

Partnership for Patient Care Wrong-site Surgery Prevention Program Executive Summary of Results

A core component of the Partnership for Patient Care (PPC) program focuses on a regional approach to conducting proactive risk analyses (PRA) to proactively strengthen patient safety by targeting high-risk error prone clinical processes for improvement. The PPC's regional approach provides a strategic and cohesive program to facilitate rapid improvement over a short, concentrated period of time. The high risk process is analyzed to identify vulnerabilities that exist or failures that may occur, and the process and its underlying systems are redesigned through the implementation of targeted interventions aimed at mitigating risk. The goal is to eliminate or minimize the potential for failures, to stop failures before harm reaches the patient, or to minimize the consequences of the failure. Hospitals in the region can select to actively participate in one or more of the regional topics each year. The PPC's regional approach provides education, a robust toolkit, technical assistance, resources, and an interactive forum to facilitate the hospitals' efforts in improving and sustaining patient safety in the targeted clinical process.

This executive summary synthesizes the results and benefits of the PPC's regional program on wrong-site surgery prevention. This topic was chosen based on its broad application across regional hospitals, regional advisory group input, synergy with national patient safety/quality initiatives, and evidence base related to wrong-site surgery. Thirty hospitals actively participated in this regional initiative.

Interventions targeted the following crucial processes for preventing wrong-site surgery:

- Scheduling
- Verification and reconciliation of essential patient information prior to surgery
- Site marking
- Time outs
- OR turnover

Hospitals implemented the following Action Goals (proposed interventions) aimed at addressing vulnerabilities and potential failures in these crucial processes:

Action Goal 1: Verify the accuracy of information in the request to schedule an operation including the exact description of the proposed procedure, the site, and side (as appropriate).

Action Goal 2: Conduct a documented, independent verification and reconciliation of patient information prior to the patient's arrival for a scheduled surgery, to include schedule, consent, and the surgeon's record of history and physical examination.

Action Goal 3: Inform patient, as part of the preoperative preparation, that all surgical care team members will be verifying the same information separately by repeating questions that require active responses from the patient about his/her name, the procedure, and site location.

Action Goal 4: Establish a mechanism to ensure that two or more members of the surgical care team each perform a documented, independent verification and reconciliation of patient information on the day of surgery, including schedule, consent, surgeon's record of the history and physical examination, and the patient's (or surrogate's) understanding of the procedure.

Action Goal 5: Develop and implement a protocol for marking the surgical site.

Action Goal 6: Develop and implement a mechanism for immediate radiographic confirmation of the location of the radio opaque marker to confirm location of the specific surgical site, as appropriate (e.g., for cases involving identification of vertebrae or ribs by numbers).

Action Goal 7: Develop a protocol for time-out involving all surgical care team members.

Action Goal 8: Establish a policy for the hospital staff responsible for cleaning the operating room between procedures, making them responsible for identifying, removing, and dispensing found patient information/material to designated staff.

Action Goal 9: Promote and cultivate organizational commitment to preventing wrong-site surgery.

Action Goal 10: Educate pertinent staff on the wrong-site surgery prevention strategies and continually reinforce their importance

Action Goal 11: Implement a method for monitoring progress of the wrong-site surgery prevention strategies and providing feedback to staff.

Baseline and Follow-up Self-Assessment Surveys were conducted during the program to assess the extent to which hospitals had implemented evidence-based practices and proposed interventions for effective wrong-site surgery prevention. The baseline survey was conducted from mid-February to early March, 2008, at the onset of the program, but prior to distribution and review of the Action Goals with the hospitals. The follow-up survey was conducted from mid-May to mid-June, 2008, at the culmination of the program and after hospitals had the opportunity to work on implementing the Action Goals. Based on a comparison of follow-up to baseline survey results, the Partnership for Patient Care and participating hospitals have successfully improved patient safety with regards to wrong-site surgery prevention in the region. It is anticipated that patient safety will be further improved as hospitals continue to work on interventions and their implementation. Refer to Figures 1-3 in the Appendix of this summary for complete survey results.

Survey results can be summarized as follows:

- Significant progress was demonstrated in strengthening patient safety as evidenced by the 7.3% overall improvement in comparing aggregate follow-up to baseline scores (follow-up score of 88, baseline score of 82) during the short time frame of only three months.
- Greatest improvement was shown in the key area of **Infrastructure** (9.3% improvement).
Highlights of significant improvement in this category include:
 - ✓ A designated hospital staff person is responsible for verifying the accuracy of the information when the request to schedule an operation is received, and his/her role in the verification process is clearly delineated (26.2% improvement).

- ✓ In the event there are discrepancies between the independent verifications of essential patient information performed by various members of the surgical care team, the surgical care team member responsible for resolving discrepancies is clearly delineated (12.3% improvement).
- ✓ The hospital has implemented process measures to monitor the effectiveness of its wrong-site surgery prevention strategies (10.7% improvement).
- A 7.2 % improvement was shown in the key area of **Practices**. Highlights of significant improvement in this category include:
 - ✓ The facility uses a standardized mechanism for verifying the accuracy of information when the request to schedule an operation is received; including the verification of the exact description of the procedure and specifying the surgical site (38.3% improvement).
 - ✓ The hospital has a protocol specifying that two or more members of the surgical care team perform an independent verification of essential patient information on the day of surgery. Essential information includes patient’s consent, schedule, and surgeon’s record of patient’s history and physical (12% improvement).
 - ✓ The surgical site is always marked so that it will be visible after all of the following steps are completed: the patient is prepped, the patient is positioned, and sterile draping is completed (7.2% improvement)
 - ✓ When multiple procedures are performed on a patient, a separate time out is performed prior to the initiation of each procedure (18.5% improvement).
 - ✓ The hospital has established a policy for staff responsible for cleaning operating rooms, which outlines procedures for identifying, removing, and appropriately dispensing found patient information/material left from previous surgeries to a designated staff member (52.5% improvement).
- A 4.7% improvement was shown in the key area of **Culture**. Highlights of significant improvement in this category include:
 - ✓ The medical executive committee has demonstrated a commitment to improving patient safety through supporting the implementation of wrong-site surgery prevention strategies (5.7% improvement).
 - ✓ The hospital has provided education and training to pertinent non-clinical staff on their role in preventing wrong-site surgery within the last year (21.4% improvement).

In addition, hospitals used process measures to determine if implementation of interventions met with their expectations. They were provided with an Observational Assessment Tool to periodically track compliance with key elements of proposed interventions in the crucial processes for preventing wrong site surgery. Refer to Figure 4 in the Appendix of this summary for full results of the observational assessments.

Over a two-month period between baseline and follow-up observational assessment, significant improvements in observed compliance of key elements of interventions included:

- Pre-operative verification included OR Schedule (19% improvement)
- Pre-operative verification included History and Physical (12% improvement)
- Site marking occurred after reconciliation of all documents (16% improvement)
- Site marking occurred prior to administration of sedation and/or anesthesia (5% improvement)
- Site mark was visible when patient was positioned, prepped, and draped (6% improvement)
- A time out was conducted prior to regional or local anesthesia, if applicable (16% improvement)

- Verification of all documents during a time out (8% improvement)
- Surgeon encouraged surgical team to speak out if any concerns during time out (8%)

The Partnership for Patient Care has effectively provided a solid foundation for hospitals to continue their meaningful work in incorporating evidence-based best practices and strengthening patient safety. Correspondingly, the hospitals' commitment to patient safety greatly contributed to the success of the regional wrong-site surgery prevention program. PPC's strategic and cohesive approach has benefited participating hospitals by:

- Providing an interactive forum for hospitals to share ideas and experiences;
- Taking a collaborative approach for hospitals to work together, rather than individually, thereby maximizing the value derived from proactive risk assessment;
- Harnessing the strength of regional collaboration in optimizing patient safety and improving patient care
- Providing core resources and services to help hospital improve care, implement interventions, and share best practices
 - ✓ Research summaries with evidence-based best practices, risk data, national quality initiative summaries, standards and guidelines from regulatory and professional organizations, and resource lists;
 - ✓ Tools (e.g., checklists) for adoption and adaption by hospital to support wrong-site surgery prevention efforts
 - ✓ Hands-on technical assistance to facilitate clinical process analysis and to assist hospitals in developing and implementing interventions effectively.
 - ✓ A dedicated collaboration website
- Promoting and facilitating adoption of evidence-based practices across the region by all providers
- Strengthening patient safety in individual hospitals and in the region

Appendix

Assessing Progress with Implementation of Interventions

Baseline and Follow-up Self-Assessment Surveys were conducted during the program cycle to assess the extent to which hospitals had implemented proposed Action Goals and evidence-based practices for preventing wrong-site surgery. The baseline survey was conducted from mid-February to early March, 2008, at the onset of the initiative, but prior to distribution or review of the Action Goals. The follow-up survey was conducted from mid-May to mid-June, 2008, at the culmination of the initiative and after hospitals had the opportunity to work on implementing the Action Goals. A total of 30 hospitals completed the baseline survey, and a total of 30 hospitals completed the follow-up survey. One hospital that completed the baseline survey did not complete the follow-up survey, and one hospital that did not complete the baseline survey completed the follow-up survey.

Hospital designees were asked to complete the baseline and follow-up surveys during their individual hospital team meetings, with the collective input of their teams. Survey questions focused on the crucial processes involved in preventing wrong-site surgery, and questions were based on the Action Goals and corresponding Objectives. Scores for the survey responses were assigned based on a 0 to 100 point scale. A higher score related to a more positive response to the question. All scores reflect the respondents' (hospital teams') perception of their facilities at the time of taking the survey. Our survey analysis is organized by the key areas of Culture, Infrastructure, and Practices.

Figures 1 through 3 summarize the survey results in the key areas of Culture, Infrastructure, and Practices correspondingly.

Figure 1. Survey Results: Culture

Culture				
Key Element (Survey Question #)	Baseline Score	Follow-up Score	Net Score Difference	% Improvement from Baseline
Senior leadership has demonstrated a commitment to improving patient safety through implementation of wrong-site surgery prevention strategies. (1)	98	97	-1	-1.0%
The medical executive committee has demonstrated a commitment to improving patient safety through supporting the implementation of wrong-site surgery prevention strategies. (2)	88	93	5	5.7%
The hospital has provided education and training to surgical services clinical staff on wrong-site surgery prevention strategies within the last year. (3)	87	89	2	2.3%
The hospital has provided education and training to pertinent non-clinical staff on their role in preventing wrong-site surgery within the last year. (25)	70	85	15	21.4%
Caregivers receive periodic feedback about the effectiveness of the hospital's wrong-site surgery prevention strategies. (27)	80	81	1	1.3%
Total Aggregate Score for Culture	85	89	4	4.7%

Figure 2. Survey Results: Infrastructure

Infrastructure				
Key Element (Survey Question #)	Baseline Score	Follow-up Score	Net Score Difference	% Improvement from Baseline
A designated hospital staff person is responsible for verifying the accuracy of the information when the request to schedule an operation is received, and his/her role in the verification process is clearly delineated. (5)	61	77	16	26.2%
The hospital uses a standardized checklist to verify and reconcile essential patient information on the day of surgery. Essential information includes patient's consent, schedule, and surgeon's record of history and physical. (7)	93	93	0	0%
In the event there are discrepancies between the independent verifications of essential patient information performed by various members of the surgical care team, the surgical care team member responsible for resolving discrepancies is clearly delineated. (10)	81	91	10	12.3%
A staff member has been designated to explain the importance of the patient's active participation in the verification process to the patient. (12)	66	67	1	1.5%

Infrastructure				
Key Element (Survey Question #)	Baseline Score	Follow-up Score	Net Score Difference	% Improvement from Baseline
The hospital has implemented process measures to monitor the effectiveness of its wrong-site surgery prevention strategies. (26)	75	83	8	10.7%
Total Aggregate Score for Infrastructure	75	82	7	9.3%

Figure 3. Survey Results: Practices

Practices				
Key Element (Survey Question #)	Baseline Score	Follow-up Score	Net Score Difference	% Improvement From Baseline
The facility uses a standardized mechanism for verifying the accuracy of information when the request to schedule an operation is received; including the verification of the exact description of the procedure and specifying the surgical site. (4)	60	83	23	38.3%
The hospital has a protocol for verifying and reconciling essential patient information, prior to the patient's arrival for a scheduled surgery. Essential information includes patient's consent, schedule, and surgeon's record of the patient's history and physical examination. (6)	72	80	8	11.1%
The hospital has a protocol specifying that two or more members of the surgical care team perform and independent verification of essential patient information on the day of surgery. Essential information includes patient's consent, schedule, and surgeon's record of patient's history and physical. (8)	83	93	10	12.0%
The patient's (or surrogate's) understanding of the procedure is always included in the verification and reconciliation process. (9)	91	91	0	0%
Caregivers inform patients during preoperative preparation that they will be asked repetitive questions by multiple members of the surgical care team and will be required to provide active responses regarding their name, surgical procedure, and surgical site or side. (11)	94	91	-3	-3.2%
The hospital has a standardized protocol specific to marking surgical sites. (13)	97	98	1	1.0%
Marking the surgical site is performed only after verification and reconciliation of essential patient information has been completed. (14)	85	91	6	7.1%
Marking the surgical site is performed prior to the administration of local or regional anesthesia and/or sedation. (15)	91	94	3	3.3%
The surgical site is always marked so that it will be visible after all of the following steps are completed: the patient is prepped, the patient is positioned, and sterile draping is completed. (16)	83	89	6	7.2%
No other marks are made on the patient other than the surgical site marking. (17)	85	90	5	5.9%

Practices				
Key Element (Survey Question #)	Baseline Score	Follow-up Score	Net Score Difference	% Improvement From Baseline
In cases involving identification of vertebrae or ribs by numbers (e.g., C1), a mechanism is in place to radiographically confirm the location of the radio opaque marker on the specific surgical site. (18)	85	85	0	0%
The hospital has a protocol in place specific to performing time outs. (19)	100	100	0	0%
Time outs involve active participation by the entire surgical team. (20)	94	90	-4	-4.3%
When multiple procedures are performed on a patient, a separate time out is performed prior to the initiation of each procedure. (21)	65	77	12	18.5%
During a time out, surgical care team members reference available documents to verify essential patient information, as needed. (22)	97	96	-1	-1%
On average, all of the following elements are confirmed during a time out 90-100% of the time: patient identity, procedure, site/side, and patient position. (23)	95	96	1	1.1%
The hospital has established a policy for staff responsible for cleaning operating rooms, which outlines procedures for identifying, removing, and appropriately dispensing found patient information/material left from previous surgeries to a designated staff member. (24)	40	61	21	52.5%
Total Aggregate Score for Infrastructure	83	89	6	7.2%

Monitoring Compliance of Implemented Interventions

Hospitals used process measures to determine if implementation of interventions met with their expectations. They were provided with an Observational Assessment Tool (see Figure 10) to periodically track compliance with key elements of proposed interventions in the crucial processes for preventing wrong site surgery including:

- Scheduling
- Verification and reconciliation of essential patient information prior to surgery
- Site marking
- Time outs
- OR turnover

Specifically, after the first workshop when hospitals had begun implementing the Action Goals, hospitals were asked to perform 10 unannounced observations of non-emergent OR cases, preferably with laterality, spinal, eye, and other procedures on extremities and excluding cardiac and upper abdominal surgeries during April, 2008. Hospital repeated the observation and data collection process using the same Observational Assessment Tool during June, 2008.

The chart in Figure 11 shows the aggregate data from the baseline and follow-up observational assessments that were conducted at each hospital. A total of 27 hospitals submitted their data for the baseline observational assessment (April, 2008), and 27 hospitals submitted data for the follow-up observational assessment (June, 2008). One hospital submitted the baseline observational assessment that did not submit the follow-up observational assessment, and one hospital that did not submit the baseline observational assessment submitted the follow-up assessment. Our aggregate comparison was based on the 26 hospitals that submitted both baseline and follow-up observational assessments. While most hospitals observed and captured data for most key elements of the proposed interventions, some hospitals did not capture data for some key elements in some of their OR cases. To calculate aggregate percent compliance for each key element, we divided the total number of “yes” answers (“yes” meaning that the element was observed and completed) by the sum of the total number of “yes” and “no” answers (“no” meaning that the element was observed, but not completed). We did not include answers of “NA” or blank in our percent compliance calculations.

Figure 4. Observational Assessment Checklist¹

Key Elements of Wrong-Site Surgery Prevention Interventions	Baseline (April 2008)		Follow-up (June 2008)		Improvement (Difference in % Compliance)	Room for Further Improvement
	Average Time	% Compliance	Average Time	% Compliance		
Scheduling/Consent						
Exact description of procedure was on OR Schedule (including site, level, side, digit)	NA	93%	NA	95%	2%	8%
Exact description of procedure was on Consent (including site, level, side, digit)	NA	95%	NA	94%	-1%	6%
Consent was completed (includes procedure, all required signatures and dates)	NA	98%	NA	95%	-2%	5%
Pre-operative Verification						
Verification and documentation done independently by at least two providers	NA	93%	NA	95%	1%	5%
Please put time one provided took to complete verification process (in minutes)	2.9 min	NA	3.24	NA		
Verification included OR schedule	NA	72%	NA	92%	19%	8%
Verification included Consent	NA	95%	NA	99%	3%	1%
Verification included History and Physical	NA	76%	NA	88%	12%	12%
Verification included the patient's understanding of the procedure	NA	96%	NA	96%	1%	4%
Site Marking						
Site marking occurs after reconciliation of all documents	NA	80%	NA	96%	16%	4%
Site marking occurs prior to administration of sedation and/or anesthesia	NA	93%	NA	98%	5%	2%
Site marking included a discussion with patient	NA	95%	NA	98%	3%	2%
Mark was visible when patient was positioned, prepped, and draped	NA	87%	NA	93%	6%	7%
Intra-operative radiographic confirmation for vertebrae and/or ribs	NA	68%	NA	63%	-5%	37%
Time Out						
Please put time that time out took in minutes	1.5 min	NA	1.6	NA		
A time out conducted prior to local or regional anesthesia, if applicable	NA	76%	NA	92%	16%	8%
Final time out conducted after positioning, prepping, and draping	NA	96%	NA	89%	-7%	11%
Verification of all documents during time out	NA	85%	NA	93%	8%	7%
Surgeon engaged-all work stopped and verbal acknowledgement occurred	NA	92%	NA	90%	-2%	10%
Anesthesia engaged-all work except ventilation stopped and verbal acknowledgement occurred	NA	85%	NA	87%	2%	13%
Nurses engaged- all work stopped and verbal acknowledgement occurred	NA	93%	NA	95%	2%	5%
Surgeon encouraged surgical team to speak up if any concerns	NA	55%	NA	63%	8%	37%
OR Turnover						
All patient information is removed from the room before the next patient arrives	NA	94%	NA	98%	4%	2%

¹ In some cases, percentages of Baseline Compliance and Follow-up Compliance and Improvement may not add up to 100, due to rounding of percentages to nearest whole percentage.