The Surgical Care Improvement Project (SCIP) is a relatively new initiative and takes a hospital wide approach not only from the department of surgery. It takes involvement from the OR, Nursing, Pharmacy, Infection Control, Administration, Anesthesiologists, and Surgeons. It is also expected that the Board of Directors, Medical Staff, and Hospital Administration consider the minimum requirements of the core measure indicators to reflect evidence-based medicine and constitute a national standard of care. Frequent and continuous monitoring of results is required with reporting of results through medical staff leadership and to the Board of Directors at least quarterly. It is recommended that the organization share results by surgery type and by surgeon (individually) and blinded at Surgery Department meetings, and at Anesthesia Department meetings.
How does an organization implement this initiative? Start by establishing a hospital-wide focus for SCIP as a new and expanded piece of Core Measures; consider a “campaign” to educate about SCIP Indicators and important processes; develop a contest to motivate staff; institute concurrent open record review of all core measure cases and include results reporting into daily operational activities such as daily bed huddle meetings; add Core Measure Indicator knowledge to Nursing Annual Skills/Competency Fair; include an overview of core measure indicators and importance at all new hire orientation education; use already available tools such as posters and other materials at Health Services Advisory Group HSAG.org.

Another strategy would be to establish a sub team of the core measure team to “own” SCIP processes and measure results. Membership might include OR, Nursing, Pharmacy, Infection Control, Anesthesia, Surgeon(s), and Quality. Have team members subscribe to SCIP List serve for updates and clarifications (To join the SCIP list send an e-mail to: leigh@qualishealth.org).

Post discharge infection surveillance is also important for SCIP success. Develop or enhance the current post surgery surveillance process. Include names and dates of surgeries, a continuous list that can be sent to surgeons monthly with check boxes to indicate post-operative infection and return to hospital ICP. Provide education to hospital and medical staff on Wound Classifications; Include clean, clean contaminated, contaminated, and dirty/infected wound types. Educate regarding post surgical prophylaxis guidelines for antibiotic selection by surgery type and for immunocompetent adults in the ICU.

It is recommended that each failure be analyzed. One way to do this is to have the clinical manager or quality coordinator perform an intensive analysis of each measure failure within 3 days at the unit/department level. Use a simple cause and effect or fish-bone diagram to assist staff with completion. If failure is related to physician action or inaction forward the information to the peer review process and make sure the physician receives notification of the findings. Review results at the SCIP Team meetings, forward them to Infection Control and Pharmacy/Therapeutic committees.

Make sure references are immediately available to surgeons and anesthesiologists. It is helpful to have copies of the peer reviewed studies for others to learn. Include specific studies on normothermia, glucose control, timing of prophylactic antibiotics and duration of prophylactic antibiotics and studies specific to the SCIP applicable surgeries: colon, vascular, cardiac, total hip and knee. It is also helpful to include studies on supplemental oxygen for the anesthesiologists.

The antibiotic infusion should be timed so that there is optimal concentration in the serum/tissue at the time of incision. The measure focuses on a prophylactic antibiotic infused one hour prior to surgical incision. The exception to this is 2 hours for vancomycin and fluoroquinolones, e.g. ciprofloxacin, which have longer tissue perfusion time. One key tip is to synchronize clocks in the Pre-op holding areas, Operating room, PACU etc. Consider using atomic clocks for accuracy. It is equally important to maintain the therapeutic level in the serum/tissue through out the operation, so if the surgical procedure is longer than the half-life of the antibiotic, the drug must be re-dosed during the procedure. Refer to the antibiotic half life table reference from CMS for more information. The July 2006 Issue of Medical Letter recommends that the antibiotic be given no more than 30 minutes before the skin is incised. Another key to success is to address antibiotic timing for surgeons with a physician champion.

As far as the process to be accomplished, it is recommended that the organization designate an owner such as the circulating nurse and/or the anesthesiologist, and pre-anesthesia nurses. Encourage the surgical staff to inquire about prophylactic antibiotics during the surgical pause or incorporate antibiotic delivery verification into the preoperative time-out. Another trick is to remove all but prophylactic antibiotics from the operating room. From an orientation perspective, include antibiotic timing in all surgery staff orienta-

Measure Specific Strategies

SCIP INF 1: Prophylactic antibiotic received within one hour prior to surgical incision.
tions. For consistency, use standing or pre-printed orders specific to the type of surgery performed that include the recommended prophylactic antibiotics. In addition, consider including the antibiotic on documentation forms and add the route of antibiotic to be intravenous.

References:

SCIP INF 2: Prophylactic antibiotic selection for surgical patients.
The optimal antibiotic is effective against the organisms that are most likely to be encountered during the type of operation that planned is safe, inexpensive, and bactericidal, and has a long half-life. It is recommended that the organization utilize the “Updated Consensus Recommendations of the Surgical Infection Prevention Guideline Writers Workgroup,” from the Nov. 17, 2005 meeting of group representatives who have published North American guidelines for antibiotic prophylaxis. One way to encourage their use is to post antibiotic guidelines prominently in the operating room and surgeons lounges. Pocket cards can be used for physicians for selection references. One example can be found at http://www.medqic.org/dcs/ContentServer?cid=1168867323122Dpagename

Other key points: Involve pharmacy in the development of the formulary to include the recommended prophylactic antibiotics and in the correct selection and delivery of antibiotics. Consider substitution policies for appropriate antibiotic selection by surgery type. Provide regular and continuous feedback to surgeons on prophylaxis selection compliance and infection rate data.

SCIP INF 3: Prophylactic antibiotics discontinued within 24 hours after surgery end time (48 hours for cardiac patients).

Two important points need to be made: Continuation of surgical prophylaxis past the 24 hour time frame has not been shown to improve surgical site infection rates and increases the cost of care unnecessarily. The prolonged use of prophylactic antibiotics is associated with emergence of resistant organisms. To support the implementation of the appropriate processes, use pre-printed perioperative orders that include discontinuation of prophylactic antibiotics within 24 hours of surgery end time. Also, include the surgery end time on surgery documentation forms so that timeframes can be tracked. Consider limiting post-op antibiotics to one or two doses. Address the policy for prophylactic antibiotics that includes the first dose perioperatively and ends 24 hours after surgery end time. CMS has a sample policy available. Some organizations have developed a policy and/or assigned responsibility for automatic prophylactic antibiotic discontinuation to the pharmacy. Another way to achieve compliance is to require surgeons to document a reason for continuing an antibiotic beyond 24 hours (48 hours for cardiac surgery), such as treatment of an infection.

Provide education to nursing and pharmacy on duration of prophylactic antibiotic doses, as they may not be aware. Include an emphasis on the surgery end time during PACU handoff.
communication to the nursing post op unit. Focus on when the antibiotics should be discontinued (24 hours hence) rather than the number of doses to be given.

References:


SCIP INF 4: Cardiac surgery patients with controlled 6 a.m. postoperative serum glucose.
The degree of hyperglycemia in the postoperative period correlates with the rate of surgical site infections in patients undergoing major cardiac surgery. Patients with a blood sugar of greater than 300 mg/dl during or within 48 hours of surgery had more than 3 times the likelihood of a wound infection as compared to those patients whose blood sugar was less than 200 mg%.*

Hints on avoiding this problem include: Use a multidisciplinary approach to address intra-operative and postoperative glucose control. Assign responsibility and accountability for blood glucose monitoring and control. Develop a standardized protocol for intraoperative and postoperative glucose monitoring. Identify hyperglycemia prior to surgery; include glucose testing and HbA1c in pre-op evaluation of cardiac surgery patients. Initiate glucose testing for selected patients, screening for undiagnosed hyperglycemia and diabetes. Use a standardized treatment protocol to maintain serum glucose tightly controlled in patients undergoing cardiac surgery (the CMS measure).

A blood glucose greater than 110mg/dl is associated with increased complications. Glucose monitoring is a changing field and we should all be diligent in staying current with the literature.

References:

SCIP INF 6: Surgery patients with appropriate hair removal.
Removal of surgical site hair is not considered effective as a preventive measure for surgical site infection. The decision to remove hair includes consideration of potential access to the surgical site and the field of view. Hair removal with clippers is found to be safer and results in a lower incidence of surgical site infections than shaving with a razor blade regardless of the timing of hair removal. A number of steps are recommended to assure appropriate hair removal is done:
- Remove all razors from operating room suites and surrounding patient support areas and eliminate razors from surgical prep kits.
- Consider removing razors entirely from the hospital via materials management.
- Institute a policy to avoid shaving surgical sites, and if hair removal is necessary, perform hair removal with clippers only before surgery.
- Revise documentation forms to include selection of hair removal technique: no hair removal, clipper, or depilatory, remove shaving option.
- Educate surgeons, invasive procedure operators, and staff on appropriate hair removal techniques: clipper or depilatory.
- Educate patients to not shave the surgical site before surgery and add see SCIP, page 22
with interesting visuals, videos, or models. Use visual aids such as posters and learning models to demonstrate concepts, procedures, or conditions. Visual aids such as brief video segments, photographs, fotonovelas (booklets with photos that tell a story), illustrations, or comic books can help to illustrate a medical explanation.

b) Use simple education brochures. Choose multilingual educational materials that feature plain language, a large typeface, and illustrations to support the message. Material design should be easy-to-read and visually appealing.

c) Avoid literal translations. Use bilingual flyers and brochures that have been pre-tested for language and cultural acceptability with your target audience. When developing your own materials, involve patients in the review and pre-test for clarity, comprehension, appeal, affect, and cultural relevance. When translating materials, use a universal broadcast Spanish and cultural adaptations, avoiding word-by-word translations.

IV. Support Self-Management

Many Hispanics have more difficulties with goal setting and action planning, two critical elements of chronic disease self-management. They do, however, enjoy the benefit of strong family support, which has been shown to play a central role in effective self-management activities. The following techniques can enhance the physician’s support for his or her Hispanic patients in these areas.

Table 2 (page 41) summarizes strategies presented in this section.

a) Check patient’s understanding using “teach back” to ensure comprehension. The physician encounter is a valuable opportunity to both educate patients and ensure their comprehension of treatment. Involve patients in an interactive way by asking them to show, say, or do something to demonstrate understanding of your instructions.

b) Focus on patient goal setting and action plans. Educate patients to set goals for managing chronic disease, and support them in the creation of a treatment plan to

See Communication page 39
It is recommended that the organization standardize methods of temperature measurement to centigrade using core temperature measures. In 200 colorectal surgery patients, the normothermic patients (36.6 ± 0.5) had an incidence of infection of 6% with LOS of 12.1 ± 4.4 days compared with hypothermic patients (34.7 ± 0.6) with an infection rate of 19% with a LOS of 14.7 ± 6.5 days — a 13% reduction in infection rate (Melling, Lancet 2001;358:876).

Thermal preoperative management should include identification of risk factors for hypothermia including extremes of age, major surgery in adults greater than 1 hour, use of general or regional anesthesia, preexisting conditions such as peripheral vascular disease, endocrine disease, pregnancy, burns, or open wounds. If the patient is normothermic preoperatively, institute passive insulation warming measures (warm blankets, socks, head covering, and limit skin exposure). If the patient is hypothermic preoperatively, institute active warming measures (forced air warming system, passive insulation). Limit body exposure to prevent heat loss in patients prior to the operative procedure.

Intraoperative management should include passive insulation measures, active forced air warming system, warm intravenous fluids and irrigants. It is expected that the patient’s core temperature be maintained at 36 C or above during the intraoperative phase unless hypothermia is indicated. Another important key is to standardize the operative suite ambient temperature, and/or assure engineering controls to allow surgical staff to control room temperature and increase the ambient room temperature in the operating room along with the humidity. This may require cooling vests for use by the surgeons and other personnel.

In addition, it is important to educate staff on the relationship between hypothermia and increased risk of surgical infections. Work closely with anesthesiologists to designate responsibility and accountability for thermoregulation, including interval measurement and documentation of intra- and postoperative temperatures.

References:

SCIP CARD 1: Non-cardiac vascular surgery patients with evidence of coronary artery disease who received beta-blockers during the perioperative period.

This measure is under consideration and study by CMS, but is not yet reported on Medicare patients.

SCIP CARD 2: Surgery patients on a beta-blocker prior to arrival that received a beta-blocker during the perioperative period.

Perioperative beta blockers offer significant protection against cardiac mortality in patients undergoing non-cardiac surgery. For every 100 patients treated with beta blockers: 13 will be prevented from having intra or postoperative ischemia, 4 will not have an MI, and 3 deaths will be prevented. As preventative measures, it is recommended that the organization develop a policy for universal cardiac risk assessment of all patients during preoperative assessment and provide alert when patient is eligible for beta blocker administration. Also, develop standardized orders to incorporate beta blocker administration/continuation for eligible patients. In conjunction, provide education to staff on adverse cardiovascular complications for surgical patients. Try to engage a physician champion to address beta blocker usage with surgeons and provide regular feedback to surgeons on beta blocker usage.

The Agency for Healthcare Research and Quality (AHRQ) identified 11 of 79 safety practices reviewed as having the strongest evidence supporting widespread implementation in 2001 and are listed in descending order with the most highly rated listed first. The number two of these 11 practices is: use of perioperative beta-blockers in appro-
priate patients to prevent perioperative morbidity and mortality.

References:

The ACC/AHA Guideline for use of perioperative beta blockers:
Class I Recommendation: Beta blockers required in recent past to control symptoms of angina, symptomatic arrhythmias, or hypertension and patients at high cardiac risk due to the finding of ischemia on preoperative testing who are undergoing vascular surgery.
Class IIa Recommendation: Patients with known coronary artery disease or major risk factors for coronary disease.

SCIP CARD 3: Intra- or postoperative acute myocardial infarction (AMI) diagnosed during index hospitalization and within 30 days of surgery (outcome).
This indicator is still under consideration by CMS for reporting on Medicare patients.

SCIP VTE 1: Surgery patients with recommended venous thromboembolism prophylaxis ordered.
Recent research has shown that the incidence of deep vein thrombosis and pulmonary embolism (both are referred to as VTE – venous thromboembolism) are more than 100 times greater among hospitalized patients than those in the community. Pulmonary embolism is responsible for 10% of all hospital deaths, and is largely preventable. This condition remains the most common preventable cause of hospital deaths. Current estimates suggest that less than 50 percent of patients diagnosed and hospitalized with DVT had received prophylaxis.

In 2003 the National Quality Foundation (NQF) endorsed Safe Practice 17: Evaluate each patient upon admission, and regularly thereafter, for the risk of developing DVT/VTE. Utilize clinically appropriate methods to prevent DVT/VTE and Safe Practice 18: Utilize dedicated anti-thrombotic (anticoagulation) services that facilitate coordinated care management. This project builds on Safe Practices 17/18 by developing and endorsing consensus standards in DVT/VTE prevention and care.

The Agency for Healthcare Research and Quality (AHRQ) identified 11 of 79 safety practices reviewed as having the strongest evidence supporting widespread implementation in 2001 and are listed in descending order with the most highly rated listed first. The number one of these 11 practices is: appropriate use of prophylaxis to prevent venous thromboembolism in patients at risk.

The American College of Chest Physicians listed 15 risk factors for VTE in Chest 2004; major surgery, including abdomen and pelvis was included. All patients undergoing major surgery are at risk for VTE. Therefore, it is recommended that physicians include VTE risk assessment with the pre-op order set to be completed during pre-op evaluation or complete VTE assessment during preoperative anesthesia evaluation. Include pharmacy in VTE prophylaxis planning so that the organization can develop a standard protocol or standing order set to administer VTE prophylaxis based upon identified patient risk factors. Implement a DVT/PE awareness campaign and education for clinical staff. Provide regular feedback to all surgeons on VTE prophylaxis usage monthly.

References:


Venous Thromboembolism Prophylaxis.
Oxygen is transformed into superoxide radical. Thermoregulatory vasoconstriction decreases subcutaneous oxygen tension, and local warming increases subcutaneous oxygen tension. (Akca, Ozan, Assistant Professor, Department of Anesthesiology, University of Louisville)

Supplemental 80% FIO2, during and for six hours after major colorectal surgery reduced postoperative wound infection risk by a factor of 2. Supplemental oxygen adds little risk to the patient, has little associated cost, and should be considered part of ongoing quality improvement related to surgical care.

Obstacles to oxygen delivery include hypoxemia PO2 (< 40mm Hg) that is due to lung disease, drug-induced or pain-induced, decreased perfusion due to effects of the sympathetic nervous system due to pain, cold, dehydration and fear, vasoactive drugs, etc. Thermoregulation will improve wound oxygen tension. Thus efforts to promote normothermia need to be accompanied by supplemental oxygen (80%) to maximize the effects of both in preventing surgical site infections. There is no evidence that 80% perioperative oxygen causes atelectasis or any, decrement in pulmonary function. It does activate alveolar immune defenses and reduces the incidence of postoperative nausea and vomiting.

Develop with Anesthesia and administer a protocol for supplemental oxygen, defined as intra-operative FIO2 > 80% in the intubated patient or a non-rebreathing face mask at >12 l/min fresh gas flow in the non-intubated patient. Provide copies of clinical research to the Anesthesia Department and OR staff to facilitate acceptance and understanding. Revise the Anesthesia Record to include an area for documentation of FIO2 during surgical procedures. Provide profiled anesthesia data including postoperative surgical wound infection rates.

**References:**


**Additional References**


For CEU post test see page 51