NURS 8300 Organizational and Systems Leadership for Quality Improvement
Case Study Weeks 8 & 9
Peri-operative Services in major medical centers

You are the Director of Peri-operative Services overseeing surgical services in a multi-hospital system in the Midwest United States. Your organization has 15 major medical centers in the system as well as 26 same day surgery centers, rehabilitation centers, long term care settings, and outpatient clinics. In short, your system is a fully integrated delivery of care network (IDN). You are fairly new in your role, and you have been asked to lead an initiative to assemble a parsimonious set of metrics that link to your organization's strategic plan. You have had numerous metrics on your dashboard for years. But developing a balanced scorecard for your service line is a new concept for you.

In managing these services for several years (but in a lower level position), you were at the helm in instituting a universal protocol throughout your IDN. Compliance to that universal protocol is monitored carefully, primarily by auditing the checklist used to collect evidence in the "sign off" that the universal protocol has been completed. In fact, compliance to the universal protocol has indeed been tracked by your hospitals and surgical centers for years, and this data appears on your dashboard. Compliance with patient identification procedures is also comprehensive, with ongoing data collection on these important processes. Compliance has been strong, never dipping below 100% in a given month, quarter or year, in any of your centers for both patient identification, and the universal protocol.

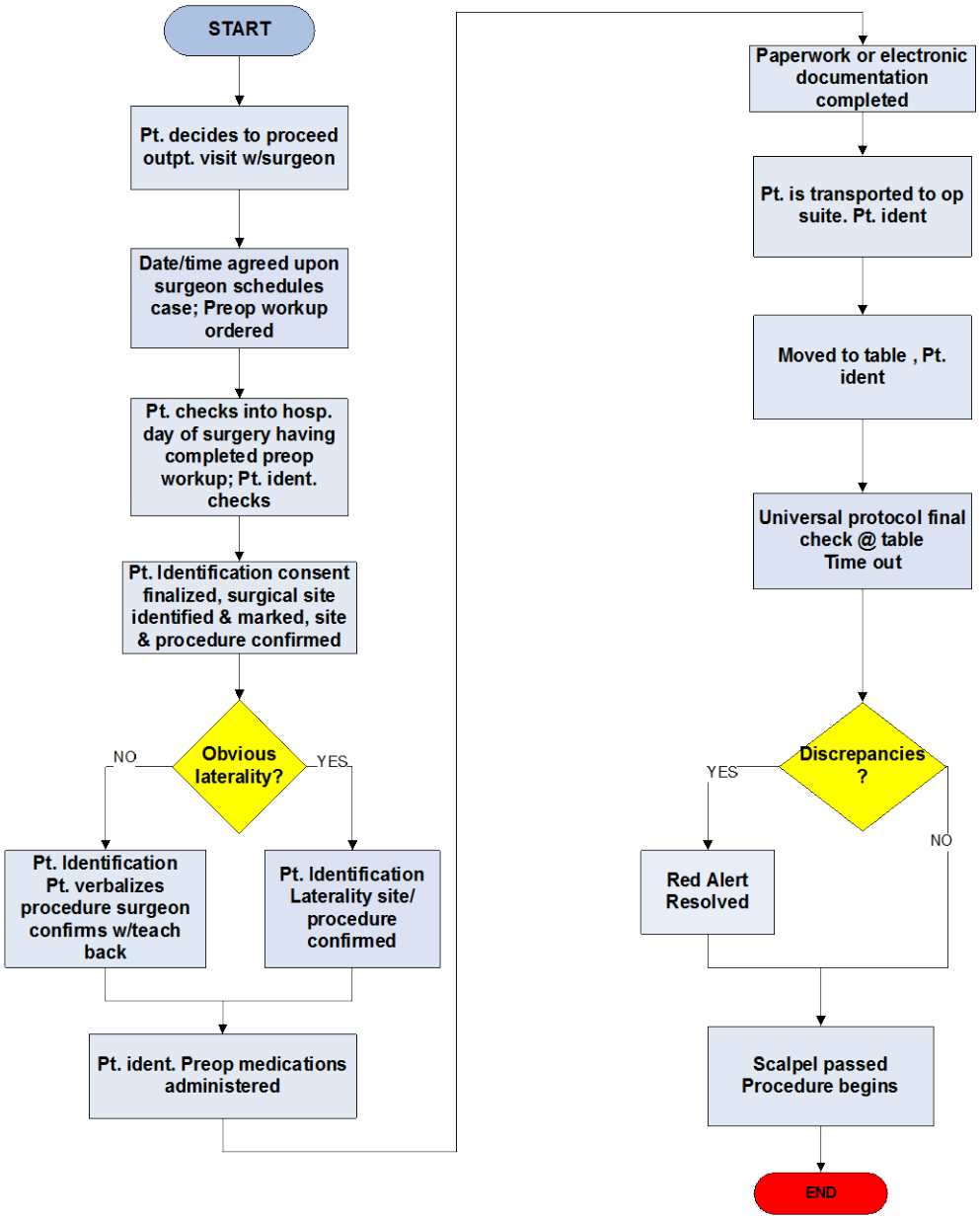
This notwithstanding, in the past 3 months you have seen the incidence of serious errors occurring within your surgeries. Two incidents come to mind. While both are evidence of a serious breach in patient safety, one had serious consequences to the patient; the other did not, however, it was still significant enough to warrant a closer look at your processes.

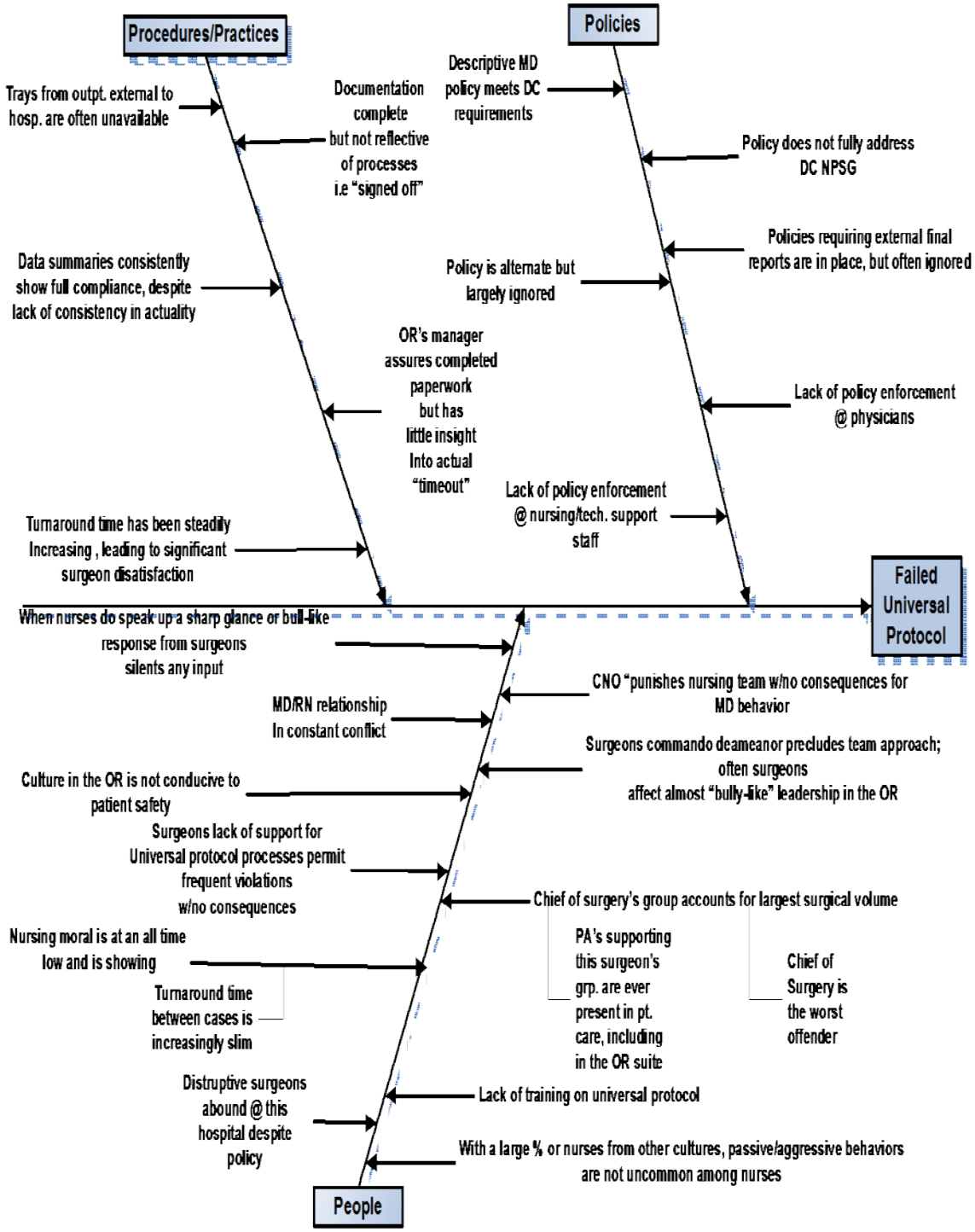
1. Mr. P. G. Green was a patient of Dr. Black's in one of your surgi-centers. He was scheduled for a laparoscopic cholesystectomy at 10:00 am. K. E. Underwood was a patient of Dr. Brown's and was also scheduled for a laparoscopic cholesystectomy at 10:30am. Drs. Brown and Black are colleagues but not within the same practice. It wasn't until about 15" into the actual procedure when the team realized that Mr. Green was being operated on by Dr. Brown and not Dr. Black. He proceeded to complete the procedure, as patient Underwood was being prepped in the next room. Upon examination of the universal protocol checklist in Dr. Brown's room, all criteria were documented as "completed". All signatures were in place indicating that patient identification was evaluated, checked and double checked.
2. Patient White has been diagnosed with lung cancer within the past 45 days. He'd been seen in Dr. Mellow's office, had outpatient radiologic procedures, and underwent a biopsy in recent days, which indicated significant invasive carcinoma, but localized to one area of his right lung. Mr. W. agreed to have one lobe of his right lung removed. All preoperative work was completed in a satisfactory manner. The patient was properly prepped in the OR, and the surgery proceeded. The universal protocol was adhered to, but about halfway through the procedure, it appeared that healthy tissue was being extracted. It was discovered that the surgeon had removed the lower lobe of the left lung, leaving the carcinoma in place and removing healthy tissue.

Two root cause analysis (RCA) teams have been constructed, at each of the organizations that experienced each event. The events are significantly disappointing. Up until this point in time, the leadership of the system had been confident that patient safety was being protected across their member organizations. They have been studying these events and their processes to learn how to prevent similar events from re-occurring. The CNO for each medical center serves on each team along with Chief of Surgery and CMO. One physician's assistant (PA) from the highest volume practice participates. Two prominent RNs who are "informal leaders" in the OR suites have pledged full participation. Chief surgical residents in each medical center are fully engaged. As the system Director of Peri-operative services, you have served as "process owner" for both teams, and the VP for Quality has provided facilitation skills to each team. Attendance at team meetings has been spotty, but the team set ground rules at the beginning of their process and every time attendance has fallen off, the CEO (the RCA team's executive sponsor) steps in and reaffirms the value of the team process and removes barriers to participation. The Lean Six Sigma model has been loosely applied. The VP for Quality holds a black belt, and you hold a green belt. Recognizing that these two events were distinctly different, similar issues emerged over the course of the RCA. Consequently, data, information and findings were shared across each team through the team leader (business process owner) and facilitator (VP for Quality).

Teams have completed the RCA process and identified contributing factors. Teams are about to share their processes and present their findings. While each team worked independently, their processes and outcomes were largely very similar. They have included a selection of the tools that they have used, including process flow chart, cause effect diagram and have tested theories related to these (see attached), and are about to draw conclusions about the root causes.

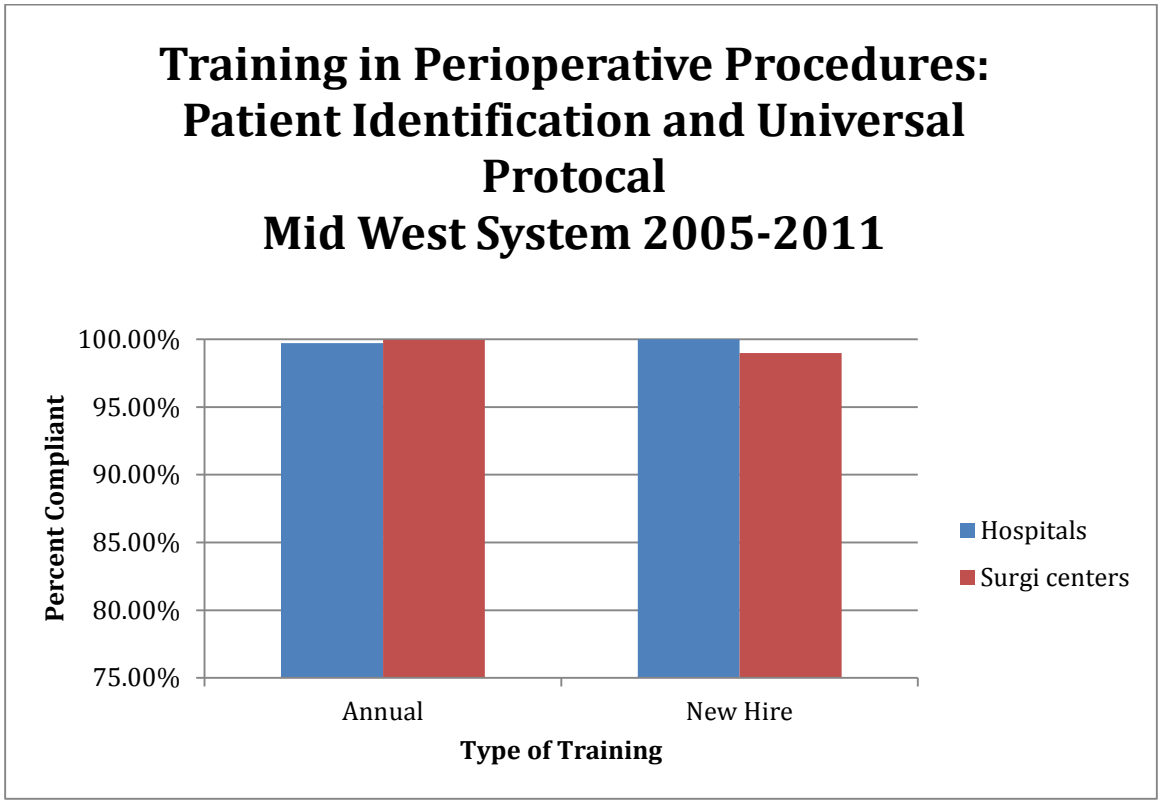
Perioperative Universal Protocol Elective Surgery in a Major Medical Center



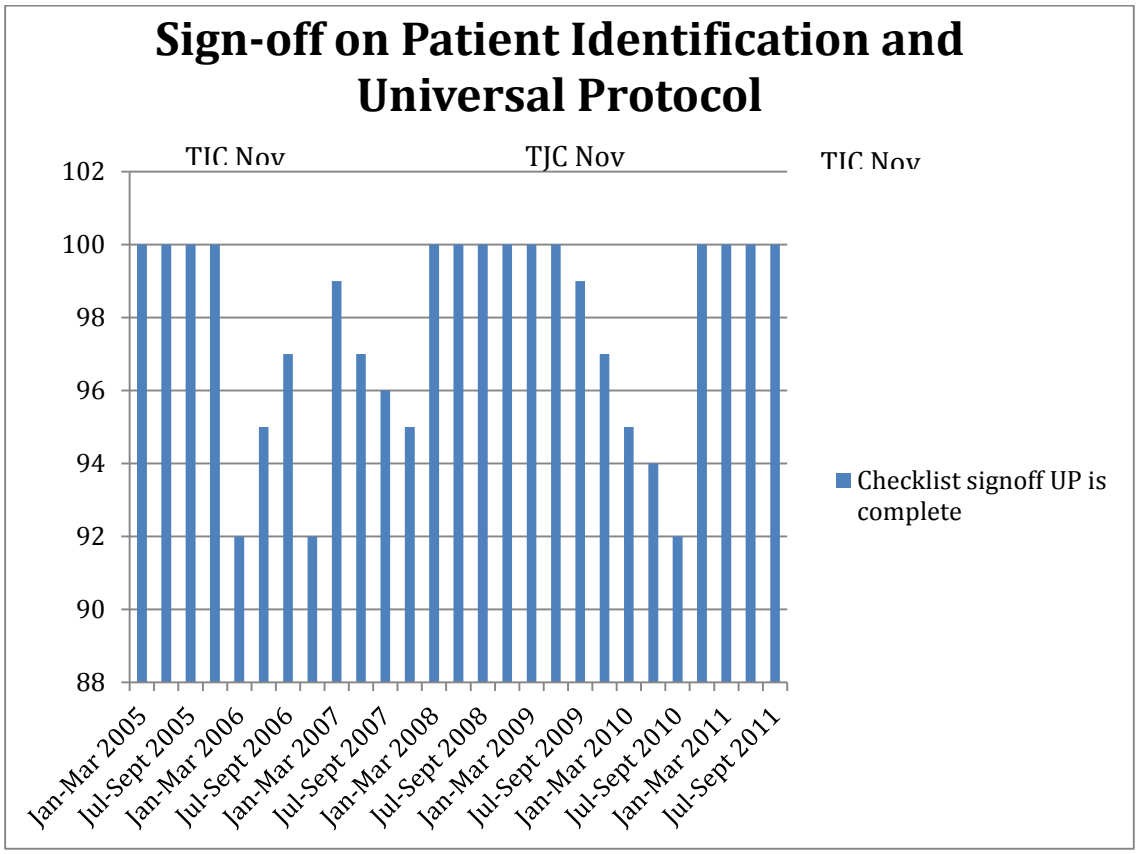


Data summaries:

a. *Bar graph* entitled: “Training in Peri-operative procedures: Timeout and Universal Protocol”. The graph shows on the y axis the % compliant with new hire and annual training across 15 hospitals and 26 surgi-centers and are “rolled up” over a five year period of time ending in 2010. Scores are very high are seldom dip below 98-100% compliant. This measurement mechanism appears both on the peri-operative services dashboard and on the systems balanced scorecard.



b. *Bar graph* entitled: "Time-out" and Universal Protocol Sign-off". This line graph shows a single bar representing rolled up scores across all 15 hospitals and 26 surgi-centers. Scores vary very little and again, are in the 96%- 100% range. Three markers are included on the graph: Nov, 2005, 2008 and 2011 during which time, TJC triennial surveys occurred across the system. This measurement mechanism also appears both on the peri-operative services dashboard and on the systems balanced scorecard.



c. *Results of a survey* (see below) conducted as part of this RCA. This 9 item survey as administered via survey monkey to all members of the OR suite surgical nursing team, and surgeons with high volume practices and their physician assistants (PAs). Surveys were administered to 4 different medical centers in the system, representing each 2 hospitals which experienced these sentinel/near miss events and 2 which did not. Results are summarized in a table and presented for the case study team's consideration. Survey items were measured on a 10 point scale with 10 representing "strong agreement" and 0 representing "strong disagreement with the statement. Response rates, resulting sample size, and average scores are represented in the table from each of the four hospitals.

Nurse – Physician Survey

4 forced choice answers are possible: 4= strongly agree; 3 = agree; 2=disagree; 1 = strongly disagree

1. Nursing staff and surgical techs are deliberate and attentive during time out procedures in the OR suite.
2. Surgeons participate fully and seriously in time out procedures in the OR suite.
3. When any member of the OR team brings a red flag alert to the timeout process, the surgeon-in-charge facilitates full resolution before proceeding.
4. MD/RN/tech relationships in the OR suite are collegial and professional.
5. Incidents related to disruptive behavior are managed according to policy, and with appropriate resolution.
6. Procedures related to "block time" in this OR are administrated fairly and meet surgeons' needs.
7. Turnaround time between cases meets surgeons' needs and expectations.
8. Documentation processes in our OR provide full evidence of patient condition and laterality (i.e. radiologic reports, imaging and films, Laboratory results etc) from both internal and external sources before procedures proceed.
9. The culture in our OR is conducive to patient safety.

Hospital K is large, urban, inner city academic university hospital with approximately 450 beds. Hospital L is a midsized, private community hospital without a teaching program. Hospital M is a smaller hospital in a rural setting; there are about 150 beds here, no teaching program. Hospital M is similar to Hospital K in size, patient composition, and teaching status. All four hospitals participated in universal protocol teaching program; all four hospitals show compliance with patient identification and time out procedures consistently between 93 and 97% compliance. Hospitals L and N were hospitals which experienced the sentinel events described earlier in this case study. Hospitals K and M did not.

OR Patient Safety Culture Survey Results				
	Hospital K	Hospital L	Hospital M	Hospital N
Sample size	n* = 250	n* = 302	n* = 132	n* = 178
Response rate MDs + PAs	62%	68%	55%	71%
Response rate RNs + techs	65%	67%	52%	73%
Item 1 MDs + PAs	3.79	2.10	3.99	2.79
Item 1 RNs + techs	3.22	2.50	3.66	1.99
Item 2 MDs+ PAs	3.43	3.99	3.99	3.89
Item 2 RNs + techs	3.55	1.25	3.78	1.50
Item 3 MDs +	3.44	3.00	3.98	3.55

PAs				
Item 3 RNs + techs	3.70	1.79	3.79	1.20
Item 4 MDs + PAs	3.92	3.00	3.82	3.05
Item 4 RNs + techs	3.99	1.20	3.95	1.88
Item 5 MDs + PAs	3.82	3.50	3.81	3.55
Item 5 RNs + techs	3.76	2.00	3.79	1.20
Item 6 MDs + PAs	3.50	1.20	3.66	1.50
Item 6 RNs + techs	3.95	3.50	3.91	3.20
Item 7 MDs + PAs	3.92	1.44	3.82	1.99
Item 7 RNs + techs	3.58	3.00	3.67	3.88
Item 8 MDs + PAs	3.89	3.55	3.22	3.78
Item 8 RNs + techs	3.22	2.22	3.79	2.50
Item 9 MDs + PAs	4.00	3.85	4.00	3.75
Item 9 RNs + techs	4.00	1.00	4.00	1.55
Summary score MD + PAs	3.93	2.11	3.84	2.26
Summary score RN + techs	3.88	2.52	3.89	2.00
* There were no statistically significant differences in the composition of the subgroups, nor in the response rates across all four hospitals which participated in the survey.				

In week 9 the case study team critiques the RCA teams' processes to this point.

Team A's

Problem statement: A "near miss" incident occurred in our OR on April 1, 2011, when the wrong patient was operated on by one of our surgeons. Although no harm was caused to the patient, this near miss patient identification event has risk and legal ramifications, and the potential for harm to the "next" patient is significant. As full implementation of the national patient safety goals, (NPSGs), the Universal Protocol and time out procedures had been fully implemented in all of our hospitals over the course of the past five years; this event has called into question the efficacy of our patient safety processes.

QI RCA Team Mission: Conduct a root cause analysis using adequate data to support your findings by May 31, 2011. Validate your root causes with data and with senior leaders; make recommendations for implementation over a three month period (Jun-August). Demonstrate improvement in measurable terms by September 30, 2012.

Team B's Problem statement: A sentinel event occurred in our OR when a surgeon removed healthy tissue instead of diseased. Akin to "wrong side" surgery with laterality a prominent concern, the implications for risk management, legal implications and, of course, harm to this and future patients are significant. As full implementation of the national patient safety goals, (NPSGs), the Universal Protocol and time out procedures had been fully implemented in all of our hospitals over the course of the past five years; this event has called into question the efficacy of our patient safety processes.

QI RCA Team Mission: Conduct a root cause analysis using adequate data to support your findings within 6 weeks. Validate your root causes with leadership. Develop a project plan for successful implementation over three months, or less. Demonstrate improvement in measurable terms within six months.

Tasks for discussion week 9:

1. Critique problem and mission statements.
2. Analyze team processes, review process flow chart and cause effect diagram, data presented in two graphs and one table.
3. From the following selections which shaped the root cause discussions at both hospitals, teams selected the red highlighted statements as the two ***best*** root causes:
    a. Chairman of Surgery is clearly the biggest contributor to the problem, and is the single root cause, since he caused the near miss/sentinel event.
    b. The culture in our OR suite is not conducive to patient safety.
    c. The disruptive physician policy at our organization is ineffective in shaping physician behavior. It needs to be re-written.
    d. The Nursing/Physician relationships in our OR suites are compromised by poor communication skills, ineffective conflict resolution, and no sense of team.
    e. From CNO down through nurse managers, the nursing leadership at our organization is ineffective
    f. Educational offerings regarding the NPSGs, Universal Protocol, and Time-out procedures are clearly lacking, and the single most important root cause of these events.
    g. The turnaround time between cases is reaching crisis proportions and surgical volume is on a downward trend in both of these hospitals
4. Defend the teams' position on the choice of these two; however, if you, as a case study team choose alternative root causes from this list given the data presented, defend that position.

In week 9 the case study team assumes full senior leader support on the validation of the two root causes identified.

1. Review the literature to find at least 4 peer reviewed research studies which evoke validation of the latest patient safety evidence in support of your root cause finding.

2. At this point, the case study team determines recommendations using the latest evidence from the literature on what is needed within these two hospitals to address these significant root causes.
3. Assume a three-month implementation timeframe, recognizing that full realization may take longer.
4. Construct a straw man Gantt chart or project plan to capture all necessary components to move the recommendations forward.

Assure that the project plan is detailed and thorough, and addresses at the minimum "who will do what by when". Although an excel spreadsheet or a WORD document will work fine, consider use of any project planning software package and convert final document to a pdf as evidence of the week's discussion.

The case study team determines a measurement mechanism that is more likely to be predictive of preventing a similar occurrence of wrong patient or wrong side surgery.

Two components comprised ongoing measurement mechanisms that these hospitals and surgi-centers have relied on across the system. These include the two graphs presented in the case study presentation. Revisit those graphs and the data collection processes that they represent.

1. Critique those processes as ongoing measures of time-out/UP effectiveness.
2. Suggest at least one alternative data collection mechanism suitable for the peri-operative dashboard.
3. The team members are debating between surgical volume (which, as mentioned, had been declining) and turnover time between cases as a measure connecting to the balanced scorecard across the system. What is your opinion? Defend your choice with references from peer reviewed literature. Explain within the course of your discussion how your choice is related to these two cases and to the ultimate resolution.

As a case study team, prepare a 10 slide power-point using tools provided in this case study to present your rationale and validation of these two root causes. Be sure to include at least 4 peer reviewed research studies which evoke validation of the latest patient safety evidence in support of your root cause findings.

Post the powerpoint by Wednesday at midnight as your main, for discussion and peer critique among the various teams assigned in the course by the instructor.