site Infections (SSI) are a major contributor to postoperative mortality, morbidity, and increased length of stay (LOS) and readmission (Wick et al., Archives Surg. 2011). LOS for RCH surgical patients with an SSI is approximately 15.5 days compared to 8 days for patients without SSIs (Donaldson, Select Post-Operative Occurrence Summary, National Surgical Quality Improvement Program (NSQIP), 2013).

There are three types of SSIs:
- **Superficial incisional SSI** - involves only skin or subcutaneous tissue of the surgical incision.
- **Deep Incisional SSI** - involves deep soft tissues, typically any tissue beneath skin and immediate subcutaneous fat (e.g., fascia and muscle layers).
- **Organ/Space SSI** - involves any part of the anatomy (e.g., organs or spaces), other than the incision, which was opened or manipulated during an operation (ACS/NSQIP Operations Manual Chapter 4, pages 85-121).

Controlling antibiotic dose and timing, hair removal, controlling glucose, and keeping patients warm are key components to reducing SSIs:
1. Appropriate type and timing of antibiotics
2. Appropriate hair removal
3. Perioperative glucose control
4. Perioperative normothermia (keeping body temperature between 36.3-37.8°C).

Project Goals (June 20 – August 28, 2014)
The purpose of this study was to record patients’ temperature in preoperative hold, during their surgery, and after 20 minutes in recovery post-anesthesia care unit (PACU). Antibiotic timing and warming modalities were analyzed to identify if warming practices at RCH contribute to SSIs.

Instrument used to measure temperatures
- The Exergen Temporal Scanner thermometer was used as a validated clinical tool for measuring arterial temperature (Calonder et al., 2010).
- An advanced nursing student was hired to do all the measurements, using the same thermometer, to ensure consistency in measuring and recording temperatures.

Warming modalities
- Bair Hugger: upper body, under body, lower body
- Hot Line
- Flannel
- No warming modality used

Results:
Perioperative temperature, antibiotic location and warming modalities of 59 patients were recorded.

The results show:

- Temperature Drop From Pre-op to Post-op

- On average, the temperature dropped 0.4°C (p = 0.0002)

- Analysis carried out using Excel and JMP, specifically a Paired-Student’s t-test. Given the null hypothesis that there is no change in temperature pre- to post-op is true, the p-value is the probability that we would get an average drop of 0.4°C. Since 0.0002 is very small, this means the result is not very likely and we reject the null hypothesis. We can conclude a 0.4°C drop in temperature is statistically significant. This drop falls within the acceptable range for maintaining normothermia.

Recommendations
- Investigate the advantages and disadvantages of upper body, under body and Bair Hugger warming modalities.
- Recommend further studies to identify optimal location where IV should be started and why.
- Examine other recognized contributors to SSIs, namely antibiotic timing and dosage, hair removal, and glucose control.
Actions arising from RCH survey

Accessibility to neonatal resuscitation table in PACU
When you completed the CUSP 2-question survey last year, you identified many safety concerns. Here are some of the actions taken since then:

**“Honey, it’s the hospital calling. They want to know if you can come in today to work an extra shift.”**

**STAFFING:** Agency nurses, more staff hired. Recruitment continuing. Fatigue policy implemented in Dec/14

**ANTIBIOTIC TIMING:** Antibiotics are now hung when patient enters OR instead of in Preop Hold

**ANESTHESIA AIDES:** Now restocking the anaesthesia carts

**SCRUBS SHORTAGES:** Colour change to distinguish OR scrubs, dress code implemented, signs advising area being monitored, better communications with suppliers – all add up to fewer shortages

**QUESTIONS?**
Ask a member of your CUSP team: team members named here
Current emphasis

- Reducing Surgical Site Infections by reducing traffic in and out of the OR

Door counters on 4 OR doors

Traffic audits/investigations
Two Kwantlen Polytechnic University 4th year nursing students
Part III: Peace Arch Hospital OR CUSP Team Initiative
Peace Arch Hospital OR CUSP Team Initiative

- Small site
- Comfortable in practice
- Overwhelmed/resistant to regional standardization protocols and guidelines
- Lack of ownership and accountability for best practice
- Complaints with no solutions
Development of CUSP Team at PAH

- April – team training
- May – introduced CUSP to OR/PACU, surgeon and Anesthesia groups – Science of Safety Video
- Information board to share data – NSQIP, checklist compliance and antibiotic timing rates
- June – Surgical Safety Team “Great Catches’ board
- July/August – staff Culture Survey
- September – setting priorities, action plan
- KICK OFF
## Organizing & prioritizing responses

<table>
<thead>
<tr>
<th>HARM</th>
<th>IDENTIFIED BY</th>
<th>ACTION</th>
<th>RESPONSIBILITY</th>
<th>TIMELINE</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harm: When transferring catheter bags, they are often placed higher than bladder causing backflow and increase infection.</td>
<td>OR Nurses</td>
<td>Education/Vigilance</td>
<td>Alix</td>
<td>Sep-Nov/14, Dec-Feb, March-May</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Preventing harm: Keep bag low.</td>
<td>OR Nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harm: I strongly believe the current airflow and temperature issues increase infection risk.</td>
<td>OR Nurses</td>
<td>1) Asked about planned site upgrades - none planned in near future; 2) Meetings with Plant Services to mitigate</td>
<td>Wendy/Alix</td>
<td>Sep-Nov/14, Dec-Feb, March-May</td>
<td>ONGOING</td>
</tr>
<tr>
<td>Preventing harm: A structural plan must be created and project started within the next 3 years to completely build or update our OR suites.</td>
<td>OR Nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harm: Poor temperature control and proper air flow in OR suites. Surgeons etc. bringing their bags into the OR suite.</td>
<td>OR Nurses</td>
<td>Improved two-way communications with Maintenance</td>
<td>Paul</td>
<td>Sep-Nov/14, Dec-Feb, March-May</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Preventing harm: New OR suites.</td>
<td>OR Nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harm: Contaminated sterile field with instruments that have been wrapped in wrappers that have holes.</td>
<td>OR Nurses</td>
<td>New wrapper introduced, uses tear-resistant covering</td>
<td>Alix/Paul</td>
<td>Sep-Nov/14, Dec-Feb, March-May</td>
<td>COMPLETE</td>
</tr>
<tr>
<td>Preventing harm: Be vigilant, have a good look at sets before placed on sterile fields.</td>
<td>OR Nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harm: Excessive traffic in and out of OR</td>
<td>Surgeons</td>
<td>Traffic audit done in joint room. Reasons for door opening documented. New process developed and implemented.</td>
<td>Carline</td>
<td>Sep-Nov/14, Dec-Feb, March-May</td>
<td>COMPLETE for Joint Room, spreading to other ORs</td>
</tr>
</tbody>
</table>
Patient Safety - team actions

- Excessive traffic in and out of the OR
  - From >50 door openings to <10
- New heavy wrappers for sterile pans
- Cataract lens confirmation procedure
- Maintaining normothermia
Site/system improvements

- Checklist development – staff handover, in-charge nurse handover, development of critical ill patient checklist
- OR airflow and temperature control review
- Development of new pre-op surgical checklist with site education
PAH: Embracing Culture Change

- ‘Great Catches’ celebrated
- Improved communications within and with outside units
- Best practice awareness and discussion
- Discipline
- Re-focused the team on the patient
Part IV: Summary: From the ball diamond to the hospital board room
Summary/Toolkit

- Proven to improve patient outcomes
- Looks at healthcare delivery as science
- Combines clinical best practices with an understanding of the science of safety & improved patient safety culture
- Uses communication, teamwork and leadership to support a culture of safety
- Empowers frontline caregivers to make a difference
Summary/CUSP Toolkit

1. Why bring CUSP in now?
2. Is this a good time?
3. Build your team
4. Meeting
5. Establish a project charter with goals, milestones & timelines
6. Measure culture
7. Defects survey to identify defects
8. Analyze defects and implement solutions
9. Evaluate effectiveness and efficiency
10. Celebrate and publicize successes
11. Sustain gains
Information sources

Agency for Healthcare Research & Quality

Johns Hopkins University – Armstrong Institute for Patient Safety and Quality
http://www.hopkinsmedicine.org/armstrong_institute/training_services/cusp_offerings/cusp_guidance.html#
http://www.hopkinsmedicine.org/armstrong_institute/training_services/cusp_offerings/cusp_guidance.html

BC Patient Safety & Quality Program (BCPSQP)
https://bcpsqc.ca/clinical-improvement/sqan/clinical-improvementsqanbc-perioperative-improvement-project/#https://bcpsqc.ca/clinical-improvement/sqan/clinical-improvementsqanbc-perioperative-improvement-project/

Center for Healthcare Quality & Safety, Texas Medical Center/ University of Texas Health Science Center
Conclusion

- CUSP is a proven methodology for strengthening unit safety and improving patient outcomes
- Essential ingredients are the desire to change, the resources to make it happen, and support from leadership.
Thank you

- Agency for Healthcare Research & Quality
- BC Patient Safety Quality Council
- FH CUSP Teams & team members
- FH NSQIP
- FH Surgery Leaders

Questions?