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ROBOTIC SURGERY

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The minimally invasive surgical revolution began in the late 1980's with the advent of videochip technology. This allowed surgeons to perform a wide variety of operations using small incisons, videoscopes and long instruments where the surgeon did not have to have his or her hands directly in the human body. The benefits of minimally invasive procedures are many including decreased length of hospital stay, less pain and scarring with smaller less obvious incision(s), less risk of infection, less blood loss and fewer transfusions, an accelerated return to normal activities, decreased need for post-surgery narcotics, and an overall faster recovery. The early 2000's brought the convergent digital technology revolution, leading to significant enhancements in information technology, simulation technology, telecommunication technology, and robotic technology. Historically, current commercial robotic systems for medical use originated from two major research efforts. The National Aeronautics and Space Administration (NASA) developed robotics for space operations which were later adapted for surgery. In parallel, the *Defense Advanced Research Projects Agency* (*DARPA*) was developing robotics for battlefield needs including providing remote surgical care in the field. Commercial robotic systems followed shortly thereafter. A surgical robot is a powered, computer-controlled manipulator with artificial sensing that can be programmed to move and position tools to carry out a wide range of surgical tasks. Robotic integration allows a surgeon to perform more complex minimally invasive procedures utilizing enhanced 3-dimensional visualization, improved dexterity, increased range of motion, and improved access to difficult to reach areas of the body. This translates to more minimally invasive procedures with increased technical precision. The next generation of robots are being built smaller, smarter, and less expensively. There is a long delay between the idea and commercialization of products, and robotic surgery is currently only in its infancy.

The *da Vinci*® Surgical System was developed by Intuitive Surgical (Sunnyvale, California) as a direct result from the research developments from DARPA and the Stanford Research Institute. It became the first surgical robotics system cleared in 2000 by the US Food and Drug Administration (FDA) for use in general laparoscopic surgery, thorascopic, urologic, and gynecologic surgeries, as well as an adjunct to some cardiac procedures. The system has three-dimensional (3-D) visualization of the operating field, a 7-degree range of motion, tremor elimination, and comfortable seated operating posture. These advantages allow surgeons hand-like dexterity and enhanced precision through minimally invasive techniques. The shortcomings of surgical robotics are the lack of haptic feedback while operating, the inability to rapidly switch instruments as well as operating field during the procedure, the large size of the robot with bulky arms, and the high cost of the technology. Nevertheless, the *da Vinci*® system has proved useful for a wide variety of applications in cardiothoracic, urologic, gynecologic, and general surgery Urologists have been especially pleased with the added dexterity provided by the *da Vinci*® in removal of the prostate. The operative field is typically in the deep pelvis, and the need for wrist-like

dexterity is hard to duplicate with conventional laparoscopic as well as open techniques. Suturing is especially challenging in the narrow male pelvis, and the *da Vinci*® excels in that area. Multiple studies have shown that, with enough experience, robotic prostatectomy is safe and effective with improved outcomes for men who have prostate cancer.

Robotic surgery is a fast-growing area in minimally invasive surgery. In most institutions, robotic techniques are used primarily for prostate surgery. Surgeons in the **University of Florida College of Medicine, Department of Surgery – Jacksonville** now use the *da Vinci* S® robotic system to perform minimally invasive operations for a range of procedures in addition to the prostate including operations on the esophagus, stomach, colon, pancreas, kidney, bladder, lung, spleen, uterus, and soon, the heart. The *da Vinci* S® System consists of an ergonomic surgeon's console, a patient-side cart with four interactive robotic arms, a high-performance 3-D High Definition vision system and proprietary *EndoWrist*® instruments.

The *da Vinci* S® System's high-resolution 3-D stereo viewer is designed to provide surgeons with an immersive experience. Unlike conventional approaches, the target anatomy appears at high magnification, in brilliant color and with natural depth of field. The *EndoWrist*® instruments exceed the natural range of motion of the human hand; sophisticated motion scaling and tremor reduction further interpret and refine the surgeon's hand movements. Another key hallmark of the *da Vinci* S® System is its fail-safe design, incorporating multiple, redundant safety features all intended to minimize opportunities for human error when compared with traditional approaches.

For the patient, a *da Vinci* S® procedure offers all of the potential benefits of a minimally invasive operation: less pain; nominal scarring; and minimal blood loss, hence the reduced need for blood transfusions. Moreover, the *da Vinci* S® System enables a shorter hospital stay, less chance of infection, a quicker recovery and faster return to normal daily activities. Clinical studies also suggest the *da Vinci* S® System may help surgeons provide better clinical outcomes than conventional technologies allow—for example, better cancer control, less blood loss, and a lower incidence of impotence and incontinence with *da Vinci* S® prostatectomy.

Other robotic systems being developed today include *RoboDoc*® and *Acrobat*® orthopedic surgery systems which will allow orthopedic surgeons improved accuracy in preparing bones for prosthetic implants. The significant differences made by these devices have led to the acceptance and realization that information technology could be applied to other fields in surgery.

Robotics provides a unique possibility of separating the surgeon from the patient. This separation can be measured in feet or in thousands of miles. Telesurgery along with telementoring has now been tested in several environments and shown to be feasible and beneficial. The removal of a gallbladder across the Atlantic Ocean and the mentoring of surgeons in Canada are examples of how technology is rapidly approaching the day when any surgeon can be connected to a number of colleagues who may be able to consult and in some cases assist during complex surgical procedures. Other robotic technology allows the surgeon to make rounds while sitting in a remote location allowing "telepresence". This enables the physician to be remotely present by controlling robot move-

ments via the Internet. Patients surveyed felt that the encounter was a positive one and were able to completely believe that they were communicating with their physician in person even if the physician was far removed from the patient's bedside.

Several additional developments may change how we use robotics in the near future. These new technologies are still in an experimental stage but offer a glimpse of what the next generation of robots will offer. Miniaturization of robotic technology appears to be the theme of the new generation of devices. Robots that are smaller than current systems have a natural advantage because they are easier to deploy and can be used in more settings. Further, these can be deployed in remote areas and teleoperated from afar.

As minimally invasive surgical techniques continually develop toward reducing the invasiveness of surgical procedures, robotics technology becomes more crucial. Natural orifice translumenal endoscopic surgery (NOTES) is a new approach to abdominal surgery that promises to further reduce invasiveness by accessing the peritoneal cavity via a natural orifice such as the mouth, nose, vagina, rectum or penis, leaving no external scar.. Theoretically, the elimination of external incisions avoids wound complications, further reduces pain, and improves cosmesis and recovery times. The first transvaginal assisted cholecystectomy in the United States was performed in March 2007. Subsequently, the first transgastric cholecystectomy, also in the United States, was performed in June 2007. **University of Florida** surgeons Drs. Ziad Awad and Brent Seibel performed the first NOTES procedure at Shands Jacksonville in December 2008. The patient was given the option to have a cancerous tumor removed from her colon using transabdominal surgery or by way of her vagina, using NOTES. The patient chose natural orifice surgery because it meant less scarring, minimization of pain and a quicker recovery. The surgeons performed the operation entirely laparoscopically by removing a segment of the colon through the patient's vagina. This is one of the first times that this particular type of operation was performed in the United States. The Department is currently expanding its NOTES and single incision laparoscopic surgery (SILS) program to include other types of operations in the future. Significant limitations have been identified with the use of conventional laparoscopic and endoscopic tools and new tools are needed to perform such procedures because simply slipping a hand inside is not possible. Robotics offers the best solutions under these circumstances.

A flexible endoscopy platform for natural orifice surgery with robotic actuation and visualization enhancement is the next area of development. Work has been performed toward the development of an endolumenal robotic system for providing visualization and dexterous instrumentation for the performance of NOTES operations. Miniaturization of robotic tools and the ability to place robots entirely inside the peritoneal cavity offers significant benefits in natural orifice procedures as well. Once inserted, the robots can be used inside the peritoneum without the typical constraints of an externally actuated flexible endoscopic device. The robots can be positioned to provide visualization and tissue manipulation within each quadrant of the peritoneal cavity. Multiple miniature robots can be placed inside the peritoneal cavity, with the number of devices not limited by the small diameter of the natural orifice. Such robots equipped with stereoscopic imaging could provide much needed depth perception for the surgeon and could

allow triangulation between the image plane and the motion of the tools. Mobile miniature robots provide a remotely controlled platform for vision and surgical task assistance.

With the exponential growth of robotic surgery, guidelines for safe initiation of this technology have become a necessity. As time goes by, robotic surgery will be incorporated in surgical training. However, mechanisms are required for training and credentialing surgeons who are currently in practice and want to integrate robotics into their practice. Currently no standardized credentialing system exists to evaluate surgeon competency and safety with robotic surgery performance. It is incumbent upon each local hospital credentialing body to develop privileging guidelines for surgeons who want to perform robotic procedures in their institutions. The vendor(s) will usually provide training on the specific device however; the surgeon must demonstrate proficiency in the specific procedure(s) in order to be granted hospital privileges. Proctoring is an essential mechanism for robot assisted surgery credentialing and should be a prerequisite for granting unrestricted privileges on the robot. This should be differentiated from preceptoring, wherein the expert is directly involved in hands-on training. Advanced technology has opened new avenues for long-distance observation through teleproctoring. Although the medicolegal implications of an active surgical intervention by a proctor are not clearly defined, the role as an observer should grant immunity from malpractice liability in this setting. Although proctoring is a modality by which such competency can be evaluated, other training tools and guidelines are needed to ensure that the requisite knowledge and technical skills to perform this procedure have been acquired. The implementation of guidelines and proctoring recommendations at each institution is necessary to protect surgeons, proctors, institutions and, above all, the patients who are associated with the institutional introduction of a robotic surgery program..

The following guidelines were developed at Shands Jacksonville for the granting of privileges for computer assisted (robotic) surgery:

Documentation of successful completion of six (6) robotic surgical cases from a previous hospital where the provider had privileges, OR

Credentialed to perform open and laparoscopic/endoscopic surgery, AND evidence of completion of the training course provided by the vendor, AND evidence of two (2) proctored cases or must be proctored for the first two (2) cases performed. In the absence of a credentialed proctor, a second surgical attending who has met all of the criteria for this pathway may serve as the proctor, OR

Documentation of successful completion of three (3) cases as primary operator for robotic surgery from the residency/fellowship program director that trained the surgeon.

REAPPOINTMENT CRITERIA - Documentation of at least six (6) procedures to be provided at the time of reappointment, or be proctored for an additional two (2) cases

SUMMARY

The *da Vinci*® system remains the only commercially available therapeutic robotic system currently available. It has allowed surgeons to perform procedures that previously were thought to be either too complicated or too risky to be performed in a laparoscopic fashion. New technology

has since improved, allowing one to reach areas that could not be reached before and to perform operations without scars, such as natural orifice surgery. With the development of new types of devices that are smaller, cheaper, and based on more modular components, each device will be tailored to a given operation. New technologies are sure to follow along, and this field will not look the same in 10 to 15 years. It can be expected that we will continue to move toward more automation, more computer interface, and more mechanical assist and further away from the open surgical techniques that were pioneered in the years before. As technological advances occur, we will be challenged to assure appropriate training and credentialing on these new devices and technology.

Infection Prevention in 2010

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Government Response to Public Concern about Healthcare Associated Infections

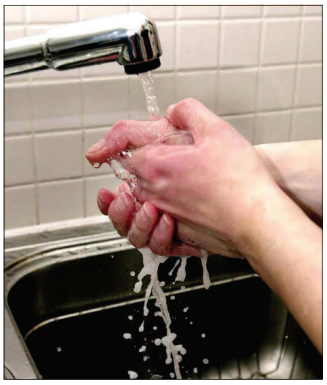
During 2009 in the midst of the economy crisis and the occurrence of an H1N1 Pandemic, the federal government responded to public concern about the safety of healthcare, specifically hospitals, by passing several pieces of legislation to address patient safety. The American Recovery and Reinvestment Act of 2009 which was the $787 billion economic recovery bill that provided $1,000,000,000 for a Prevention and Wellness Fund, of which $50,000,000 is being provided to States to carry out activities to implement healthcare-associated infections (HAIs) reduction strategies. The Omnibus Appropriations Act, 2009 finalized federal funding for the programs in the Labor, Health and Human Services and Education. Among the programs addressed under this bill are: the National Health Safety Network (NHSN), CDC funding to address re-use of syringes in outpatient setting, state plans for HAI reduction, additional funding for states to address public health and preventive health activities like addressing HAIs, funding to add hospitals to the Comprehensive Unit Based Program (CUSP) based on the Keystone Program and encourage the Agency for Healthcare Research and Quality (AHRQ) to expand this approach to other HAIs, funding for ARHQ to continue efforts related to MRSA, and funding for agencies to carry out the HHS HAI Action Plan. The Preservation of Antibiotics for Medical Treatment Act of 2009 was designed to strengthen epidemiology and laboratory capacity in state and local health departments and improve national surveillance and reporting of infectious diseases of public health importance.At the same time, ten (10) categories of heathcare associated conditions (HAC) were targeted for prevention by linking performance to reimbursement by CMS beginning on October 1, 2008. These conditions included: 1.Foreign Object Retained After Surgery; 2. Air Embolism; 3. Blood Incompatibility; 4. Stage III and IV Pressure Ulcers; 5. Falls and Trauma including Fractures, Dislocations, Intracranial Injuries, Crushing Injuries, Burns, and Electric Shock; 6. Manifestations of Poor Glycemic Control including Diabetic Ketoacidosis, Nonketotic Hyperosmolar Coma, Hypoglycemic Coma, Secondary Diabetes with Ketoacidosis, and Secondary Diabetes with Hyperosmolarity; 7.Catheter-Associated Urinary Tract Infection (CA-UTI); 8. Vascular Catheter-Associated Infection (Central line associated bacteremias[CVL-BSI]); 9. Surgical Site Infection Following: Coronary Artery Bypass Graft (CABG) – Mediastinitis, Bariatric Surgery, Laparoscopic Gastric Bypass, Gastroenterostomy, Laparoscopic Gastric Restrictive Surgery, Orthopedic Procedures such as spine, neck, shoulder and elbow; and 10. Deep Vein Thrombosis (DVT)/Pulmonary Embo-

lism (PE) associated with total knee and hip replacements. Three of the categories are directly related to infection prevention initiatives. The performance of each facility is available to the public through the CMS website. Some of these measures have been modified, added on to or implement in different time frames over the past year. Additionally the Health and Human Services developed metrics and national 5-Year prevention targets (addressing 17 different components of healthcare associated infection prevention with specific prevention goals) to reduce the impact of HAIs on this country. Through these legislative initiatives the government believes it will be successful in forcing healthcare facilities to evaluate their practices and to implement evidence based practice strategies to prevent HAIs.

These government mandates may seem daunting at first, but there are resources that provide an outstanding platform for devising strategies for prevention and measuring success. Leading infection prevention organizations have evidence based recommendations and guidelines to facilitate implementation and suggest both process monitoring and outcome measurement. For specifics prevention strategies refer to CDC/HICPAC Guidelines; IHI Guides, including Bundles; APIC's Guidelines, Guides and other documents; SHEA's Guideline and Papers; Society for Cardiovascular Angiography and Interventions; American Academy of Pediatrics; Health Protection Scotland; and The Joint Commission. In addition, many states and regions have now banded together to improve patient outcomes and prevent healthcare associated infections. Collaboration through collective learning and encouragement has its place as the healthcare industry forges ahead with the goal of preventing healthcare associated infections. See websites for more information.

The Journey to Prevention

Every healthcare organization's goal must now be to provide safe and effective patient care which minimizes the risk of HAIs. Infection prevention strategies must be applied throughout each setting and address critical processes and practices. The building blocks for an effective prevention program should, at the very minimum, include the following elements: the facility basic design and functions such as utilities, HVAC and water; infection control risk assessment and management of construction and building projects for patient safety; materials management with product evaluation to assure appropriate products are available and that the supplies are handled to maintain sterility and prevent contamination; evidence based policies and procedures based on standards and recommendations and provide up to date guidance for basic activities such as cleaning, disinfection and sterilization practices; healthcare worker safety; immunization programs especially related to influenza; isolation and management of communicable diseases; hand hygiene; and healthcare associated infection strategies. Additionally an infection prevention program must use surveillance data to validate practices and processes that are in place.



National Patient Safety Goal #7

The Joint Commission and CMS have selected several critical infection prevention components to be part of the National Patient Safety Goal # 7 (NPSG) to reduce HAIs. These known prevention strategies are now mandatory for all accredited hospitals. The NPSG # 7 addresses hand hygiene practices, prevention of multi drug resistant organisms (MDROs), prevention of central line associated bloodstream infections (CVL-BSI) and prevention of surgical site infections (SSIs).

Prevention through Hand Hygiene

Hand hygiene practices must be in compliance with recommended practices from the Centers for Disease Control and Prevention (CDC) or by the World Health Organization (WHO). Both guidelines emphasize the use of alcohol based hand rubs as well as the traditional use of soap and water to clean hands. Compliance must be monitored and education of staff and patients on the importance of hand hygiene in preventing infections is critical. The Joint Commission has published a monograph. The hand hygiene monograph, "Measuring Hand Hygiene Adherence: Overcoming the Challenges" evaluates the plethora of ways to monitor hand hygiene compliance. It is available at: (Accessed April 10, 2009) http://www.jointcommission.org/NR/rdonlyres/68B9CB2F-789F-49DB-9E3F-2FB387666BCC/0/hh_monograph.pdf

Prevention of MDROs

The control and prevention of MDROs begins with a risk assessment of the epidemiology and occurrence of resistant organisms in the specific practice setting and its feeder communities. In the risk assessment the following organisms should be considered: vancomycin resistant enterococci (VRE), methicillin resistant Staphylococcus aureus (MRSA), resistant gram negative bacilli such as Acinetobacter, Pseudomonas, extended spectrum beta lactamase producing organisms (ESBLs) or Klebsiella (KPC); and Clostridium difficile. The facility then needs to design a program to address prevention and control of the specific organisms. The program should address surveillance for the MDRO and procedures for active screening of patients if indicated, isolation and special precautions, antimicrobial stewardship, communication of known carriers/infections, tracking and trending of by unit and service if appropriate, and policies and procedures especially related to environmental control and cleaning of high touch surfaces.

Prevention of Central Line Associated Bacteremias

Proven strategies for prevention central line associate are published both by CDC and IHI and are incorporated into the elements for the NPSG.07.04. These elements include: cleaning hands through either waterless alcohol based hand sanitizer or wash hands with soap and water prior to starting procedure or handling central line; selection of the best insertion site with the subclavian site having the lowest risk and should be first choice if clinically possible; using a CHG product for skin preparation (chlorhexidine/alcohol combo rather than betadine); using and maintaining maximal barrier precautions for insertion; and removing catheter as soon as possible. Additional strategies to reduce the risk of Central Line Infections and included in the NPSG elements of performance are: assuring competency of staff placing line through education and observation; monitoring insertion by using a checklist to document observations with the monitor being able to stop procedure if breach occurs; securing the lines to prevent in and out movement; using a CHG impregnated patch over the catheter site; following appropriate maintenance on dressing and site care; using an antimicrobial impregnated catheter such as the antibiotic impregnated catheters- minocycline+rifampin; educating everyone who cares for patients who have central lines about risk reduction practices and proper procedures; educating the patient and family about central lines and the risks associated with them; securing the line; and having trained infection control professionals perform surveillance for CVL-BSI, calculating rates per 1000 central line days and providing that data to the patient units.

Preventing Surgical Site Infections

This goal also addressed the prevention of surgical site infections through the use of evidence based practice identified by the CDC, Centers for Medicare and Medicaid (CMS) Surgical Care Improvement Project (SCIP) and professional societies such as the Associate for Professionals in Infection Control and Epidemiology (APIC), the Society of Healthcare Epidemiologists of America (SHEA) and the Infectious Disease Society of America (IDSA) to name a few.

National statistics show that 2.6% of the 30 million operations performed each year are complicated by surgical site infections (SSIs). These infections are the second most common healthcare associated infection and account for 17% of all hospital acquired infections with approximately 500,000 SSIs occur each year. SSIs lead to increased length of stay (up to 10 days or more), increased hospital costs, increased readmission rates and increased pain, suffering, alteration of function and sometimes death (2-11 times higher risk of death compared to patients who do not have an SSI). Attributable costs related to an SSI vary depending on procedure and organisms but range from $3000 to $29,000. SSIs are believed to account for up to $10 billion annually in healthcare expenditures.

Consequently, the Joint Commission in cooperation with CMS initiated NPSG.07.05 which requires the implementation of best practices for the prevention of surgical site infections. This goal emphasizes the Surgical Care Infection Project prevention strategies. These measures are based on the 1999 CDC Surgical Site Prevention Guideline as well as other published evidence based practice. WHO also recommends the use of checklists to improve compliance with recommended surgical practices and patient safety. Individual facilities may also want to develop checklists for surgical practices to facilitate consistent practice in the surgical setting. Another key factor in patient safety is the empowerment of all healthcare providers to speak up and intervene if a breach in safe practice is identified.

The first SCIP measures address pre-operative antimicrobial prophylaxis. The SCIP data indicates that 30% of SSI are preventable with appropriate use of preoperative antibiotics. Pre-Operative Antimicrobial Prophylaxis (antibiotics) must be given prior to incision within 1 hour of surgery. (SCIP Measure #1) The appropriate Antibiotic Selection is SCIP #2. Cefazolin is often the recommended antibiotic of choice. It is important to identify specific procedures recommended antibiotics as listed by CMS for the right drug choice. There is a timing exception for antibiotics that cannot be pushed and must be infused over a longer time. For example, vancomycin must be started 60-90 minutes prior to surgery for safe infusion practices. Because of concern for over utilization of vancomycin, per CMS the rationale for using vancomycin must document in chart by the licensed provider. Re-dosing based on blood loss or length of surgery is appropriate. Finally, pre-operative prophylactic antibiotics must be stopped within 24hours after surgery for all specialties except cardiac patients who must have antibiotics stopped by 48 hours post op (SCIP #3).

SCIP measures also address the administration of other drugs. In SCIP-Card-2, patients who are on beta blockers prior to admission must also receive these medications peri-operatively. SCIP-Inf-4 relates to maintaining glycemic control in cardiac surgery patients as measured by the post-operative glucose.

SCIP #6 addresses appropriate hair removal and prohibits the use of razors to shave a patient to remove hair at the operative site prior to a procedure. Shaving has been shown to increase skin flora colonization. Hair does not increase the risk of infection . If it is to be removed to facilitate the procedure, hair at the surgical site should be removed by using clippers immediately before setting up the sterile fields in the operating room.

Initially, SCIP-Inf-7addressed normothermia only colorectal surgery patients and immediate post-operative normothermia being the goal. As of Oc-

tober 2009, SCIP # 10 expanded this measure to include maintaining normothermia (per SCIP measures) for surgical patients with the goal of not allowing the temperature to go lower than 36° C.

SCIP-VTE-1 states that patients should receive the recommended VTE Prophylaxis.

It is well known that the best way to prevent urinary catheter associated urinary tract infections (CA-UTIs) is to catheterize only for clinical necessity and to remove the catheter as soon as possible. Therefore, a new measure started in October 2009 requires the removal of the foley catheter by 2 days post op or documentation of the rationale for prolonged catheterization in clinical note for on-going clinical necessity (SCIP Measure #9). Additionally, CA-UTIs are one of the never events listed in the healthcare associated conditions (HAC) that CMS is targeting for non-payment of the co-morbidity related to the patient's care.

Several other pre-operative strategies have been shown to reduce the risk of infection. It is important to treat any existing infections at a remote site prior to surgery if clinically possible. Additionally, some now believe that in high risk procedures where the incidence of MRSA in the population is high, it may be useful to screen the patient for MRSA carriage. (Refer to the facilities risk assessment for management of MDROs to assist in evaluating the need for this process.) If a patient is determined to be positive, the surgeon may want to prescribe a decolonization protocol using Murpirocin in the nares twice a day for 5 days along with daily shower with chlorhexidene gluconate antimicrobial soap (CHG) during that time. Pre-operative showering the night before and the morning of with chlorhexidene gluconate antimicrobial soap has also been shown to reduce the risk of infection with skin flora like staphylococci.

Full compliance with these measures will help to prevent surgical site infections as well as respond to CMS rules and the components of the NPSG 07.05. CMS publishes compliance rates for SCIP measures on their website. Other components of this goal include providing surgical site infection surveillance done by trained infection control practitioners according to NHSN definitions and CDC recommendations with feedback to the surgical team.

Patient and staff education about the essential steps in surgical site prevention is also required by this NPSG. Patient handouts may be developed by a facility or there are handouts available for use via www.shea-online.org based on the compendium for preventing surgical site infections. See figure.

Other web pages also have materials to assist in patient and family education. Some examples are Journal of the American Medical Association; available at: http://jama.ama-assn.org/cgi/reprint/294/16/2122

Surgical Care Improvement Project consumer info sheet. Available at http://www.ofmq.com/Websites/ofmq/Images/FINALconsumer_tips2.pdf

What you need to know about infections after surgery: a fact sheet for patients and their family members. Available at: http://www.ihi.org/NR/rdonlyres/0EE409F4-2F6A-4B55-AB01-16B6D6935EC5/0/SurgicalSiteInfectionsPtsandFam.pdf

Building a Culture of Patient Safety

The Joint Commission by delineating specific elements for each prevention goal has led the healthcare provider to evidence based strategies that have been proven to work. However, the science of human factor engineering and group dynamics clearly recognizes that the translation of these prac-

tices from a written strategic plan to effective, consistent implementation is a complex and multifaceted expedition. The challenge that faces each organization is turning these strategies into collaborative action to make the system work and to build an on-going culture of prevention and patient safety. Successful implementation requires knowledge of the organizations culture, team dynamics and system development. The Recovery Act funded a program through AHRQ that teaches how to do that. The CUSP initiative based on the Keystone Program teaches this process and safety culture strategies which led to a reduction in central line associated infections in Michigan. The CUSP initiative has been expanded to 14 states. The Florida Hospital Association (FHA) and many Florida hospitals are participating in this national CUSP initiative with the goal of building a culture of safety that leads to prevention central line associated blood stream infections.

We enter an exciting and challenging era. It is time for all healthcare providers to clean their hands, roll up the sleeves and work together in partnership with our patients to bring about improvement in patient safety. It can be done in an environment built of collaboration with a culture of patient and healthcare worker safety. Stay tuned as we enter this new decade to see improvement in patient safety resulting from implementation of evidence based practices throughout all of healthcare resulting in prevention of HAIs at levels previously thought to be impossible. The best is yet to come!

FAQ on Surgical Site Prevention (Please see attachment page 13)

WHO Surgical Checklist (Please see attachment page 14)

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See Pediatric MRSA Supplement:

Please visit: http://www.nichq.org/NICHQ/Topics/PurgingHarm/

Institute for Healthcare Improvement Hand Hygiene How-To website: http://www.ihi.org/IHI/Topics/CriticalCare/IntensiveCare/Tools/HowtoGuideImprovingHandHygiene.htm

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APIC www.apic.org

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World Health Organization

WHO "Clean Care is Safer Care" Campaign http://www.who.int/gpsc/en/
Five Moments for Hand Hygiene Poster. http://www.who.int/gpsc/tools/Five_moments/en/index.html

WHO Safe Surgery Checklist. http://www.who.int/patientsafety/safesurgery/ss_checklist/en/index.html
Safe Surgery WHO site for video teaching safe OR practices http://www.who.int/patientsafety/safesurgery/en/index.html

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FAQs
(frequently asked questions)

about
"Surgical Site Infections"

What is a Surgical Site Infection (SSI)?

A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place. Most patients who have surgery do not develop an infection. However, infections develop in about 1 to 3 out of every 100 patients who have surgery.

Some of the common symptoms of a surgical site infection are:

- Redness and pain around the area where you had surgery
- Drainage of cloudy fluid from your surgical wound
- Fever

Can SSIs be treated?

Yes. Most surgical site infections can be treated with antibiotics. The antibiotic given to you depends on the bacteria (germs) causing the infection. Sometimes patients with SSIs also need another surgery to treat the infection.

What are some of the things that hospitals are doing to prevent SSIs?

To prevent SSIs, doctors, nurses, and other healthcare providers:

- Clean their hands and arms up to their elbows with an antiseptic agent just before the surgery.
- Clean their hands with soap and water or an alcohol-based hand rub before and after caring for each patient.
- May remove some of your hair immediately before your surgery using electric clippers if the hair is in the same area where the procedure will occur. They should not shave you with a razor.
- Wear special hair covers, masks, gowns, and gloves during surgery to keep the surgery area clean.
- Give you antibiotics before your surgery starts. In most cases, you should get antibiotics within 60 minutes before the surgery starts and the antibiotics should be stopped within 24 hours after surgery.
- Clean the skin at the site of your surgery with a special soap that kills germs.

What can I do to help prevent SSIs?

Before your surgery:

- Tell your doctor about other medical problems you may have. Health problems such as allergies, diabetes, and obesity could affect your surgery and your treatment.
- Quit smoking. Patients who smoke get more infections. Talk to your doctor about how you can quit before your surgery.
- Do not shave near where you will have surgery. Shaving with a razor can irritate your skin and make it easier to develop an infection.

At the time of your surgery:

- Speak up if someone tries to shave you with a razor before surgery. Ask why you need to be shaved and talk with your surgeon if you have any concerns.
- Ask if you will get antibiotics before surgery.

After your surgery:

- Make sure that your healthcare providers clean their hands before examining you, either with soap and water or an alcohol-based hand rub.

  If you do not see your healthcare providers clean their hands, please ask them to do so.

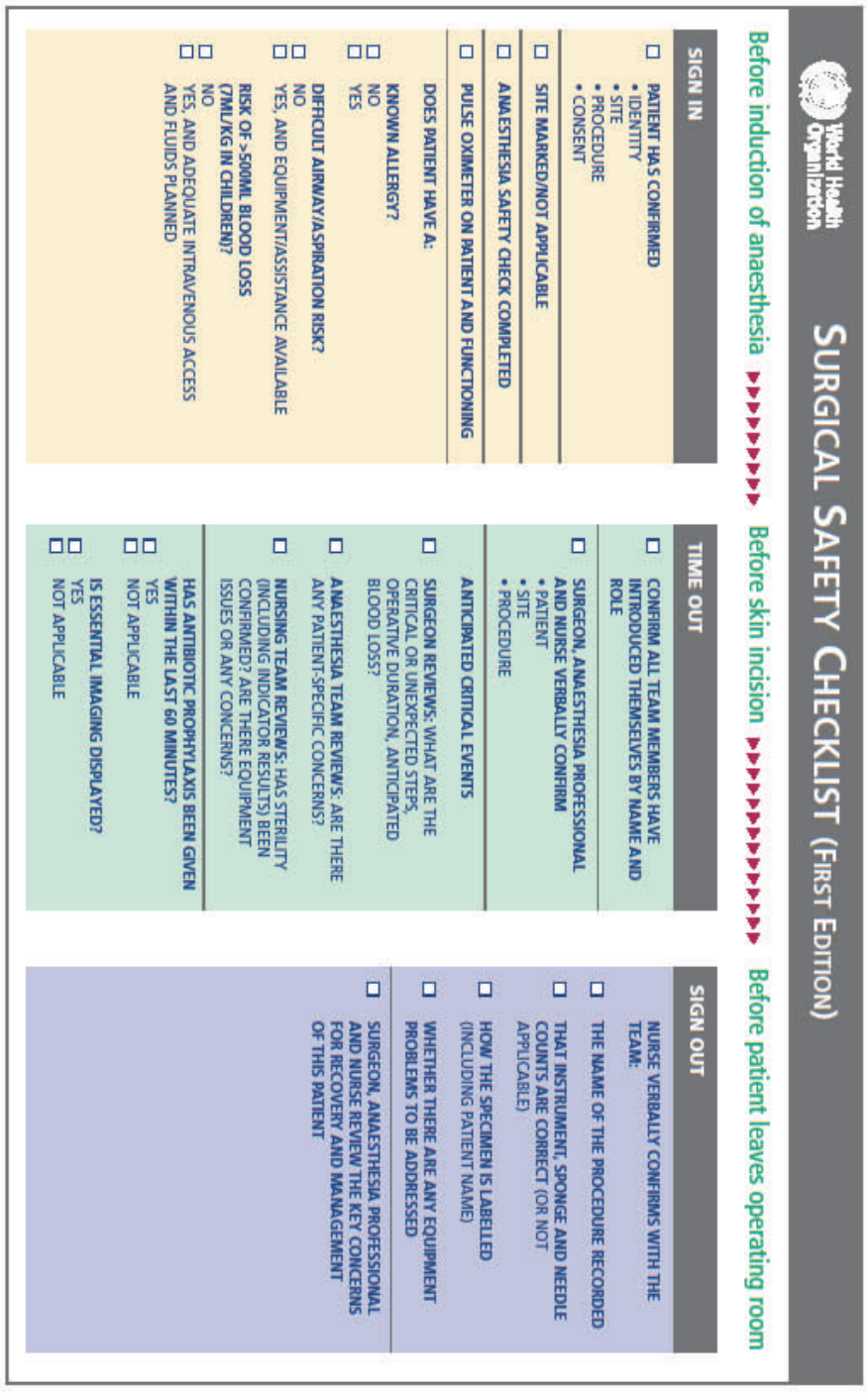
- Family and friends who visit you should not touch the surgical wound or dressings.
- Family and friends should clean their hands with soap and water or an alcohol-based hand rub before and after visiting you. If you do not see them clean their hands, ask them to clean their hands.

What do I need to do when I go home from the hospital?

- Before you go home, your doctor or nurse should explain everything you need to know about taking care of your wound. Make sure you understand how to care for your wound before you leave the hospital.
- Always clean your hands before and after caring for your wound.
- Before you go home, make sure you know who to contact if you have questions or problems after you get home.
- If you have any symptoms of an infection, such as redness and pain at the surgery site, drainage, or fever, call your doctor immediately.

If you have additional questions, please ask your doctor or nurse.

Co-sponsored by: SHEA, IDSA, American Hospital Association, APIC, CDC, The Joint Commission


World Health Organization
SURGICAL SAFETY CHECKLIST (FIRST EDITION)
Before induction of anaesthesia
Before skin incision
Before patient leaves operating room
SIGN IN
PATIENT HAS CONFIRMED
• IDENTITY
• SITE
• PROCEDURE
• CONSENT
SITE MARKED/NOT APPLICABLE
ANAESTHESIA SAFETY CHECK COMPLETED
PULSE OXIMETER ON PATIENT AND FUNCTIONING
DOES PATIENT HAVE A:
KNOWN ALLERGY?
NO
YES
DIFFICULT AIRWAY/ASPIRATION RISK?
NO
YES, AND EQUIPMENT/ASSISTANCE AVAILABLE
RISK OF >500ML BLOOD LOSS (7ML/KG IN CHILDREN)?
NO
YES, AND ADEQUATE INTRAVENOUS ACCESS AND FLUIDS PLANNED
TIME OUT
CONFIRM ALL TEAM MEMBERS HAVE INTRODUCED THEMSELVES BY NAME AND ROLE
SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE VERBALLY CONFIRM
• PATIENT
• SITE
• PROCEDURE
ANTICIPATED CRITICAL EVENTS
SURGEON REVIEWS: WHAT ARE THE CRITICAL OR UNEXPECTED STEPS, OPERATIVE DURATION, ANTICIPATED BLOOD LOSS?
ANAESTHESIA TEAM REVIEWS: ARE THERE ANY PATIENT-SPECIFIC CONCERNS?
NURSING TEAM REVIEWS: HAS STERILITY (INCLUDING INDICATOR RESULTS) BEEN CONFIRMED? ARE THERE EQUIPMENT ISSUES OR ANY CONCERNS?
HAS ANTIBIOTIC PROPHYLAXIS BEEN GIVEN WITHIN THE LAST 60 MINUTES?
YES
NOT APPLICABLE
IS ESSENTIAL IMAGING DISPLAYED?
YES
NOT APPLICABLE
SIGN OUT
NURSE VERBALLY CONFIRMS WITH THE TEAM:
THE NAME OF THE PROCEDURE RECORDED
THAT INSTRUMENT, SPONGE AND NEEDLE COUNTS ARE CORRECT (OR NOT APPLICABLE)
HOW THE SPECIMEN IS LABELLED (INCLUDING PATIENT NAME)
WHETHER THERE ARE ANY EQUIPMENT PROBLEMS TO BE ADDRESSED
SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE REVIEW THE KEY CONCERNS FOR RECOVERY AND MANAGEMENT OF THIS PATIENT
THIS CHECKLIST IS NOT INTENDED TO BE COMPREHENSIVE. ADDITIONS AND MODIFICATIONS TO FIT LOCAL PRACTICE ARE ENCOURAGED.