

British Columbia Patient Safety
& Learning System

BC Patient Safety & Learning System (BC PSLs)

Evaluation Report

Version: Final

Date: January 25, 2008

Table of Contents

TABLE OF CONTENTS	ii
EXECUTIVE SUMMARY	1
Recommendations	3
PURPOSE OF DOCUMENT	5
PROJECT OVERVIEW	6
EVALUATION FRAMEWORK AND METHODOLOGY	7
Evaluation Framework	7
Evaluation Methodology	8
CULTURAL EVALUATION	9
SUMMARY OF KEY FINDINGS	9
Recommendations	9
PROVINCIAL HEALTH SERVICES AUTHORITY (PHSA)	10
Safety Culture Surveys	10
Pre-Pilot Survey	10
Pre-Go Live Survey and Comparison	11
Focus Groups	18
User Satisfaction Surveys	19
Other Evidence	19
Conclusions	19
VANCOUVER COASTAL HEALTH AUTHORITY (VCHA)	20
Safety Climate Surveys	20
Pre-Pilot Survey	21
Post-Pilot Survey and Comparison	22
Focus Groups	24
Conclusions	24
OPERATIONAL EVALUATION	26
SUMMARY OF KEY FINDINGS	26
Recommendations	26
PROVINCIAL HEALTH SERVICES AUTHORITY (PHSA)	27
Operational Indicators	27
Pre-pilot Measurement	27
Post-pilot Measurement	28
Training Approach	30
Training Evaluation	31
Role Changes	32
Conclusions	32
VANCOUVER COASTAL HEALTH AUTHORITY (VCH)	33
Findings linked to key VCH SLS Pilot Objectives	33
Evaluation Report	
BC Patient Safety & Learning System (BC PSLS)	

Training Approach	36
Training Evaluation	37
Conclusions	38
LESSONS LEARNED	39
SUMMARY OF KEY FINDINGS	39
Recommendations	39
PROVINCIAL PROJECT	40
Governance / PSLS Steering Committee	40
Contract Management	40
Regulatory Matters	40
Implementation Approach	40
Decision Making	40
Adoption	41
PROVINCIAL HEALTH SERVICES AUTHORITY (PHSA)	41
Change Management	41
Building Capacity	42
Co-location	42
Imbedding Clinical Staff	42
Project Management	42
Collaboration	43
Opportunities	43
VANCOUVER COASTAL HEALTH AUTHORITY (VCH)	44
Collaboration	44
Opportunities	44
APPENDIX A: HOSPITAL SURVEY ON PATIENT SAFETY CULTURE (USED AT PHSA)	46
APPENDIX B: NICU PILOT USER SURVEY RESULTS - FRONT-LINE & MANAGERS (PHSA PILOT)	51
APPENDIX C: SAFETY CLIMATE PERCEPTION SURVEY (USED AT VCH)	52
APPENDIX D: COMPUTER EDUCATION EVALUATION RESULTS (PHSA PILOT)	53
APPENDIX E: PILOT TRAINING EVALUATION RESULTS (PHSA PILOT)	54
APPENDIX F: EVENT MANAGEMENT ELEARNING SURVEY RESULTS (VCH PILOT)	55
APPENDIX G: REPORTER TRAINING EVALUATION SURVEY RESULTS (VCH PILOT)	56
APPENDIX H: SUMMARY RESULTS FROM USER SATISFACTION SURVEY (VCH PILOT)	57

Executive Summary

This report provides an evaluation of benefits realized from the implementation of the BC Patient Safety & Learning System (BC PSLS) during the pilot phase. It captures observations made and assessments performed in the pre- and post-pilot timeframes at two sites and outlines lessons learned which will inform the system rollout in BC and may prove valuable to those interested in undertaking such a project in other jurisdictions.

The pilot teams used a variety of evaluation tools and methods including surveys, focus groups, interviews and pre- and post-pilot data comparison to evaluate this change initiative.

The cultural evaluation component focuses on the changes in perceptions of providers towards safety reporting and organizational commitment to patient safety and changes in safety reporting behavior. Our evaluation indicated a small but demonstrable positive change in key measures for these attributes. Increased awareness and engagement was achieved through the change management and education components of the project (reinforced by other ongoing safety initiatives), which also helped clarify reporting expectations, roles and safety event reporting processes and began to address concerns about consequences of reporting and its importance within the organization. Improvements in uptake and coverage measures included in the operational evaluation demonstrate the relationship between cultural change and successful adoption of the reporting tool. Periodic measurement of these attributes is recommended because these change slowly over time and confirm the circular relationship between the increasing use of the system and its impact on the culture of patient safety.

Evaluation of operational aspects indicated a marked improvement across the board, as summarized in the table below. The implementation of the BC PSLS is a culture carrier, allowing opportunities for engagement with leaders and staff on the topic of patient safety, training on patient safety practices, facilitating reinforcing behaviours like 'closing the loop' through event follow-up and feedback and providing relevant, timely reports for use at the unit and other levels around safety events. The data also indicate that opportunities for improvement exist in levels of physician engagement and eliminating barriers to contemporaneous reporting.

Indicator	Pre-pilot	Pilot	Improvement
PHSA - NICU			
# of event reports submitted	50	129	↑ 79 (158%)
Near miss or hazard	26%	36%	↑ 10%
Submitted by non-RNs	8%	26%	↑ 18%
Submitted within 48 hours of event	2%	84%	↑ 82%
Average time from event to notification to QSRM	25 days	1 day	↓ 24 days
Average time from event to completion of investigation	39 days	33 days	↓ 6 days
% complete	6%	100%	↑ 94%
Follow up quality = 3-4	15%	70%	↑ 55%
VCHA - General and Vascular Surgery			
# of event reports submitted	29	41	↑ 12 (41%)
Near miss	0%	10%	↑ 10%

Hazard	8%	17%	↑ 9%
--------	----	-----	------

The training evaluation has confirmed that the training format worked well for staff, with frontline staff being trained in the unit itself and managers being trained in a classroom setting. Training materials developed during the pilot, including e-learning courses, training manuals and job aids, are all available to support future rollouts. Ongoing efforts are being made to reduce the training effort and time commitment for frontline staff and embed this training into ongoing staff orientation and clinical training delivered by educators.

The help desk function, although not heavily utilized, was well received and is geared to assist managers and investigators whose roles are impacted significantly through the implementation of the BC PSLs. The training approach and materials are being updated to reflect the change in emphasis for the manager role in the safety reporting process from that of 'signing off' dated event documentation to that of near real-time support to patients, families and clinical team members involved in safety events.

Project lessons learned were identified through internal discussion by both pilot teams as well as through joint working sessions between both pilot teams. Some key lessons learned are summarized here:

- Strong engagement with the BC PSLs Steering Committee as a decision-making and direction-setting body can provide clarity of purpose and focus to the initiative.
- A strong focus on change management activities, including stakeholder and leadership engagement, communication, safety education and application training, helped achieve successful adoption of the BC PSLs by frontline staff.
- Multiple communication forums kept the stakeholder community informed of project progress and assisted in identifying barriers and issues early on.
 - Newsletters - kept the broader community in the loop
 - Share Point web site - facilitated collaboration within the distributed project team
 - Road Shows - kept key stakeholder groups like the CIOs, CFOs, etc. informed of project progress
- Embedding unit staff in the pilot teams and engaging local leaders as well as QSRM staff allow for better 'connectedness' of the solution and sustainment of the change initiative. Engaged and educated local leaders can influence and contribute to the development the solution, help identify useful information captured by the system and use the system to support timely responses to and follow up with staff, reinforcing desired reporting behaviours.
- A simple user interface, including short forms, limited mandatory fields and short drop-down lists, combined with a PDSA approach to developing forms and taxonomies, promotes system adoption.
- An iterative project management approach allows the project to accommodate and respond effectively to new information discovered as the project proceeds.
- Collaboration, although time consuming, can work effectively in improving approaches and solution design. Collaboration is facilitated by clear mandates, role delineations and transparent decision-making.

Recommendations for consideration during future rollout phases of BC PSLs are summarized below; these points may also be helpful to others seeking to implement similar systems in other jurisdictions.

Recommendations

#	Recommendations
1	Determine safety culture baseline pre-implementation using a validated survey tool
2	Repeat safety culture surveys at periodic intervals to assess degree of cultural shift.
3	Use focus groups and informal methods to validate survey findings and obtain organization-specific information to inform training approach and allow communications to be tailored and targeted, and to engage users in the change initiative
4	Use existing group meetings, such as ward and committee meetings, to obtain input and engage participants
5	Leverage other organizational activities and initiatives to help deliver consistent messages about safety and safety culture
6	Engage participants early and often in discussions about patient safety and the use of the new system to help shift culture before Go Live and encourage adoption
7	Establish baseline operational indicators and measure pre-implementation as a basis for comparison post-implementation
8	Keep reporting forms short and simple with few fields requiring subjective judgment from reporters
9	Provide narrative text fields to allow reporters to tell their 'stories' as well as short or filtered drop-down lists to standardize data and reduce report completion time
10	Use mandatory fields only where absolutely necessary to enable staff to enter the essential components quickly if desired, while still ensuring mandatory data are provided
11	Use an iterative process, such as Plan-Do-Study-Act (PDSA) to engage participants in forms development and promote relevance, buy-in and ownership
12	Think carefully about the creation and use of extra fields as they may have an impact on system performance, user-friendliness, and time required to complete the form, all of which may negatively impact adoption
13	Deliver training within a context of patient safety, event management and learning, ensuring that organizational policies and procedures support a non-punitive, just approach to reporting
14	Use multiple methods of training delivery, including e-learning, hands-on classroom learning, practice scenarios and sessions in the care setting
15	Develop 'Super Users' from within the business areas/clinical teams to support their colleagues in using the new application
16	Make modifications to forms and tables promptly based on feedback from users to promote satisfaction with the system and develop ownership
17	Pay close attention to the impact of the change in reporting method on managers and others responsible for follow up investigation, ensuring that senior leaders are aware of the impact and supportive of the change in processes and additional time required to learn

	and apply the new system
18	Give strong messages to managers that the new system is a means of notification of safety events, as close to real time as possible, not just an event documentation and tracking system; they now have the opportunity to respond to safety events at the bedside, ensure support and disclosure occur and engage staff in discussing and learning from events while they are still “fresh”
19	Provide support for users using e-mail, pagers, hot lines, help desks, etc. to trouble-shoot, provide coaching and promote adoption
20	Embed training about patient safety, event reporting and management and the BC PSLs into staff orientation
21	Ensure the approach to deploying the application does not result in technical issues that interfere with staff submitting reports; this problem can have a definite negative impact on adoption
22	Fully engage the PSLs Steering Committee by involving members in making or validating key decisions about use of the application, promoting regular meeting participation and strengthening the links between committee members and HA project teams
23	Finalize vendor contract negotiations before beginning project implementation
24	Work with Ministry and others to develop stream-lined, cost-effective approach to addressing regulatory and legal issues affecting multi-health authority collaborative projects
25	Standardize the approach to provincial rollout based on pilot lessons learned
26	Embed clinical and QSRM staff on project teams to facilitate adoption and build organizational capacity for change and ongoing system support
27	Ensure processes are in place for transparent decision-making and that health authority representatives on committees are empowered to make decisions
28	Use a multi-faceted approach to promote adoption of the new system, incorporating policies, practices, roles, leadership support and training
29	Focus on change management with IT implementation being important but secondary
30	Co-locate all team members to facilitate business understanding of technical opportunities and constraints and IMIT understanding of business requirements
31	Adopt a project management approach that allows fluid responsiveness to changes arising throughout the project and both top-down and bottom-up influence
32	Identify and track opportunities to leverage the system to meet the needs of diverse stakeholders and to integrate the system with organizational processes

Purpose of Document

The Evaluation Report provides a means for Canada Health Infoway (CHI) to evaluate the benefits of their investment in the BC Patient Safety & Learning System (BC PSLs) project. The CHI success model has six conceptual dimensions:

- System quality, including adaptability, availability and response time
- Service quality, including assurance and responsiveness
- Information quality, including completeness, ease of understanding and relevance
- Use, including use/behaviour pattern, self-reported use and intention to use
- User satisfaction, including competency and ease of use
- Net benefits, including quality (patient safety, appropriateness/effectiveness, health outcomes), access (ability of users to access services, user participation) and productivity (efficiency, care coordination, net cost)

The BC PSLs Evaluation Report touches on all aspects of the CHI framework. In addition to providing benefits evaluation information to CHI, the purpose of the Evaluation Report is to capture and share learnings from the pilot phase both among the BC PSLs team and BC Health Authorities, and with other jurisdictions interested in implementing a similar system. The objectives of the implementation evaluation are to:

- Identify and report on the measures that indicate the accomplishment of a successful BC PSLs pilot implementation
- Capture cultural and operational aspects of the change initiative, and share lessons learned
- Make recommendations to promote successful rollout of the BC PSLs
- Provide a framework and indicators for evaluation which could be used by others contemplating similar undertakings

Project Overview

The BC PSLs project is a province-wide initiative to enhance the capability of BC Health Authorities to improve patient safety. The project will implement a web-based safety event reporting and management information system that will support identification, investigation and analysis of safety and risk-related events (including hazards and near misses), capture and facilitate responses to client feedback (including complaints, compliments and requests for information) and enable claims management.

The BC PSLs is an initiative of the BC Patient Safety Task Force (PSTF) and is a collaborative effort of all six BC Health Authorities and the Health Care Protection Program (HCPP), part of the Risk Management Branch of the Ministry of Finance, which insures BC hospitals. Although the initial focus of the BC PSLs is on acute care settings, it will eventually be used across the healthcare system and continuum of care - from hospitals and long term care facilities to home care and community services.

The two pilot areas for the project were Pattison 8, Vascular and General Surgery Unit, at Vancouver General Hospital (Vancouver Coastal Health Authority) and the Neonatal Intensive Care Unit (NICU) at BC Women's Hospital (Provincial Health Services Authority). These two pilots enabled configuration and set-up of the BC PSLs application, provided proof of concept, validated the implementation approach and laid the groundwork for provincial rollout. Pilot Go Live occurred in May/June 2007 and the pilot phase concluded in August 2007. Planning for provincial rollout is now underway.

Although the BC PSLs project is centred around and relies on a web-based reporting and learning tool, it is not simply an information technology implementation project, but a significant change initiative. In order to be successful, the project has had to consider and address all aspects of change and apply appropriate methodology to effect such change.

Evaluation Framework and Methodology

Evaluation Framework

The BC PSLS outcomes for success identified early in the project provide the starting point for the evaluation framework. Short-term outcomes focus changes in awareness, attitudes, skills, opinions and motivations of staff and leaders, all indicators of use and user satisfaction, which reflect system, service and information quality, as are medium-term outcomes, which include observable changes in practices consistent with desired reporting and learning behaviours.

Specific short- to medium-term desired outcomes are:

- Improved event, hazard and near miss reporting, leading to specific actions to reduce or eliminate safety problems
- More timely feedback to users and leaders on events
- Improved efficiency for event management
- Increased teamwork and improved communication
- Support for managers during implementation
- Learning from clinicians and administrators about their implementation experiences
- A better source of data for analysis

Longer-term desired outcomes are consistent with net benefits related to patient safety, efficiency and net cost. These outcomes include:

- Improved information-sharing
- Enhanced productivity
- More effective use of resources
- Reduced costs associated with adverse events and their investigation
- A culture of safety and learning
- The Evaluation Framework comprises three main categories:

1. Cultural Evaluation

A key goal of the BC PSLS is to develop and foster a culture of safety within the healthcare system. Cultural evaluation addresses the cultural aspects of the change by comparing the pre-pilot state defined as part of pre-implementation assessment with post-pilot indicators of organizational culture. This component focuses on the perceptions of healthcare providers in terms of safety (incident) reporting, organizational commitment to and emphasis on patient safety, teamwork, communication and learning, and their perspectives on safety reporting behaviours, barriers and promoters.

2. Operational Evaluation

Operational evaluation focuses on the business improvements achieved as a result of the pilot implementation. This component compares baseline data collected prior to the change with post-implementation metrics to demonstrate the impact on safety reporting.

3. Lessons Learned

Project lessons learned are an important component of the evaluation as they provide a means to assess the effectiveness of the project structure and execution, and will inform future system rollout initiatives. Project timelines, scope, budget, processes, and leadership are all of interest, as is the effectiveness of the training approach used. Stakeholder feedback on the successes and challenges of the BC PSLS pilot implementation is a critical component of the evaluation process and can provide guidance for system rollout. The approach to identifying lessons learned mirrors that of the change readiness assessment performed earlier in the project, but focuses primarily on the implementation plan dimension.

Evaluation Methodology

A variety of methods were used to conduct the evaluation, including:

- Surveys to assess the degree of shift towards safety culture over the pilot phase, the effectiveness of training tools and approach, and user satisfaction
- Focus group sessions to solicit the opinions of representative groups on barriers to reporting, cultural shift and the project approach
- Pre- and post-pilot implementation data comparison to assess the business and operational improvements achieved during the pilot phase
- One-on-one interviews to obtain key stakeholder input on the overall project and identify lessons learned
- Informal discussions with groups of staff to add richness to the other data obtained

Cultural Evaluation

SUMMARY OF KEY FINDINGS

Provincial Health Services Authority (PHSA) and Vancouver Coastal Health Authority (VCH) used similar methods to determine the degree of cultural shift that occurred in their respective pilot sites. A combination of surveys, focus groups and informal, supportive evidence provided both baseline indicators in the pre-pilot period and information about the impact of the pilots on unit culture.

For PHSA, results of the Hospital Survey on Patient Safety Culture demonstrated small, positive shifts in safety culture, and significantly better results from the NICU on the second survey than were seen across the rest of BC Women's Hospital. While there may be several reasons for this finding, it is believed that the focus on patient safety afforded by the pilot work had an influence. The results of the Safety Climate Survey of Pattison 8 undertaken by VCH showed no statistically significant change in safety culture on the unit, which may be due to a pre-existing strong safety culture. In both cases, the pilot teams felt that the surveys were useful tools for measuring safety culture and cultural change, and plan to repeat the surveys at periodic intervals in the future.

Focus groups in both sites revealed similar barriers and incentives to safety event reporting, including a lack of knowledge on the part of personnel about what to report, a lack of feedback from managers to staff about event investigation outcomes and few examples of changes that resulted from event reporting. The focus group information served to validate the results of the cultural surveys and was used to guide development of the training approach at both sites.

Surveys and focus groups to assess user satisfaction with the BC PSLs helped the pilot teams determine the degree to which users had adopted the system for reporting safety events, which was an additional indication of a shift in culture. Satisfaction and adoption by front-line users at PHSA were found to be high, which is consistent with the large increase in reporting volume in the NICU described in the Operational Evaluation section.

Recommendations

#	Recommendations
1	Determine safety culture baseline pre-implementation using a validated survey tool
2	Repeat safety culture surveys at periodic intervals to assess degree of cultural shift
3	Use focus groups and informal methods to validate survey findings and obtain organization-specific information to inform training approach and allow communications to be tailored and targeted, and to engage users in the change initiative
4	Use existing group meetings, such as ward and committee meetings, to obtain input and engage participants
5	Leverage other organizational activities and initiatives to help deliver consistent messages about safety and safety culture
6	Engage participants early and often in discussions about patient safety and the use of the new system to help shift culture before Go Live and encourage adoption

PROVINCIAL HEALTH SERVICES AUTHORITY (PHSA)

Safety Culture Surveys

One of the long-term outcomes for success identified early in the project is an organizational culture of safety. To assess changes in safety culture in the PHSA pilot site, the Neonatal Intensive Care Unit (NICU) at BC Women's Hospital, the Hospital Survey on Patient Safety Culture (HSOPSC - APPENDIX A) was used on two occasions. The HSOPSC was developed by the Agency for Healthcare Research and Quality (AHRQ) in the US and is one of two safety culture survey tools recommended by the Institute for Healthcare Improvement.

The HSOPSC places an emphasis on patient safety issues and on error and event reporting. The survey measures ten aspects of safety culture:

1. Supervisor/manager expectations and actions promoting safety
2. Organizational learning - continuous improvement
3. Teamwork within units
4. Communication openness
5. Feedback and communication about error
6. Non-punitive response to error
7. Staffing
8. Hospital management support for patient safety
9. Teamwork across hospital units
10. Hospital handoffs and transitions

Four outcome variables are also measured:

1. Overall perceptions of safety
2. Frequency of event reporting
3. Patient safety grade (of the hospital unit)
4. Number of events reported

Pre-Pilot Survey

In March/April 2006, the HSOPSC was administered to personnel in the NICU only, both electronically and on paper, in order to obtain baseline measurement of safety culture in the unit. A total of 198 of 272 potential participants responded (73%), with all disciplines represented.

Strengths are identified as those survey items which receive a positive endorsement from at least 75% of respondents. The NICU results demonstrated key strengths in two aspects of safety culture:

- Supervisor/manager expectations and actions promoting safety
 - "Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts" (75% disagreed)
- Teamwork within units
 - "People support one another in this work area/unit" (85% agreed)

- “When a lot of work needs to be done quickly, staff work together as a team to get the work done” (91% agreed)

Areas for improvement were identified as those receiving a negative response from at least 50% of respondents. Significant room for improvement in the NICU was found in:

- Overall perceptions of safety
- Staffing

Pre-Go Live Survey and Comparison

The HSOPSC was used to reassess safety culture in the NICU pilot site in March/April 2007. The 2007 survey was administered a year after the first survey, but before the BC PSLs Go Live in the NICU. In contrast to the first survey, which involved the NICU team only, the second survey was deployed across the entire PHSA. A response rate of 45% (123 respondents) was achieved by the NICU, again including all disciplines.

Key strengths identified were:

- Teamwork within units
 - “People support one another in this work area/unit” (84% agreed)
 - When a lot of work needs to be done quickly, staff work together as a team to get the work done” (89% agreed)
 - “When one area in this work area/unit gets really busy, others help out” (77% agreed)
- Organizational learning - Continuous improvement
 - “We are actively doing things to improve patient safety” (78% agreed)
- Awareness of patient safety improvement procedures (new PHSA-specific question on 2007 survey)
 - “I know how to report ‘close calls’ and safety events at my facility” (76% agreed)

A number of changes were observed when the results of the pre-pilot and pre-Go Live surveys were compared, as shown in Tables 1 - 5. Slight improvement (less than 5% increase) was seen in almost every dimension and in the overall perception of patient safety. Significant improvements (5% increase or more) were seen in the areas of:

- Teamwork across hospital units
- Staffing
- Overall perceptions of safety
- Frequency of event reporting

A decline (5% decrease or more) was noted in the dimension of:

- Supervisor/manager expectations and actions promoting safety

This change may be attributable to significant restructuring and changes to leadership roles underway in the NICU just prior to and during the time the survey was administered. The use of a self-generated

code to track participants completing the surveys would be useful to avoid attrition bias and better gauge culture change over time.

Table 1

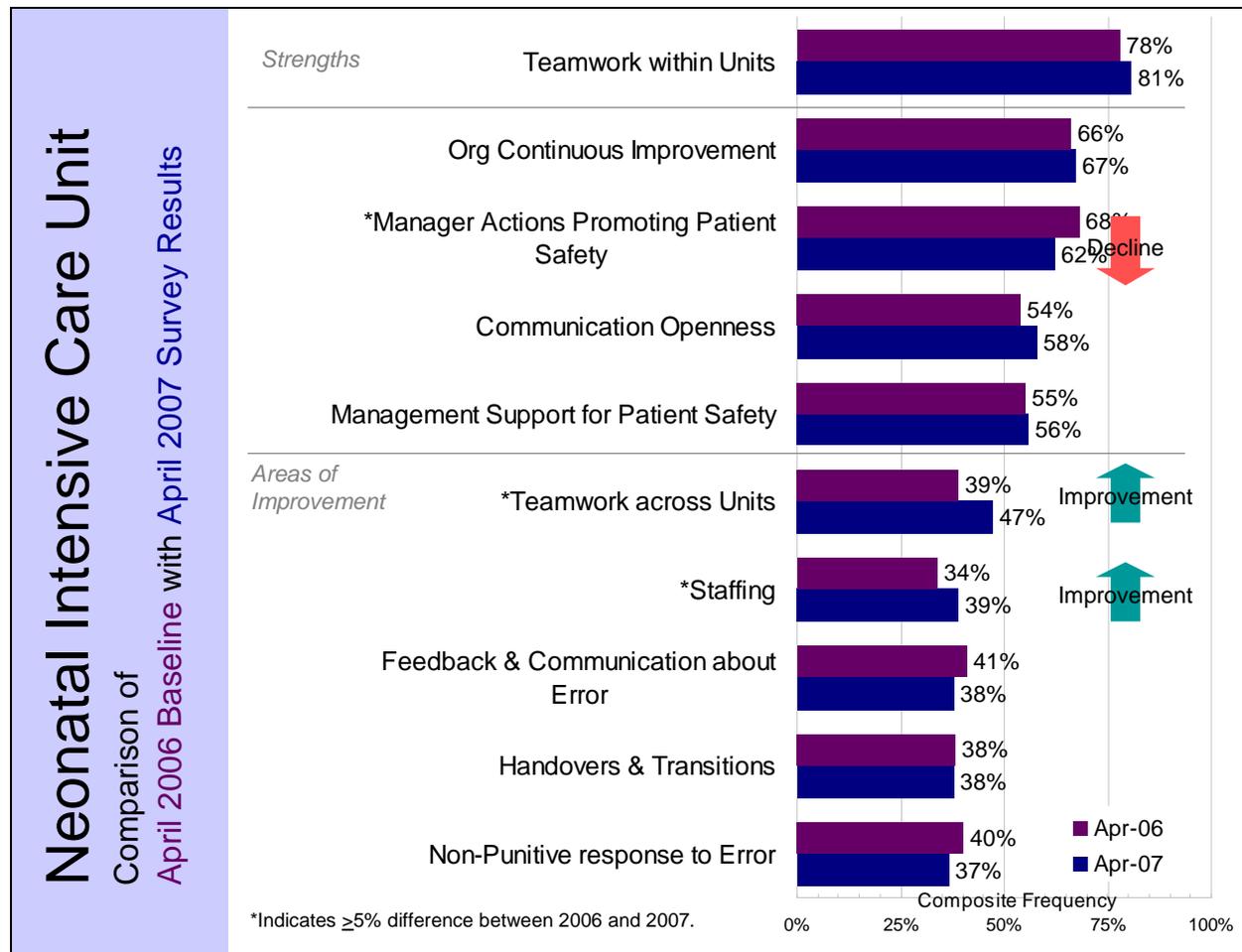


Table 2

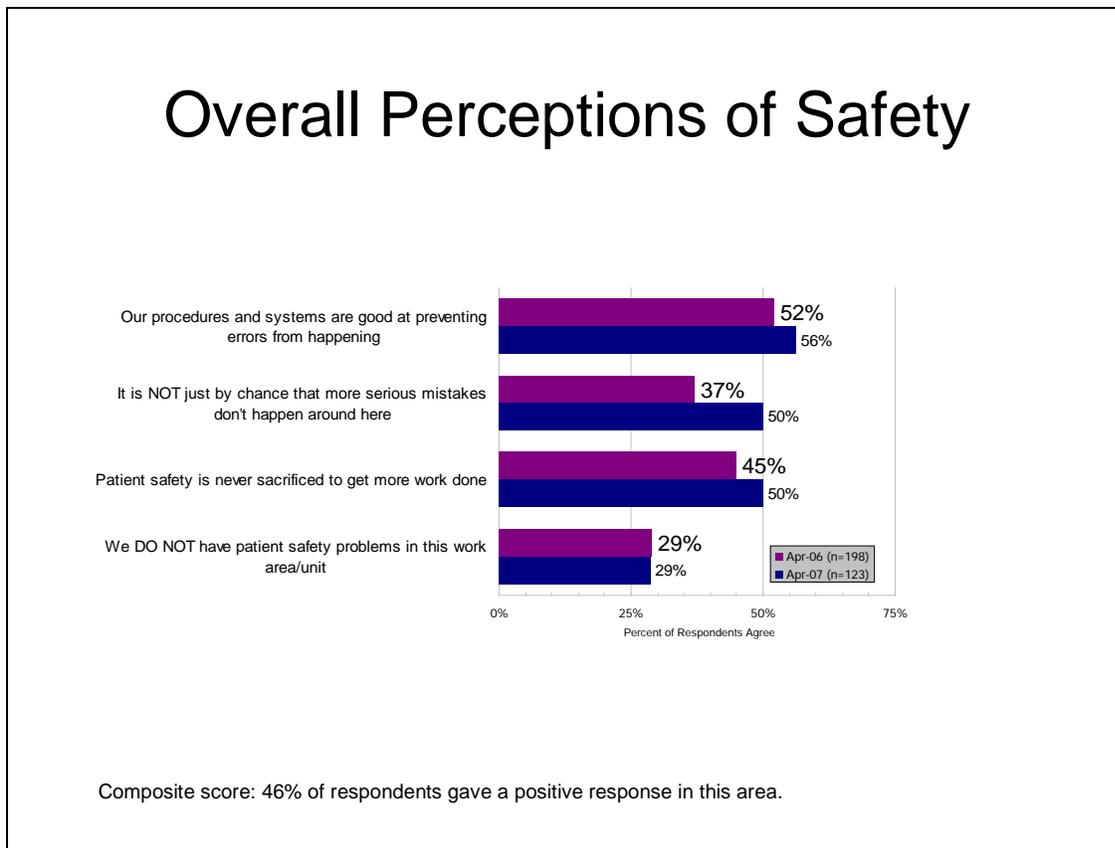
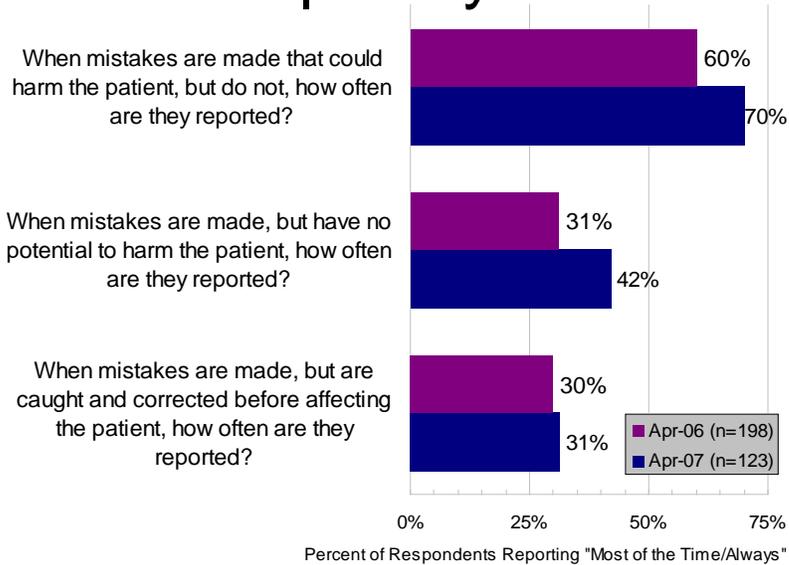


Table 3

Frequency of Events



Composite score: 48% of respondents gave a positive response in this area

Table 4

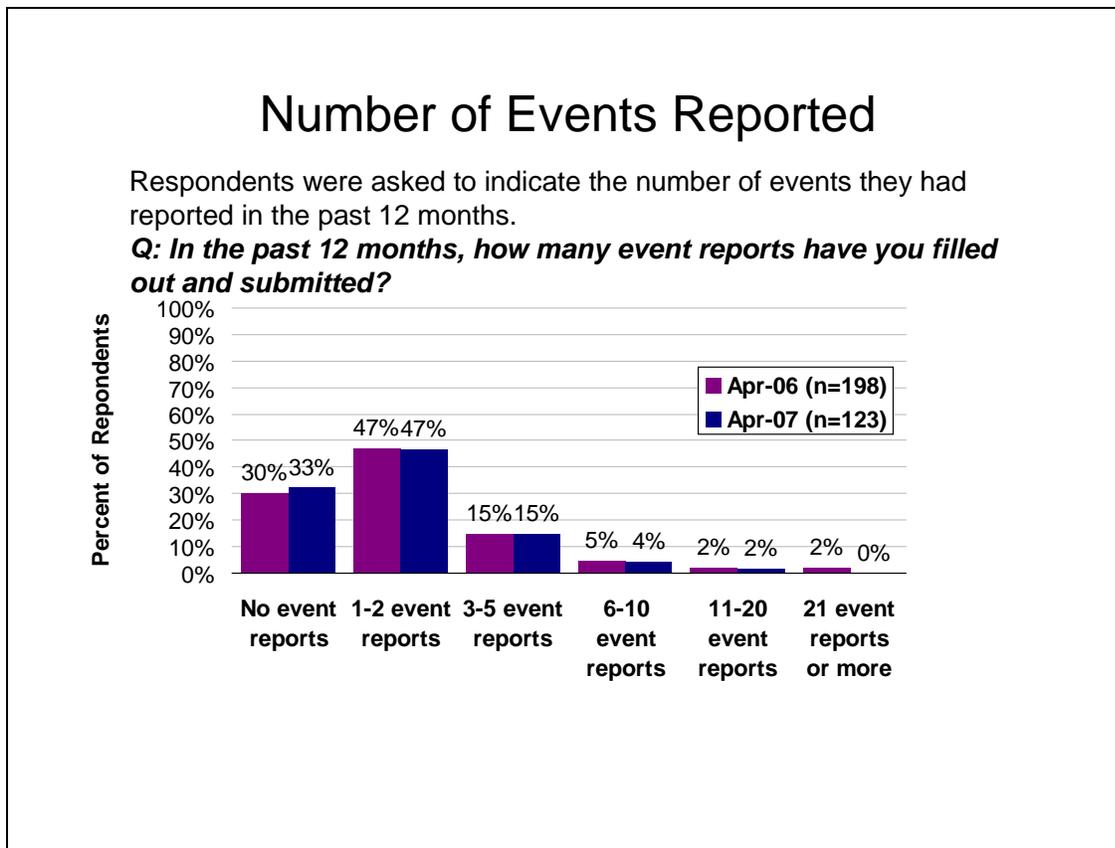
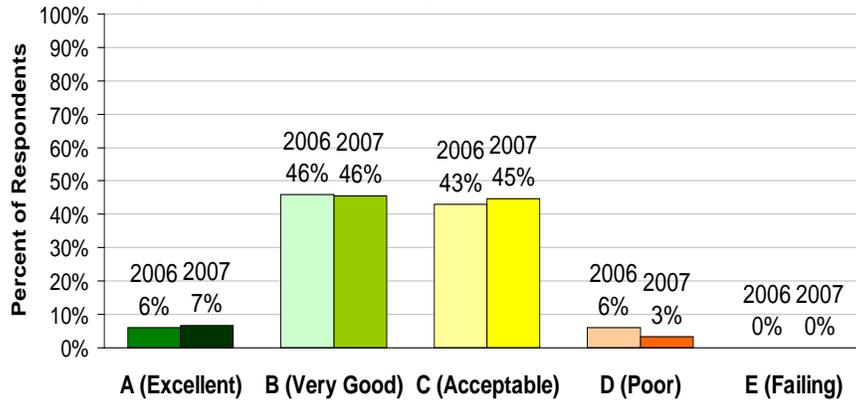


Table 5

Overall Patient Safety Grade

Respondents were asked to give their work unit an overall grade on patient safety.

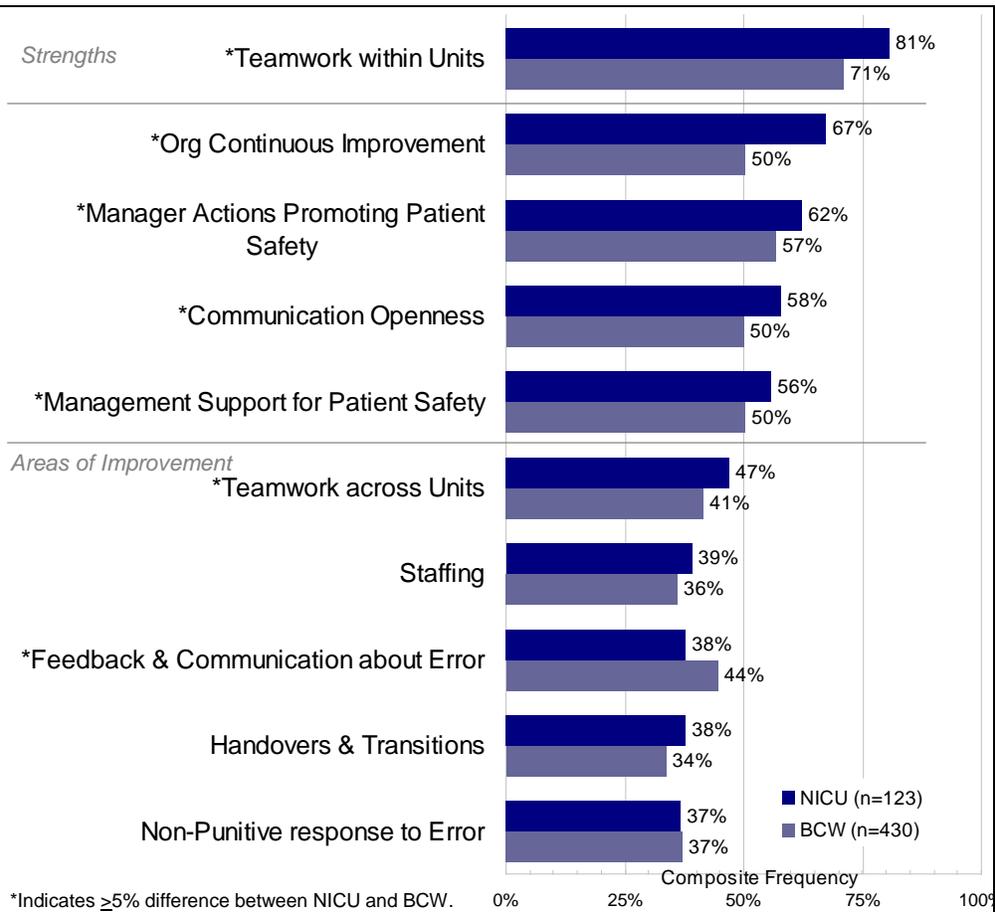
Q: Please give your work area/unit in this hospital/facility an overall grade on patient safety.



Because the 2007 survey was performed across the PHSA, it offered an opportunity to compare the NICU response with the rest of BCW. On almost every indicator, the NICU response was more positive than the responses for the rest of the organization, and in most cases, significantly so (5% or more), as shown in Table 6.

Table 6

Comparison of NICU & BCW April 2007 Survey Results



Focus Groups

To develop a deeper understanding of NICU culture than the HSOPSC was able to provide, three focus group interviews were conducted in March 2006 using questions adapted from research studies on barriers to reporting found during an extensive literature review. Participation was voluntary, and participants were assured that their input would be reported in summary fashion only and they would not be individually identified. All disciplines working in the NICU were represented in at least one focus group session.

Analysis of notes taken during the meetings confirmed the findings of an earlier literature review with regards to barriers to reporting. Participants identified the following barriers:

- Fear of punishment or retribution
- Confusion about what to report and why
- Uncertainty about where reports go and what to expect after reporting
- Lack of feedback, communication or evidence of action taken following reporting, referred to as the “black hole” syndrome
- Inconvenience associated with the paper-based reporting system
- Negative reactions to, and connotations associated with the term, “incident report”

The focus groups' suggestions to promote system adoption were also consistent with the literature and aligned with strategies described in the literature, which build on existing reporting habits of nurses and develop reporting habits in others.

Although formal focus group sessions were not held post-pilot due to workload pressures in the NICU, informal feedback was sought from staff and managers by the NICU Program Coordinator, who was a member of the pilot team. A key informant interview held with this leader confirmed that awareness of patient safety, its importance, reasons for reporting and how to use the new application to report concerns was much increased compared with the pre-pilot state.

User Satisfaction Surveys

A survey was also conducted with front-line staff and managers in the NICU (APPENDIX B) to obtain their impressions of the new system and its implementation. Reporters' responses to the survey were very positive with 88% indicating overall satisfaction with the system (the remainder were neutral). 100% of the few managers who responded were satisfied with the BC PSLs overall, but identified some concerns about their ability to use the investigative components of the system easily and effectively. This feedback will be used to inform directions for future training and support. This finding is in line with the observations of the pilot team members, who have observed significant impact on the manager role arising from the implementation of the BC PSLs.

Other Evidence

The option of anonymous event reporting, which was not available prior to the implementation of the BC PSLs, was introduced to front-line staff during training as a means of addressing their concerns about punishment or retribution, either from leaders or peers, and to demonstrate that the organization's primary interest was learning about and from the events, not identifying staff performance issues. Review of reports submitted during the three month pilot period indicated that 39% were submitted anonymously. While too early to tell at this point, this indicator will be important to track over time to see if the number of anonymous reports decreases, which may indicate a shift in culture to one that is more trusting and reflect a more non-punitive approach.

Conclusions

The pre-pilot cultural survey and focus groups were indicative of an environment where staff members were unclear about what was expected of them regarding the reporting of safety events, who reviewed event reports, what happened to the reports after they were submitted, and what to expect when they did report an event. Staff did not see the value in spending their busy time reporting events when there was little visible response and rarely an observable change resulting from an event report. Concerns about the consequences of reporting were noted in both the surveys and focus groups. Overall, patient safety was not seen as the top organizational priority.

In the year between the first and second surveys, the pilot team used the Comprehensive Unit-based Patient Safety Program (CUSP) model developed by Johns Hopkins Hospital and the project change management plan to raise awareness of patient safety in the NICU and engage the NICU team in the BC PSLs project. The improvements shown in the second survey results are indicative of a shift towards a culture that is more aware of patient safety. These results are bolstered by the observations of the pilot team members and the user survey results. Although the shift towards safety culture may be small, it is particularly significant as it occurred prior to system Go Live. By using the implementation of the new system as a culture carrier and vehicle for change, this shift was able to be achieved in advance of the implementation of the new technology.

The lack of improvement in indicators specific to reporting is not surprising given that the processes and supports for reporting had not changed between the two surveys. However, the success of the pilot implementation in terms of reporting rates and involvement of disciplines other than nursing, which are described in the Operational Evaluation section, is likely due to the increased awareness and engagement fostered in the pilot site pre-Go Live.

The length of time that elapsed between the initial HSOPSC and the Go Live was more than a year, which resulted in both positive and negative impacts. On the positive side, the pilot team was able to engage pilot site participants repeatedly over a long time, building on each occasion on messages delivered previously. This ongoing communication helped increase uptake of the information and allowed many people to be reached. On the negative side, it was hard to maintain momentum and keep pilot participants interested in the project. Overall, however, it is likely that the frequent contact with the pilot site personnel over the long pilot phase helped raise their awareness of patient safety and contributed to the cultural shift.

VANCOUVER COASTAL HEALTH AUTHORITY (VCHA)

There were two methods used to evaluate cultural change in the VCH pilot site, Pattison 8 (General/Vascular Surgery) at Vancouver General Hospital, as a result of implementing the Safety Learning System (SLS) (Note: VCH chose to call the PSLS the SLS due to their desire to capture employee events using the system, in addition to patient safety events):

- Safety Climate Surveys were conducted in Pattison 8 pre-pilot and post-pilot to measure the change in perception of safety and safety event management in Pattison 8 for the duration of change activities throughout the pilot preparation and pilot intervention period. Our intention was to evaluate nurses' perceptions of safety and autonomy before and after the introduction of the SLS. In addition, the initial survey had been applied prior to the implementation of other safety initiatives, such as Safety Huddles, therefore we had a tool that we could measure change in culture over time.
- Focus groups and face-to-face communications were used to gather evidence and anecdotes and behavioural evidence was collected through evaluation activities for other purposes and through analysis of the use of the SLS application itself.

Safety Climate Surveys

In August 2006 and again in August 2007, the Safety Climate Survey (SCS - APPENDIX C) was distributed to nursing personnel in Pattison 8.

The SCS was developed by a group of researchers led by Bryan Sexton and Robert Helmreich at the University of Texas. It has been tested in hospitals throughout the world including Canada, the United States and Europe, and is one of two tools promoted by the Institute for Healthcare Improvement.

The SCS is a reliable tool to monitor the success of actions used to develop a culture of safety. It allows organizations to gain information about the perceptions of front-line staff about their organizational culture and management's commitment to safety. Administering the tool periodically allows organizations to assess the impact of changes aimed at improving safety.

The SCS measures the extent to which individuals feel they:

- Would be safe being treated in their organization as a patient
- Get adequate feedback about their performance

- Learn from the mistakes of others
- Feel that mistakes are handled appropriately
- Feel that personnel frequently break the rules
- Feel encouraged to and know how to report safety concerns

Pre-Pilot Survey

The SCS was administered to the pilot site participants in August 2006.

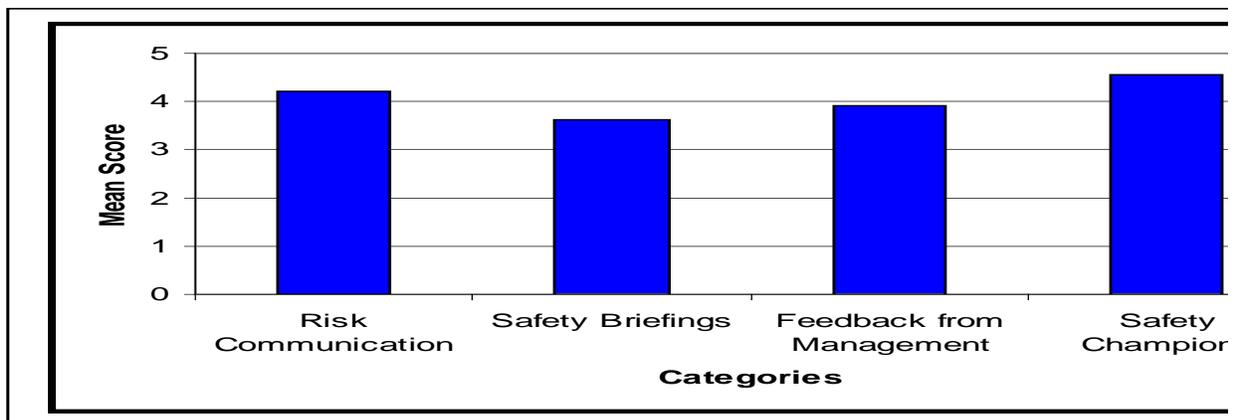
Responses:

- Out of a total of 69 regular full-time and part-time nursing staff, 36 surveys were completed, a 52% response rate
- 100% of surveys were completed by staff nurses

Safety Climate Survey findings:

- 61% agreed that we have a positive safety climate
- 31% were neutral; they felt several cultural indicators of safety were present, but more effort was required in certain areas
- 12% disagreed that we have a positive safety climate
- Key determinates of a safety culture are measured in four categories. Mean values are measured on a scale of 1 to 5. Lower values may indicate areas where improvement is necessary
- Of the key determinants of a safety culture shown in Table 7, safety briefings and feedback from managers scored the lowest; these may be areas where improvements are necessary

Table 7



Post-Pilot Survey and Comparison

The SCS was administered to pilot site participants in August 2007.

Responses:

- Out of a total of 69 regular full-time and part-time nursing staff, 38 surveys were completed, a 55% response rate
- 100% of surveys were completed by staff nurses

SCS findings:

Table 8

 Pre- and Post-SLS Intervention Tower 8, General/Vascular Surgery	
1. SCS – <u>Main Findings</u>	
Pre-SLS	Post-SLS
61% agree strongly / agree slightly that we have a positive safety climate	63% agree strongly / agree slightly that we have a positive safety climate
31% are neutral – they feel several cultural indicators of safety are present, but more effort is required in certain areas	26% are neutral – they feel several cultural indicators of safety are present, but more effort is required in certain areas
8% disagree strongly / disagree slightly that we have a positive safety climate	11% disagree strongly / disagree slightly that we have a positive safety climate

Page 9

Table 9

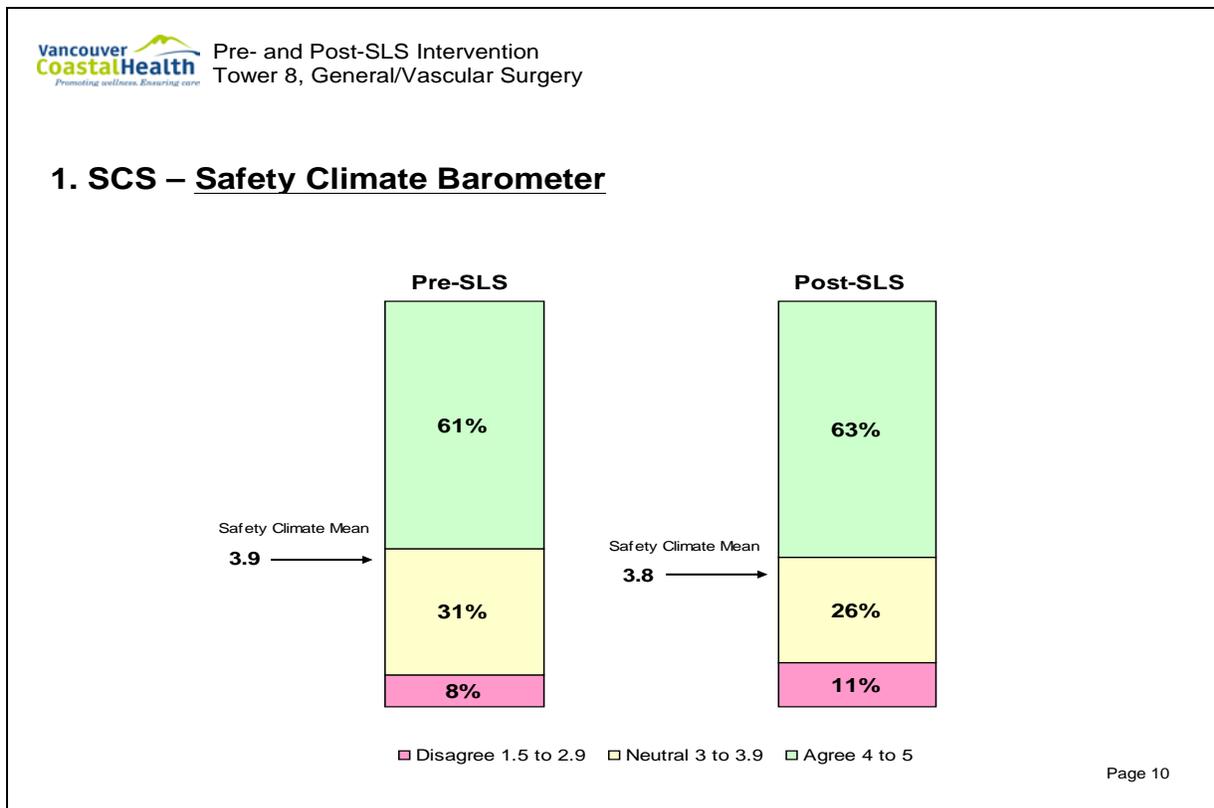
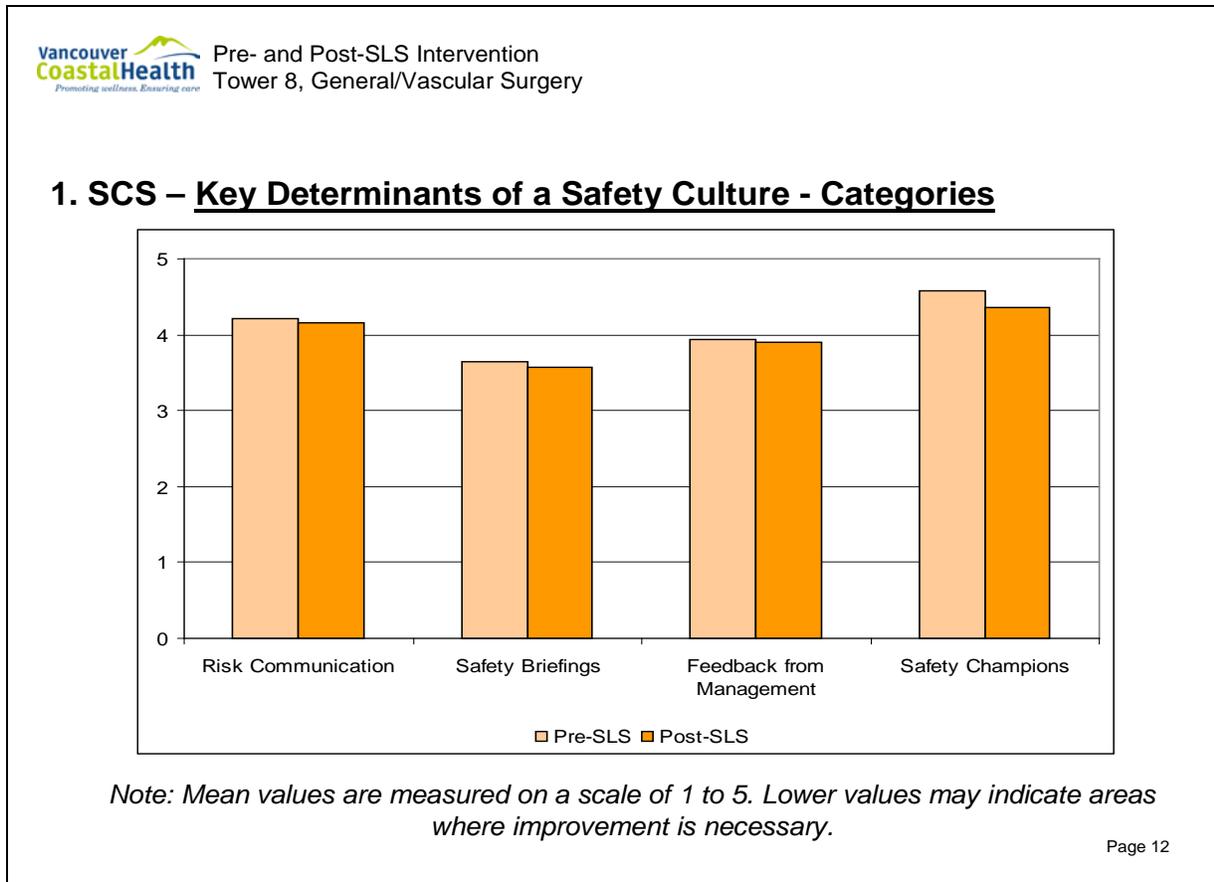


Table 10



Focus Groups

The VCH pilot project team used a focus group method at key milestones in the project to provide the team with a checkpoint on various aspects of the change management process and cultural awareness.

Focus groups were held with end users on Pattison 8 and the Business Working Group (BWG), which had a representative from each of the business areas participating in the pilot. The BWG members, as part of their roles, were asked to be in regular touch with the stakeholders within their departments so they could bring forward not only their opinions, but those of their peers.

The focus groups looked for:

- Attitudes, barriers and incentives for participating in the incident reporting process
- Feedback on change management and organizational readiness activities
- Effectiveness of communications
- The extent to which SLS changes and policy reinforcements are being adopted
- Perception of pilot success and project management lessons learned
- Assessment of skills acquired during training and use of the new procedures

Focus groups in Pattison 8 were conducted during existing meetings, including ward meetings and Safety Huddles. The pilot team led these focus groups at three stages:

- Before the start of the pilot
- After the first significant exposure to SLS, namely the e-learning course in April
- At the end of the pilot

Additional learning was gathered during project team and existing staff meetings throughout the pilot.

Findings:

- Staff felt that they already had a good safety culture and support from their manager before the pilot
- There has been some increased talk in the ward about identifying events and reporting them since the pilot
- Pre-pilot, staff felt that reporting events did not trigger change and that people in the organization did not do anything with the reports. Post pilot, SLS helped staff become aware which departments and staff received notification to follow up on event reports.
- Pre-pilot, staff were not aware they should report good catches (near misses). Through education and communication, they recognize the need for it but feel they do not have enough time to report these types of events. They have reported more awareness of good catches and the need to recognize opportunities to address them in their work.

Conclusions

The cultural surveys revealed an overall positive safety climate score that was maintained during the pilot implementation. There had been other safety initiatives implemented on this unit prior to the pilot of SLS, and this positive safety culture is evident in the survey results both pre-SLS implementation as well as post-SLS implementation. It is important to note that this unit was chosen for the pilot because it had a positive culture of safety and committed leadership as a prerequisite for

participation in the SLS project. As a recommendation for future implementations, it would be important to measure the safety climate prior as a measure of readiness.

Operational Evaluation

SUMMARY OF KEY FINDINGS

Establishing a basis for comparison of pre- and post-pilot operational indicators was important to demonstrate the impact of the implementation of the PSLS on reporting rates – also a key indicator of cultural shift – and processes. Both pilots were able to quantify the changes achieved during the pilot period, and both demonstrated positive results, although to different degrees. The importance of keeping the reporting form short, simple and relevant was key to adoption by the frontline staff, and engaging users in developing the forms in an iterative fashion was an effective approach to forms development. One of the challenges going forward will be to configure the software to meet the needs of diverse groups of users across BC while maintaining a shared, standardized approach and taxonomy as much as possible. Configuration is another key factor in user adoption, and engagement of users in configuration work and allowing time for forms and lists to evolve are essential.

The training approach was demonstrated to be effective with all groups, as was the use of a variety of tools for training and the provision of support post-training. Training evaluation results strongly support the assumption made at the onset of the pilot implementation that frontline staff require very little training in order to use the PSLS to report safety events. The main focus of training must be on the managers and others involved in event investigation and follow-up, as the changes to these processes and their roles are significant.

Recommendations

#	Recommendations
7	Establish baseline operational indicators and measure pre-implementation as a basis for comparison post-implementation
8	Keep reporting forms short and simple with few fields requiring subjective judgment from reporters
9	Provide narrative text fields to allow reporters to tell their ‘stories’ as well as short or filtered drop-down lists to standardize data and reduce report completion time
10	Use mandatory fields only where absolutely necessary to enable staff to enter the essential components quickly if desired, while still ensuring mandatory data are provided
11	Use an iterative process, such as Plan-Do-Study-Act (PDSA) to engage participants in forms development and promote relevance, buy-in and ownership
12	Think carefully about the creation and use of extra fields as they may have an impact on system performance, user-friendliness, and time required to complete the form, all of which may negatively impact adoption
13	Deliver training within a context of patient safety, event management and learning, ensuring that organizational policies and procedures support a non-punitive, just approach to reporting
14	Use multiple methods of training delivery, including e-learning, hands-on

	classroom learning, practice scenarios and sessions in the care setting
15	Develop 'Super Users' from within the business areas/clinical teams to support their colleagues in using the new application
16	Make modifications to forms and tables promptly based on feedback from users to promote satisfaction with the system and develop ownership
17	Pay close attention to the impact of the change in reporting method on managers and others responsible for follow up investigation, ensuring that senior leaders are aware of the impact and supportive of the change in processes and additional time required to learn and apply the new system
18	Give strong messages to managers that the new system is a means of notification of safety events, as close to real time as possible, not just an event documentation and tracking system; they now have the opportunity to respond to safety events at the bedside, ensure support and disclosure occur and engage staff in discussing and learning from events while they are still "fresh"
19	Provide support for users using e-mail, pagers, hot lines, help desks, etc. to trouble-shoot, provide coaching and promote adoption
20	Embed training about patient safety, event reporting and management and the BC PSLs into staff orientation
21	Ensure the approach to deploying the application does not result in technical issues that interfere with staff submitting reports; this problem can have a definite negative impact on adoption

PROVINCIAL HEALTH SERVICES AUTHORITY (PHSA)

Operational Indicators

Review of the literature suggested a number of indicators that could be measured to determine pre-implementation reporting practices and assess improvement following system implementation.

Measures include:

- Reporting volume
- Proportion of near misses and hazards to actual adverse events
- Reporter characteristics
- Time elapsed from event to notification
- Time elapsed from event to completion of investigation
- Quality and completeness of report data
- Quality and completeness of follow up information

Pre-pilot Measurement

Using the indicators listed above, a three-month audit began in February 2006 to collect information about pre-implementation incident reporting practices at Children's & Women's (C&W). All 616

incident reports received by the Quality, Safety and Risk Management Department (QSRM) during that time were reviewed. The following results were noted for the NICU:

- 50 incident reports were received
- 26% were hazards or near miss events
- 92% were submitted by Registered Nurses
- 2% of the forms were received by QSRM within the expected 48 hour standard.
- The average time from event until the form was received by QSRM was 25 days
- The average time from event until completion of all follow up and investigation activities and sign off by managers was 39 days
- Only 6% contained complete, accurate data

Follow up reports were received for 402 reports C&W-wide and were rated for quality by assigning one point each for evidence of:

- Systems thinking
- Root cause analysis
- Identification of contributing factors
- Changes made or suggested to prevent recurrence

The following results were noted for the NICU:

- 33 follow up reports were received
- 55% received a score of 0 or 1
- 30% received a score of 2
- 15% received a score of 3 or 4

Post-pilot Measurement

At the end of the three-month period, the NICU reports were reviewed using the same indicators used for the pre-pilot audit. Results showed:

- 129 reports were submitted (an increase of 158%)
- 36% were near misses or hazards
- 74% were submitted by Registered Nurses.
 - This means 26% were submitted by non-RNs and although physicians are not specifically identified in either pre or post metrics, literature suggests that physicians seldom comprise more than 2% of the reporters even post-implementation. Moving forward, attention should be paid and lessons learned and shared about physician engagement.
- 84% were submitted within the 48 hour QSRM standard (54% were reported the same day the event occurred).
 - This indicator should be monitored carefully over time and further investigated to identify and help remove barriers to contemporaneous reporting.

- The average time from event until the form was submitted and available to QSRM was 1 day
- The average time from event until completion of all follow up and investigation activities and “final approval” given by managers was 33 days
- 100% were complete (all mandatory fields filled in)

The same criteria used pre-pilot to assess quality of follow up information were applied to NICU events given “final approval” during the pilot, and the following results were noted:

- 30 follow up reports were received
- 7% received a score of 0 or 1
- 23% received a score of 2
- 70% received a score of 3 or 4

Table 11 provides a comparison of the pre-pilot and pilot operational indicators. Improvement was shown in all areas.

Table 11

Indicator	Pre-pilot	Pilot	Improvement
# of event reports submitted	50	129	↑ 79 (158%)
Near miss or hazard	26%	36%	↑ 10%
Submitted by non-RNs	8%	26%	↑ 18%
Submitted within 48 hours of event	2%	84%	↑ 82%
Average time between event and notification to QSRM	25 days	1 day	↓ 24 days
Average time between event and completion of investigation	39 days	33 days	↓ 6 days
% complete	6%	100%	↑ 94%
Follow up quality = 0-1	55%	7%	↓ 48%
Follow up quality = 2	30%	23%	↓ 7%
Follow up quality = 3-4	15%	70%	↑ 55%

Training Approach

Training for both managers (those who were required to follow up on or investigate safety event reports) and front-line staff (those who would use the system to report safety events) focused as much on patient safety and each person's role in promoting safety culture as it did on use of the BC PSLs. The introduction of the new system was used as an opportunity to engage staff in talking about patient safety and safety event reporting to help begin the desired shift in culture.

Managers were trained in the weeks before Go Live to ensure they were prepared to receive and quickly respond to reports submitted by staff. Training consisted of one four-hour interactive small group session conducted in a computer classroom led by skilled, experienced nurse educators with quality and safety expertise and included hands-on practice in the BC PSLs online Training environment. At the end of the session, the managers were immediately able to access the Production environment, which had been loaded with their current event report information (data entered from open paper report forms). They were also given practice scenarios to enter into the Training environment at their convenience as an additional opportunity to reinforce their learning. A manager's manual and "cheat sheet" were also provided, as was a contact phone number and e-mail address for the QSRM Help Desk, which was established for the specific purpose of providing ongoing support to BC PSLs users.

Some one-on-one training for physician leaders was provided in a condensed form. In addition, QSRM Help Desk staff monitored the managers' reports and contacted them individually to offer help and

feedback if response time seemed to be slow, again offering one-on-one support and additional hands-on practice to consolidate skills and build confidence.

Front-line staff training began with system Go Live. Quality & Safety Leaders and pilot team members spent two hours in the NICU on most days for several weeks after Go Live, gathering two or more personnel at a time around a computer for about 20 minutes. The topic of patient safety was introduced, and feedback from staff about their experience with safety event reporting and their opinions about it was sought. Access to the new safety reporting form in the Training environment was then obtained by one of the staff, and a scenario was used to have the volunteer walk through the reporting form and submit the report. Questions were encouraged, and a laminated “cheat sheet” was left at each computer for future reference. Staff were also given scenarios and encouraged to use them to practice reporting an event in the Training environment at their convenience. They were instructed to put their name on the practice reports, which went to their pilot team representative who would review them and provide feedback and a reward, which was a calculator. Staff participated quickly and actively in this exercise, with 101 reports submitted within the first few weeks.

Training Evaluation

Eleven managers completed evaluation forms for the classroom sessions (APPENDIX D & E). Results were positive overall, with participants indicating that they were satisfied with the approach and their level of preparedness to use the new system.

The effectiveness of the short learning sessions and practice scenario approach for front-line staff in the NICU was evaluated by thirty-two participants. Results were very positive, with 100% of respondents answering “Yes” to the question, “Now that you have completed your BC PSLs education session/practice scenarios, do you feel you could complete a Safety Event Form?”

All of the practice reports submitted into the Training environment by front-line staff were reviewed for completeness and accuracy. No problems were identified in the areas of:

- Location
- Date
- Description
- Persons notified
- Event type

Problems occurred most commonly in the areas of:

- Patient name
 - In scenarios where the patient did not clearly experience harm, the patient-specific information (name, chart number, date of birth) was only entered 21/81 times (26%)
 - In scenarios where the patient clearly was harmed, the patient-specific information was entered 19/20 times (95%)
- Severity
 - Severity was identified correctly in 65/101 cases (64%)

A small number of reporters completed other fields incorrectly, but there were no significant trends observed.

Although managers were also provided with practice scenarios and access to the Training environment, none of them completed the scenario-based training exercise. Instead, they elected to immediately begin to use the application in the Production environment. Review of their follow up in the live system did not reveal any significant problems or trends.

Role Changes

Several of the managers were noted to have reports that had been submitted to them remaining in the holding area for long periods of time (weeks). Follow up was conducted by the QSRM Help Desk to trouble-shoot and offer one-on-one support, which was accepted and effective in most cases. Discussions with the managers identified two problems impacting their ability to promptly follow up on reports:

1. The NICU was extremely busy with a consistently high census and acuity, so most of their time was spent in clinical support work, with limited opportunities to access a computer or perform non-urgent, non-clinical duties.
2. Their previous process with the paper-based system was to accumulate a number of safety event reports, then to use a pre-scheduled office day to complete follow up work and sign off on the forms. The new process allowed for quick review of reports as they arrived and enabled immediate handling and response, but the managers were not accustomed to incorporating this work into their daily activities, nor were their leaders aware that this shift in the allocation of their time needed to occur.

Staff in the QSRM Department also experienced changes to their roles related to following up on safety event reports and supporting managers in the NICU in adopting the new system. A QSRM Help Desk was established, providing phone and e-mail support to NICU personnel as they were learning to use the new system.

Safety event reports submitted on paper in 2006 and 2007 were entered into the BC PSLs, enabling QSRM personnel to use the BC PSLs to review and track safety event reports. Initially, the processes used to review paper reports were applied to the electronic system, but evolved to more efficient and effective use of time with a focus on problem-prone events appropriate for quality improvement initiatives and critical events requiring root cause analysis. Processes are reviewed regularly and continue to evolve. Time can be used to offer more direct support to clinical managers involved in following up on safety events, rather than simply concentrating on documentation activities.

Conclusions

Comparison of pre- and post-pilot operational indicators demonstrates excellent adoption of the new application and reporting processes by front-line staff. The increase in volume of reports, involvement of disciplines other than nursing in reporting, and increase in reporting of hazards and near misses are early but clear indications of a shift in safety culture in the NICU.

The approach to training front-line staff, in terms of both the brief, interactive bedside training and the practice scenarios, was very effective in promoting front-line adoption. In response to the problems identified through review of the scenario-based reports, changes to the reporting form were made to make it clearer to reporters when and how to enter patient-specific information, and to assist them with assigning the correct severity rating. Despite these improvements, the severity rating area still seems to be a challenge for reporters, so plans are underway to further simplify the question. A Plan-Do-Study-Act process has been used to develop these changes to ensure they work well for reporters.

The approach to manager training was effective overall, but the scenario-based practice reports were not used and were not necessary, so will be discontinued going forward with rollout. The QSRM Help Desk was not frequently used, but there were several calls from managers who required support and the proactive offers of help to specific managers were well-received.

One important activity during the pilot period was configuring the software to meet the needs of the users. In addition to using principles to guide forms development, including keeping the form short and simple, trying to capture only objective data, and carefully considering the need for mandatory fields, the pilot team's understanding of the NICU and its culture informed configuration decisions. Much attention was paid to ensuring a user-friendly interface. The team used an iterative, Plan-Do-Study-Act approach to test out forms, taxonomy and configuration. The work done in this area promoted user adoption of the system, which is reflected in the post-implementation results.

Changes in the roles of nurse leaders and specialized QSRM staff have been observed. In the past, safety event reporting processes focused on documentation, both of the details of the event itself and the follow up information. The time lag between the event and the receipt of the paper reporting form by leaders meant that safety event reporting was not an effective way for leaders to be notified of events requiring their immediate attention. The BC PSLs allows for immediate, automatic notification of leaders when an event occurs in their areas, and enables them to quickly attend the bedside and ensure that disclosure to patients and families occurs, support is offered, and investigation is timely to support learning while the event is fresh in everyone's mind. This change requires that managers and leaders spend more of their time each day following up on events, rather than accumulating reports and completing them later.

VANCOUVER COASTAL HEALTH AUTHORITY (VCH)

The operation improvements evaluation at VCH focused on whether the SLS pilot met the objectives set by business leaders in the VCH SLS Pilot Project Charter.

Findings linked to key VCH SLS Pilot Objectives

The objectives were measured statistically where possible, and by collecting perceptions from project and business team members through a focus group and private survey.

Objective: Implement Datix application for management of patient and employee safety incidents, hazards, claims, compliments and complaints.

Findings:

- SLS was implemented for all event types stated
- Events can be linked more easily (e.g. safety event and claim)
- A single look and feel were achieved by combining several types of similar "incident" report forms
- Less paper
- Significant configuration is needed to support varied types of event reports
- Report writing functionality requires configuration to better support operational reporting requirements
- Some business requirements were not met by configuration or functionality

- Inclusion of staff events was a VCH-only requirement and was not integrated into the overall provincial initiative, making success in this area difficult to achieve

This objective was met, as the SLS was successfully implemented for all event types. The VCH pilot also provided valuable insight about how events can be linked. After the pilot, a decision was made to remove employee events from SLS.

Objective: Increase effectiveness (timeliness and quality) of communication about incidents, near misses and complaints.

Findings:

- The greatest efficiency realized during the pilot was that events can be reviewed and trends analyzed by authorized staff in Patient Safety, Client Relations & Risk Management and Worksafe & Wellness months sooner than equivalent paper reports are available. With paper reports, statistical and trending analysis is not available to the organization until about six months after the event, at minimum, once paper reports are entered into a database. With SLS during the pilot, events were available for reporting and analysis once the event had undergone preliminary follow up (4-5 days). This is an overall improvement in availability of over 95%.
- A SLS event report can be accessed and reported on by authorized staff once it has been reviewed and saved by a unit supervisor, usually within one day
- Notification about events occurs as soon as it is reported, with greater legibility and awareness of the progress of follow up
- Notification is especially efficient when multiple departments (such as Pharmacy or Risk Management) are involved. Authorized staff in these departments are able to access events needing their attention, immediately - often days earlier than before - and with less need for multiple phone calls, fax, and interoffice mail.
- Event follow up (investigation) is completed on average one day earlier than the previous year
- There is greater confidence in the accuracy of information collected
- Follow up and approval of events takes less time with SLS
- Status of events and actions underway during follow up is readily accessible to the appropriate users
- Summary reporting is better than paper processes
- Configuration of some areas of the application is ongoing. Drop-down lists do not always contain desired or familiar options, impacting accuracy.
- Some areas of the application are prone to missing or incorrect information
- Although the application enables reporters to view outcomes of reports they submit, technical limitations at the health authority level do not allow this functionality to be offered
- The time it takes for reporters to submit events has been impacted by access and technical issues related to the method chosen to deploy the application

- Nurse leaders are still adjusting to the change from paper to electronic notifications. They are not always at their computers

This objective was met as improvements to timeliness and quality were perceived by stakeholders and observed statistically. Evaluation of this objective was hampered because the application does not currently support easy measurement of cycle time between the date an event is reported and the date final approval of the investigation is assigned. This issue has been reported to the software vendor.

Objective: Increase identification of “near misses” and “hazards”, for patients, visitors and staff.

Findings:

- There have been more near misses and hazards reported than was typical in Pattison 8
- Four near misses were reported during the pilot, compared to 0 near misses reported during the same period in 2006
- Seven hazards were reported during the pilot compared to 3 hazards reported between January and June 2006
- Awareness about the value of reporting near misses increased, but reporting near misses is still perceived as low priority work by unit staff
- There was a 41% increase in the number of patient safety event reports submitted over the same period last year
- There was a slight reduction in the quality of information in the event reports, specifically related to identifying contributing factors and suggestions on prevention. The related fields on the safety event report form in SLS have attracted several complaints from staff who report that these fields are unfriendly to use.
- The safety event report was most often remiss in the event description, which was also true for events reported on paper prior to the pilot
- Technical issues related to the application deployment approach resulting in submit errors made staff less inclined to report near misses
- The feedback feature was not useful for staff who do not access e-mail

Table 12

Indicator	Pre-pilot	Pilot	Improvement
# of event reports submitted	29	41	↑ 12 (41%)
Near miss	0%	10%	↑ 10%
Hazard	8%	17%	↑ 9%

This objective was met as reporting of near misses and hazards increased during the pilot period. Desired volume metrics were not set, however, there was a wish that the volume of near misses that were reported during the pilot was higher.

Objective: Improve safety incident prevention and management (identification, notification, investigation and analysis) among staff.

Findings:

- Existing safety huddles and ward meetings were used often to provide feedback to staff on the progress and outcome of safety events
- Increased awareness and discussions about safety event management have been observed
- Staff who participated in focus groups felt that the appropriate people are notified about safety events more readily
- Worksafe & Wellness have been able to follow up with employee injuries more quickly, and anticipate reduced number of work days lost over time
- The ward is very busy, which is still a barrier to focusing on safety event prevention and management
- Quality of SLS event report content compared to paper forms is generally lower, for example, fewer safety prevention ideas are being recorded on safety event reports
- This objective was met as the focus on safety during the pilot brought more attention even though there was a high awareness already.

Objective: Improve client relations incident prevention and management (identification, notification, investigation and analysis) among staff.

Findings:

- The safety event report form contains questions designed to encourage reporters to think about the potential for a patient claim or complaint
- Answers to these questions cause an automatic notification to Client Relations and Risk Management (CR/RM)
- CR/RM now has the ability to follow up more quickly to patient concerns, link patient complaints and claims to safety events and access information about a complaint or claim more readily
- SLS is not currently configured to allow submission of patient complaints using the web application.
- SLS does not have a means in the web application to link events; this function must be performed using the rich client.
- Outside of the Safety Event Report form, staff do not participate in client relations incident prevention and management differently than before the pilot
- This objective was met. Client Relations and Risk Management were notified early of potential claims and complaints due to the configuration of SLS. However, more work needs to be done to increase awareness on the unit.

Training Approach

Training incorporated education about safety, event management and use of the SLS application to report and investigate events.

Training for front-line staff (reporters) comprised one 75-90 minute session for two staff with one trainer. Participants were also required to complete Module 1 of the eLearning course on event management. Super Users also received this training and were then involved in trouble-shooting and coaching their colleagues during training and on the unit. Personnel responsible for event follow up and

investigation were required to complete Modules 2 and 3 in addition to Module 1 of the e-learning course, and to participate in groups of 5 or less in a 4 hour computer classroom session. Advanced users were trained to use the rich client in 4 hour classroom sessions on each of the Incidents, Claims and Complaints Datix modules and also completed the e-learning course.

Support for SLS users was provided by Super Users on the pilot unit, and a “hot line” with pager and e-mail account were established to give users easy access to experts, who answered questions and provided guidance.

Training Evaluation

Surveys were conducted to evaluate the effectiveness of the eLearning course on event management (APPENDIX F) and the training provided to personnel who would use the SLS to report safety events (APPENDIX G). The results of both surveys were very positive.

Training was also evaluated against one of the VCH pilot objectives:

Objective: Develop expertise and tools that will assist VCH in rolling out the application and processes VCH-wide.

Findings

- We have a wide variety of tools that can be reused:
 - Leader Toolkit to implement SLS
 - Procedures/Processes
 - Training tools, such as how-to’s, eLearning, practice scenarios, instructor guides
 - Communications (poster, newsletter, certificates, ID promos, puzzles, etc.)
 - Change management strategy
 - Configuration book
 - Testing tools
- The training approach is flexible and relevant
- We developed experience across various disciplines
- Tools and expertise focused on VCH regional needs, not just on pilot needs
- Using business representatives to train and support own staff and retain knowledge (Super Users) was a good methodology
- The eLearning event management overview course “made me think more about the kinds of events I would report”
- Training funding, which provided essential access to staff during pilot, will be difficult to sustain in rollout
- Super Users were not fully trained or available to users for training or support as much as hoped for due to a GI outbreak before Go Live that created scheduling issues and event management not being a daily function and therefore users lost skills gained during train-the-trainer training

This objective was met. VCH collected expertise and tools to continue moving forward.

Conclusions

The pilot period was too short to fully assess the operational impact of the implementation of the SLS. It will be important to evaluate the implementation after 6 months and 1 year of use in production, and to:

- Continue configuration work
- Improve report writing functionality
- Conduct another pilot or small implementation before full rollout to refine rollout methods and address any technical issues
- Conduct pilots in each new area that is different from the Acute setting (e.g. Community)
- Ensure that electronic notification is not perceived to replace personal contact
- Resolve technical issues, such as scanning and submit problems
- Reduce form length for near misses
- Conduct a post-pilot forms review for opportunities to make them simpler
- Continue raising safety culture awareness and look for ways to demonstrate system improvements from near miss reports
- Continue to engage executive leadership
- Address information about client relations events in orientation education

With regards to training, we plan to:

- Embed the e-learning course in staff orientation
- Conduct a staged rollout, either adding pilots in different areas such as community or implementing completely in a small site, in order to add to the implementation Toolkit
- Look for different ways to solve issues with scarce access to staff for training, e.g. simplify configuration, secure education days, use computer-based training
- Provide Super Users with more orientation to SLS initially and have a method to reinforce their skills regularly, as they do not use the application every day
- Ensure Super Users have leadership commitment to enable them to be effective, such as making them available for orientation, training and support

Lessons Learned

SUMMARY OF KEY FINDINGS

Lessons learned during the pilot phase of the BC PSLs project were varied and plentiful. Of note, this is the first multi-health authority project in BC that has attempted to achieve collaboration at this level, and many of the lessons learned will be useful in informing other projects attempting to achieve similar goals. Key findings include the importance of strong leadership and clarity of mandate, roles and processes to facilitate collaborative decision-making and respect timelines, the need for a responsive project management approach to enable effective change, the benefits of embedding clinical and QSRM staff in project teams, both to promote system adoption and build organizational capacity, and the positive impact of co-locating all members of the project team, including IMIT, to encourage learning and team development.

Recommendations

#	Recommendations
22	Fully engage the PSLs Steering Committee by involving members in making or validating key decisions about use of the application, promoting regular meeting participation and strengthening the links between committee members and HA project teams
23	Finalize vendor contract negotiations before beginning project implementation
24	Work with Ministry and others to develop stream-lined, cost-effective approach to addressing regulatory and legal issues affecting multi-health authority collaborative projects
25	Standardize the approach to provincial rollout based on pilot lessons learned
26	Embed clinical and QSRM staff on project teams to facilitate adoption and build organizational capacity for change and ongoing system support
27	Ensure processes are in place for transparent decision-making and that health authority representatives on committees are empowered to make decisions
28	Use a multi-faceted approach to promote adoption of the new system, incorporating policies, practices, roles, leadership support and training
29	Focus on change management and use multiple communication channels to share project progress with stakeholders, with IT implementation being important but secondary
30	Co-locate all team members to facilitate business understanding of technical opportunities and constraints and IMIT understanding of business requirements
31	Adopt a project management approach that allows fluid responsiveness to changes arising throughout the project and both top-down and bottom-up influence
32	Identify and track opportunities to leverage the system to meet the needs of diverse stakeholders and to integrate the system with organizational processes

PROVINCIAL PROJECT

Governance / PSLs Steering Committee

The Steering Committee (SC) consisted of senior representatives from each Health Authority, the Ministry of Health and the Health Care Protection Program (HCPP) who have significant influence within their organizations.

The SC can be better 'leveraged' for future phases by considering the following practices:

- Strengthen quorum requirements to avoid consistent absentee members
- Facilitate meaningful engagement with PSLs by asking the SC to make or validate key decisions for PSLs as well as 'deep dive' into project progress and solution
- Improve communications:
 - within a HA, between HA steering committee representative and project manager
 - between SC and project team by posting SC presentation and minutes on the Share Point site

Contract Management

Considerable time and effort was spent during this project to negotiate the software contract in parallel to the implementation effort. These sensitive negotiations at times impacted projected timelines. Software contracts and other key contracts should be negotiated and completed before an implementation project is begun.

Regulatory Matters

This project had to address multiple regulatory matters during the pilot phase - privacy impact and FOIPPA, data sharing constraints, BC Evidence Act section 51 issues and other legislative concerns - which required intensive involvement of legal counsel, privacy experts, etc. A more efficient, cost-effective approach can be adopted to address such common regulatory matters in the health sector through the establishment or identification of a centre of expertise (or some central authoritative body) that can assist these provincial initiatives on an ongoing basis.

Implementation Approach

The rollout effort can be made shorter, less resource-intensive and standardized by utilizing the resources, learnings and tools developed in the pilot phase. Embedding QSRM/QSI resources in the project team builds organizational capacity to sustain rollout efforts and ongoing use and development of the system. Embedding clinical representatives in the project teams helps increase relevance and ownership of solution and its delivery.

Decision Making

In a multi-health authority initiative, transparency in decision-making is a key success factor. This goal can be achieved through establishing forums where specific decisions can be taken and communicating (and validating, when necessary) these decisions across the stakeholder groups. Decisions can be made 'top down' through the Steering Committee or recommended 'bottom up' through various advisory

committees and collaborative working groups. Participants at these committees must be empowered to represent their organizations and be able to support timelines for the initiative.

Adoption

Adoption of the solution and the move towards a culture of patient safety can be facilitated by a multi-dimensional effort that addresses:

- Policies:
 - Non punitive policy
 - Disclosure policy
- Safety practices:
 - Leadership Walkrounds
 - Safety Huddles
- Active follow up by responding to safety event reports by managers & QSRM staff
- Increased use of reports in an insightful way at department and safety committee meetings
- Usability and ease of use of forms
 - Form design : Short forms, small, relevant drop-down lists, minimum mandatory fields
 - Iterative development of solution as discussed in this document
- Training:
 - Embedded patient safety culture training
 - Training for HA project team
 - Training for and by QSRM departments
 - Establishing QSRM help desk
 - Hands-on training for managers
 - Frontline staff training delivered on site and in context by unit Super Users

PROVINCIAL HEALTH SERVICES AUTHORITY (PHSA)

Change Management

Ensuring the NICU pilot was positioned and described as a patient safety project with a technology component allowed us to keep the primary focus on change management and shifting safety culture, with the implementation of the electronic reporting system acting as a culture carrier. Strong support from the PHSA IM/IT team was critical to the success of the project, but was not the main driver for change. We believe that this approach was the main reason for the outstanding adoption of the system in our pilot unit and the overall success of our pilot project. The use of the Patient Safety Program framework and a strong focus on adoption within the context of patient safety were also key to our success.

Additionally multiple communication forums kept the stakeholder community informed of project progress and assisted in identifying barriers or issues that needed to be addressed early on.

- Newsletters - kept the broader community in the loop

- Share Point web site - facilitated collaboration within the distributed project team
- Road Shows - kept key stakeholder groups like the CIOs, CFOs, etc. informed of project progress

Building Capacity

As individuals and as a team, the QSRM staff on the NICU pilot team benefited from their participation by developing their project and change management skills, particularly through their association with the expert consultants working on the project. They are now able to apply these skills to other projects and initiatives, resulting in a greater chance of successful change.

A key to sustainability of patient safety and quality improvement initiatives is developing capacity for change and improvement at the local level and ensuring resources are dedicated to this work. Helping NICU leaders learn to analyze reports provided by the new system and use evidence-based tools to effect change will enable them to continually improve the quality of care and solve safety problems in their program; these actions will demonstrate leadership commitment to safety, which will encourage staff to sustain reporting behaviours.

Co-location

Technology was an important component of the project. IT specialists were an integral part of our team and were co-located with the rest of the pilot team for the duration of the project. This close association with the project helped them develop a thorough understanding of the business drivers for the project and its connection to the work that front-line care providers do in caring for patients. The other members of the pilot team also benefited from close proximity to the IT specialists, developing a better understanding of the possibilities and limitations of the software, the importance of configuration and system set-up to user adoption, and the work involved in establishing and maintaining the BC PSLs.

Imbedding Clinical Staff

Integrating pilot site staff into the project team was essential. The seconded nurse leaders acted as cultural translators in both directions, and were better able to influence practice and effect change in the pilot site than other project team members. People with clinical expertise in a leadership position were key to providing input to the solution design, training approach and change management strategies and to facilitating adoption. This “embeddedness provide[d] a basis for taking action--an opportunity for implementing desired change” and embedded staff were able to “use...their established networks and intimate knowledge of their work environment to take...purposeful actions designed to change established patterns of work”¹. Also, pilot site staff members were in the best position to identify both problems and solutions, and were keen to be part of the project. Giving them opportunities to participate recognized their important contribution and ensured the project remained relevant to the clinical program.

Project Management

A rigid, linear project management approach does not work well with a complex, iterative project. Ironically, a change initiative can come to a grinding halt when it encounters a need to change course that is not easily accommodated by the project plan! Focusing on project control and adhering to a pre-determined set of tasks and timelines does not allow the flexibility to respond easily to emerging issues, and working through formal change request processes can impede progress. Quality

improvement project methods and tools combined with thoughtful change management offer a more nimble framework. Guidance documents supporting a project plan can create an effective “roadmap” for implementation team members and empower them to enact their roles. Ivory and Aldermanⁱⁱ suggested that “project execution be thought of as a process of constantly adjusting the project system to fit a confounding and emerging reality”. A multi-modal approach with built in “slack” to accommodate shifting pace and emerging findings and both top-down and bottom-up interventions is recommended. A quality improvement spread modelⁱⁱⁱ may be appropriate for provincial rollout. Comparing the very different approaches taken by the two pilot project teams will offer substantial learning and inform the rollout plan.

On a lengthy project, team members can become frustrated with delays and discouraged by apparent lack of progress. Building goals and evaluation activities into the schedule has allowed the team to achieve small successes, which are recognized and celebrated to bolster team spirit and maintain momentum.

Collaboration

Collaborating with other health authorities has offered opportunities for learning and knowledge transfer across organizational boundaries and cultures. While sometimes challenging and time-consuming, we have created a foundation for the provincial implementation that is more likely to be applicable across BC than a single health authority perspective would have allowed.

Inter-health authority collaboration will result in better outcomes and learnings than would be possible with a smaller, local project and will contribute to the likelihood the changes we make will be sustained systemically. However, the challenge of working with a large number of people with diverse perspectives and backgrounds and sometimes competing agendas and priorities cannot be underestimated.

Specific criteria should be used to determine organizational readiness to engage in a pilot project, particularly one that involves collaboration at this level, and exploration of differences in cultures, structures, processes and values, should take place before proceeding to confirm that the groups have enough in common to work together and avoid misunderstandings, frustration and delays.

Even in the best of circumstances, collaboration takes time and adds complexity. Opportunities for knowledge transfer and developing shared vision, goals and relationships need to be built into the project plan, and activities, timelines and budgets need to take these requirements into account.

Roles, accountabilities and decision-making processes should be clearly articulated to avoid confusion and prevent delays.

A commitment to evidence-based decision-making is necessary, but presentation of evidence alone is not enough. Decision-making involves persuading people, securing support and consensus-building. In a collaborative project, decisions can be heavily influenced by “organizational or wider system requirements, such as resource availability, pressures in the healthcare marketplace, organizational policies and procedures, and stakeholders’ views and interests. These factors may act as limitations, or may even directly conflict with research findings”^{iv} and add complexity to the process.

Opportunities

Opportunities to expand the use of the BC PSLs beyond safety event reporting were identified and explored during the pilot phase. Of note:

- Preliminary work is underway to develop reporting forms and configure the application to support Infection Control surveillance across the PHSA. This functionality may then be easily offered across the province as the system is rolled out.
- Tracking specific quality and safety issues and monitoring their incidence as improvement efforts are implemented was identified as a highly desirable use of the application. For example, the issue of vascular access line problems in the NICU and the need to capture specific information about them was an idea proposed by the NICU physicians, which will be developed further.
- Several research projects and proposals are linked to the PSLS, as outlined in the research report. These focus on adverse event reporting in Emergency Departments, Critical Care Units, the clinical research context and by patients and families.

VANCOUVER COASTAL HEALTH AUTHORITY (VCH)

Collaboration

Objective: Collaborate with BC PSLS project to establish a foundation for a provincial incident reporting and investigation system.

Findings:

- All pilot work was based on adapting SLS regionally and provincially
- Participated in collaborative groups
- Joint approach to vendor training was successful
- Could have had more cooperation and follow through on some collaborative groups
- Structured opportunities aided collaborative efforts
- Need to address challenges of provincial vs. unique health authority requirements
- Need clear guidelines and mandates for collaborative groups
- Include people with appropriate expertise and background
- Clarify roles, responsibilities
- Define decision making role and accountability
- Document group decisions and/or minutes

This objective was met. Overall, a strong provincial foundation was made possible by having more than one health authority successfully involved during the pilot phase. Also, by virtue of being an early adopter, VCH significantly contributed to the project and learnings.

Opportunities

Objective: Identify other opportunities or workflows that may benefit from implementing Datix.

An opportunity log was maintained throughout the project that the team used to record potential uses of SLS for other workflows as they were suggested.

Findings:

- Pilot allowed participating departments to examine their internal event management procedures and policies

- Staff saw a lot of value having included the employee staff and workplace hazard events
- Functionality for existing procedures is still cumbersome, such as:
 - Attaching documents
 - Falls assessment procedures
- Existing functionality and related procedures should be fine-tuned before adding new workflows
- Including a simple Medication Administration Record (MAR) memo process would increase adoption
- Consider rolling out to units that are heavy equipment users such as operating rooms to more fully pilot equipment related events

APPENDIX A: Hospital Survey on Patient Safety Culture (used at PHSA)



HOSPITAL SURVEY ON PATIENT SAFETY CULTURE

INSTRUCTIONS

This survey asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 10 to 15 minutes to complete.

- An “event” is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm.
- “Patient safety” is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery.

SECTION A: Your Work Area/Unit

In this survey, think of your “unit” as the work area, department, or clinical area of the hospital where you spend most of your work time or provide most of your clinical services.

What is your primary work area or unit in this hospital? Mark ONE answer by filling in the circle.

- a. Many different hospital units/No specific unit
- b. Medicine (non-surgical) g. Intensive care unit (any type)
- c. Surgery h. Psychiatry/mental health
- d. Obstetrics i. Rehabilitation
- e. Pediatrics j. Pharmacy
- f. Emergency department k. Laboratory
- l. Radiology
- m. Anesthesiology
- n. Other, please specify:
-

Please indicate your agreement or disagreement with the following statements about your work area/unit. Mark your answer by filling in the circle.

Think about your hospital work area/unit...	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. People support one another in this unit.....	①	②	③	④	⑤
2. We have enough staff to handle the workload	①	②	③	④	⑤
3. When a lot of work needs to be done quickly, we work together as a team to get the work done	①	②	③	④	⑤
4. In this unit, people treat each other with respect.....	①	②	③	④	⑤
5. Staff in this unit work longer hours than is best for patient care.....	①	②	③	④	⑤
6. We are actively doing things to improve patient	①	②	③	④	⑤

safety.....

7. We use more agency/temporary staff than is best for patient care.....	①	②	③	④	⑤
8. Staff feel like their mistakes are held against them ...	①	②	③	④	⑤
9. Mistakes have led to positive changes here.....	①	②	③	④	⑤
10. It is just by chance that more serious mistakes don't happen around here.....	①	②	③	④	⑤
11. When one area in this unit gets really busy, others help out	①	②	③	④	⑤
12. When an event is reported, it feels like the person is being written up, not the problem	①	②	③	④	⑤

SECTION A: Your Work Area/Unit (continued)

Think about your hospital work area/unit...	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
13. After we make changes to improve patient safety, we evaluate their effectiveness.....	①	②	③	④	⑤
14. We work in "crisis mode" trying to do too much, too quickly	①	②	③	④	⑤
15. Patient safety is never sacrificed to get more work done	①	②	③	④	⑤
16. Staff worry that mistakes they make are kept in their personnel file	①	②	③	④	⑤
17. We have patient safety problems in this unit.....	①	②	③	④	⑤
18. Our procedures and systems are good at preventing errors from happening.....	①	②	③	④	⑤

SECTION B: Your Supervisor/Manager

Please indicate your agreement or disagreement with the following statements about your immediate supervisor/manager or person to whom you directly report. Mark your answer by filling in the circle.

	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	①	②	③	④	⑤
2. My supervisor/manager seriously considers staff suggestions for improving patient safety	①	②	③	④	⑤
3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	①	②	③	④	⑤
4. My supervisor/manager overlooks patient safety problems that happen over and over	①	②	③	④	⑤

SECTION C: Communications

How often do the following things happen in your work area/unit? Mark your answer by filling in the circle.

Think about your hospital work area/unit...	Never ▼	Rarely ▼	Some- times ▼	Most of the time ▼	Always ▼
1. We are given feedback about changes put into place based on event reports	①	②	③	④	⑤
2. Staff will freely speak up if they see something that may negatively affect patient care	①	②	③	④	⑤
3. We are informed about errors that happen in this unit ...	①	②	③	④	⑤
4. Staff feel free to question the decisions or actions of those with more authority.....	①	②	③	④	⑤
5. In this unit, we discuss ways to prevent errors from happening again.....	①	②	③	④	⑤
6. Staff are afraid to ask questions when something does not seem right.....	①	②	③	④	⑤

SECTION D: Frequency of Events Reported

In your hospital work area/unit, when the following mistakes happen, how often are they reported? Mark your answer by filling in the circle.

	Never ▼	Rarely ▼	Some- times ▼	Most of the time ▼	Always ▼
1. When a mistake is made, but is <u>caught and corrected before affecting the patient</u> , how often is this reported? ..	①	②	③	④	⑤
2. When a mistake is made, but has <u>no potential to harm the patient</u> , how often is this reported?	①	②	③	④	⑤
3. When a mistake is made that <u>could harm the patient</u> , but does not, how often is this reported?	①	②	③	④	⑤

SECTION E: Patient Safety Grade

Please give your work area/unit in this hospital an overall grade on patient safety. Mark ONE answer.

- A** **B** **C** **D** **E**
 Excellent Very Good Acceptable Poor Failing

SECTION F: Your Hospital

Please indicate your agreement or disagreement with the following statements about your hospital. Mark your answer by filling in the circle.

Think about your hospital...	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. Hospital management provides a work climate that promotes patient safety	①	②	③	④	⑤
2. Hospital units do not coordinate well with each other.....	①	②	③	④	⑤
3. Things “fall between the cracks” when transferring patients from one unit to another	①	②	③	④	⑤

4. There is good cooperation among hospital units that need to work together	①	②	③	④	⑤
5. Important patient care information is often lost during shift changes.....	①	②	③	④	⑤
6. It is often unpleasant to work with staff from other hospital units	①	②	③	④	⑤
7. Problems often occur in the exchange of information across hospital units.....	①	②	③	④	⑤
8. The actions of hospital management show that patient safety is a top priority	①	②	③	④	⑤
9. Hospital management seems interested in patient safety only after an adverse event happens.....	①	②	③	④	⑤
10. Hospital units work well together to provide the best care for patients	①	②	③	④	⑤
11. Shift changes are problematic for patients in this hospital.....	①	②	③	④	⑤

SECTION G: Number of Events Reported

In the past 12 months, how many event reports have you filled out and submitted? Mark ONE answer.

- a. No event reports
- b. 1 to 2 event reports
- c. 3 to 5 event reports
- d. 6 to 10 event reports
- e. 11 to 20 event reports
- f. 21 event reports or more

SECTION H: Background Information

This information will help in the analysis of the survey results. Mark ONE answer by filling in the circle.

1. How long have you worked in this hospital?
 - a. Less than 1 year
 - b. 1 to 5 years
 - c. 6 to 10 years
 - d. 11 to 15 years
 - e. 16 to 20 years
 - f. 21 years or more
2. How long have you worked in your current hospital work area/unit?
 - a. Less than 1 year
 - b. 1 to 5 years
 - c. 6 to 10 years
 - d. 11 to 15 years
 - e. 16 to 20 years
 - f. 21 years or more
3. Typically, how many hours per week do you work in this hospital?
 - a. Less than 20 hours per week
 - b. 20 to 39 hours per week
 - c. 40 to 59 hours per week
 - d. 60 to 79 hours per week
 - e. 80 to 99 hours per week
 - f. 100 hours per week or more
4. What is your staff position in this hospital? Mark ONE answer that best describes your staff position.
 - a. Registered Nurse
 - b. Physician Assistant/Nurse Practitioner
 - c. LVN/LPN
 - d. Patient Care Assistant/Hospital Aide/Care Partner
 - e. Attending/Staff Physician
 - f. Resident Physician/Physician in Training
 - g. Pharmacist
 - h. Dietician
 - i. Unit Assistant/Clerk/Secretary
 - j. Respiratory Therapist
 - k. Physical, Occupational, or Speech Therapist
 - l. Technician (e.g., EKG, Lab, Radiology)
 - m. Administration/Management
 - n. Other, please specify: _____

- 5. In your staff position, do you typically have direct interaction or contact with patients?
 - a. YES, I typically have direct interaction or contact with patients.
 - b. NO, I typically do NOT have direct interaction or contact with patients.

- 6. How long have you worked in your current specialty or profession?
 - a. Less than 1 year
 - b. 1 to 5 years
 - c. 6 to 10 years
 - d. 11 to 15 years
 - e. 16 to 20 years
 - f. 21 years or more

SECTION I: Your Comments

Please feel free to write any comments about patient safety, error, or event reporting in your hospital.

THANK YOU FOR COMPLETING THIS SURVEY.

APPENDIX B: NICU Pilot User Survey Results - Front-line & Managers (PHSA Pilot)

For more information please contact BC PSLs Central Office.

APPENDIX C: Safety Climate Perception Survey (used at VCH)

For more information please contact BC PSLs Central Office.

APPENDIX D: Computer Education Evaluation Results (PHSA Pilot)



Computer Education Evaluation Form

For more information please contact BC PSLs Central Office.

APPENDIX E: Pilot Training Evaluation Results (PHSA Pilot)

PSLS Neonatal Program Pilot Training Evaluation

Frontline Staff

For more information please contact BC PSLs Central Office.

APPENDIX F: Event Management eLearning Survey Results (VCH Pilot)

For more information please contact BC PSLs Central Office.

APPENDIX G: Reporter Training Evaluation Survey Results (VCH Pilot)

For more information please contact BC PSLs Central Office.

APPENDIX H: Summary Results from User Satisfaction Survey (VCH Pilot)

For more information please contact BC PSLs Central Office.

ⁱ Reay, T., Golden-Biddle, K., & Germann, K. (2005). Legitimizing a new role: Small wins and micro-processes of change. *Academy of Management Journal* (forthcoming).

ⁱⁱ Ivory, C. & Alderman, N. (2005). Can project management learn anything from studies of failure in complex systems? *Project Management Journal*, 36(3), 5-16.

ⁱⁱⁱ Massoud et al. (2006).

^{iv} Walshe & Rundall. (2001).