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INSIDE THE Operating Room

CARDIAC SURGERY

ROBOTIC OPERATIONS

SURGERY IN THE
PHILIPPINES



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From the Chief Nursing Officer

NANCY J. LEE, RN, MSN, CHIEF NURSING OFFICER, VICE PRESIDENT, PATIENT CARE SERVICES



This edition of *Stanford Nurse* focuses primarily on perioperative services, a specialty area little known to most other nurses. Behind the sea of blue scrubs, colorful hats, and surgical masks is a cadre of highly trained professional nurses who care for our patients when they are at their most vulnerable.

Anesthetized and intubated, these patients require vigilant observation, constant reassessment, and proactive care. Operating Room (OR) nurses advocate on behalf of their patients and provide compassionate care, often without the gratification of a thank you. As many of you know, surgical services has a very special place in my heart.

The perioperative area is in many ways a world unto itself. The Main OR alone provides for over 12,000 cases per year in 21 surgical suites with cases lasting from 2 to 12 hours. Collaborative practice is essential with over 500 employees; nearly 100 of them are registered nurses, many holding specialty certification from the Association of Perioperative Nursing (AORN). What I hope you take away from this publication is a clear demonstration of the important

decisions these nurses make every day in the care of our patients.

This issue also highlights some of the incredible work done by the crisis nurses, one of the smallest nursing groups in the hospital, and the role of a single nurse on her first medical mission. The final article, a discussion of ICU utilization, explores the important role nurses play in dealing with end-of-life decisions with their patients.

I am proud to call myself a nurse and even more proud to be a nurse at Stanford Hospital & Clinics.

A handwritten signature in black ink that reads "Nancy J. Lee". The signature is written in a cursive, flowing style.

The Evening Shift

FACILITATING THE OPERATING ROOM AS A RESOURCE NURSE

ROSEMARY WELDE, RN, MBA, STAFF & RESOURCE NURSE, MAIN OPERATING ROOM

The operating room (OR) resource nurse on the evening shift is responsible for the efficient functioning of the OR rooms, ensuring patient safety, and maintaining clinical standards and department policies and procedures. As resource nurses, we must have strong organization and communication skills and be able to work closely with the anesthesiologist running the scheduling board, other physicians, healthcare professionals, and ancillary staff.

A TYPICAL NIGHT IN THE LIFE OF THE RESOURCE NURSE

At 1300 we receive a report from the day shift resource nurse. We then make rounds in each of the OR suites to check the progress of the cases, identify issues, and discuss the next cases with physicians. Many times, the cases may start later than expected, but the resource nurse collaborates with the physicians in order to ensure the cases are turned over as efficiently as possible. We usually average approximately ten “wait list” cases – cases that are not listed on the general OR schedule. Cases are wait listed for a variety of reasons: because the surgeon prefers the case to be done following their regular schedule, the patient is currently in the hospital and the case is semi-urgent, or the case has been on the schedule board for more than one day because the OR was very busy.

By 1500, the resource nurse has assigned the staff nurses and surgical technologists to the appropriate rooms. These assignments may be time consuming for the resource nurse, but it is important to place the most appropriate

staff with each case. Timing and continuity of care are important in this situation. For example, we try to match the staff working the longest time period in the OR rooms with the longest cases. Some nurses, surgical technologists, and surgeons request to work together and we try to accommodate these requests. If these teams work well together on specialized cases, our patients receive the best care and the staff members have increased job satisfaction. At 1500, we are usually running approximately 18 operating rooms. The resource nurse makes rounds in each OR room once per hour for an update, assists the staff in the room when needed, and coordinates meals and breaks throughout the shift.

Some evenings the OR may receive as many as two to three trauma patients, along with many urgent cases that need to be addressed immediately. An evening shift may include any of the following typical scenarios:

SCENARIO 1

The trauma beeper goes off and reads “99,” which is the code for a Level 1 trauma in the Emergency Department (ED). The OR secretary calls the ED to get information on the trauma patient. The patient is to arrive in 5 minutes and the OR resource nurse goes to the ED to assess the patient. We immediately inform anesthesia and hold a room until we receive information about the patient’s surgical needs. We instruct the staff to stand by in OR #8, our trauma set-up room, and await the call. The patient has been the victim of a drive-by shooting. He is alert and oriented with stable vital signs. He has clear lungs and no apparent bleeding. He has been shot in the lower abdomen, hip, leg, and hand. Because the patient has been shot in the abdomen, we assume the surgeon will perform an exploratory laparotomy. The trauma surgeon sees the patient and verifies that it is a “go.” We set up quickly and get ready to accept the patient. This patient arrives in the OR, the procedure is done, and no injuries are noted in his abdomen. He is admitted to the Trauma Intensive Care Unit postoperatively for further care.



Surgical technologists Jake Lerios, ST, and Veronica Hughes, CST, prepare for a case while Rosemary Welde, RN, MBA, the resource nurse, and Ninette Pierce, RN, confer about the timing and progress of the current case.

SCENARIO 2

The transplant fellow calls to tell us we have a liver transplant patient coming in for a donated liver and “one as a back up.” This means that if the other facility cannot use the liver, then Stanford will receive it. The patient requiring the back-up liver is in-house and is ready for the OR if we are confirmed to receive the “back-up” liver. The liver transplant run time is 1900. We inform the liver anesthesiologist on call, identify the appropriate room, and start setting up the room for surgery. Usually, we assume it will be about six hours after the harvested liver is cross clamped, and we plan to send for the patient at that time. Careful coordination is required between the day resource nurse and anesthesiologist to determine where cases will go and which cases will be bumped if we get transplants. Transplant cases can continue well into the night and, on occasion, until morning.

SCENARIO 3

The hand fellow calls to ask us how the schedule looks for the evening because a man who has severed three of his fingers with an electric saw is on the way. His estimated time of arrival is in one hour. Fortunately, we will have two rooms opening up in the next thirty to forty-five minutes. We set up a room, including a separate table for the fingers so that the surgeon can start working on them as soon as the patient is asleep. Timing is critical in attaching the fingers. The surgery is successful and the team is able to save his fingers after six hours of surgery.

The unique role of the operating room resource nurse on evening shift is exciting and never the same. We are the consultants for patient problems, advisors for clinical dilemmas, and arbitrators for clinical disputes. We serve as triage nurses for patients and staff with the common goal of focusing on what is best for our patients at all times. **SN**



Cardiac Surgery “On the Road”

SHARON BUTLER, RN, BSN, MSN
STAFF NURSE, PERIOPERATIVE SERVICES

Traditionally, surgical teams only worked in the operating room. Since the 1980s, however, evidence-based practice has led specialized teams to perform surgical procedures throughout the hospital. Advances in imaging technology and devices for graft insertion in the aorta and heart valves now make it possible to treat more cases outside the traditional operating room.

For example, cardiac teams now close patent ductus arteriosus in the Neonatal Intensive Care Unit because it is considered safer when this procedure is performed at the bedside. The complex cannulation process for newborns who require extracorporeal membrane oxygenation is also carried out at the bedside.

The team may also travel to the interventional radiology suite, the catheterization lab, and the intensive care units (ICU) where operating room nurses and surgical technologists play a crucial role in the procedure and are vital to organizing the supplies and equipment into a manageable and portable system for the surgery.

A PORTABLE OPERATING SUITE

The portable system consists of a small stainless cabinet (2.5' W × 4' L × 3' H) that contains all of the supplies and often serves as the operating table for the surgical instruments and sterile supplies. Other equipment required for road procedures are a light box on a rolling stand that gives light to headlights worn by the surgeons for visualization of the surgical site, and an electrical surgical unit used to coagulate blood vessels to control bleeding.

COLLABORATION IS KEY

When the surgical team travels throughout the hospital, the staff is often challenged by tight quarters surrounding a patient, which is limited even more by the surgical equipment. The anesthesia team does not always participate in surgical procedures done in the ICU. Therefore, the nurse caring for that patient has to work with the OR nurses to maintain sedation levels to allow the patient to be comfortable enough for the procedure to be completed. The unit staff is very supportive and always willing to accommodate special requests, such as putting on hats to cover hair and masks during the procedure.

The catheterization lab and the operating room staff began working as a team when the interventional radiologist and surgeon started inserting aortic stents as treatment for aortic aneurysms. The teams work together to precisely position the patient so surgeons can perform groin exposure and the radiologist can see the placement of the stent. The roles of both nursing staffs move between “active” to “available” as the procedure progresses. The OR staff in “active” mode prepare and drape the patient and help the surgeon with groin preparation. When groin preparation is complete, the OR staff takes on “available” role and the catheterization lab staff takes on the “active” role to assist in the deployment of

the stent. After deploying the stent, the OR staff resumes an “active” role by assisting with groin closure. Upon completion of the procedure, both teams prepare the patient for transfer to the ICU.

Another procedure done in the catheterization lab with a larger team from the OR is the Partners Trial. This procedure involves aortic valve implantation, either via the femoral artery or through a small thoracotomy incision and then transapically placed. If the minimally invasive approach is not successful, the surgical team will perform a sternotomy, place the patient on cardiopulmonary bypass, and proceed with open aortic valve replacement. The OR team has to be prepared and ready for both situations. The team from the OR consists of two staff nurses, two surgeons, two anesthesiologists, and two perfusionists. The catheterization lab is required to have many team members present, including four catheterization lab staff members, two interventional radiologists, and a cardiologist. Additional associates in the room include a clinical specialist from the valve company and the nurse coordinator for the trial.

A new electrophysiology treatment procedure involving both cardiologists and surgeons will be starting soon in the cath lab. Electrophysiology treatments are currently done through devices introduced via the femoral artery and then directed into the heart. Surgeons will now add a treatment to the outside of the heart via thorascopic port. This will require video equipment to be transported to the catheterization lab so the surgical team will be able to see the heart and the treatment during the procedure.

The combination of different disciplines required to perform procedures will continue to evolve. And although the hospital is committed to remodeling patient rooms and catheterization labs to be more spacious, we are presently faced with many challenges as we perform hybrid interventional and OR procedures. But thanks to the invention of the wheel, our operating room assistants and anesthesia technicians, and all the support we receive in other parts of the hospital, we are able to perform surgery “on the road” with great success. **SN**

Circulating for a Patient with Obstructive Sleep Apnea

THE CIRCULATING NURSE'S ROLE

JOAN KLINE, RN, BSN, CNOR

An interesting patient from out of state recently asked me what I do during surgery. His eyes widened with interest as I explained my role to him. When I reflect on my role as a circulating nurse, I often think back to my patient in OR 12.

My patient in OR 12 is scheduled for a maxillo-mandibular advancement for obstructive sleep apnea intended to move his jaw forward in order to enlarge the space behind his tongue and soft palate, making obstruction less likely. My preoperative assessment is the only glimpse I get of him with his family before he drifts off to sleep in OR 12. This is my chance to reassure him and to get an overview of who he is—one of the most colorful and meaningful parts of my day.

As I enter the OR, my eyes scan the room for needed equipment and furniture. Efficiency is key. With the flip of a switch our orderlies play a major role, gathering any missing items as I enter the patient's information into EPIC, our electronic medical record system. Now it's time to support our scrub technologist, Jenielyn Rivas. We confirm instrument sterility. Together we count our sponges, small items, and sharp items before the patient enters the room. I tally our initial count on a grease board.

As the anesthesiologist, Bryan Bohman, MD, wheels the patient into the room, I greet him and introduce him to Jenielyn. I grab a couple of blankets from our warmer to further extend our greeting and place sequential compression devices (SCDs) on him to prevent deep vein thrombosis.

Once he is hooked up to our monitors, Dr. Bohman conducts the verbal Anesthesia Safety Checklist, the first of two "Time Outs" before the start of surgery: "Is the anesthesia machine checked? Yes. Pulse oximeter on and working? Yes. Difficult airway? Yes, but the fiber optic scope is here. Is the risk of bleeding greater than 500 ml? No, but the patient has one auto unit available."

Drs. Riley and Powell apply cocaine-soaked pledgets to the patient's nasal mucosa to provide analgesia and to ease the nasal intubation. They stand by the patient to assist Dr. Bohman. Once intubated and catheterized, we spin the tabletop 180 degrees. This gives the surgeons room to stand on either side of the patient's face during surgery. They inject 0.25% marcaine with epinephrine 1:200,000 to provide analgesia and hemostasis.



I check the patient's positioning a final time. He is in alignment, and his head is on a foam "Shea" headrest. His bony prominences are padded. There is a pillow under his knees to take the pressure off of his back. His safety strap is on. I position his arms on padded arm boards by his sides in such a way to prevent pressure on his ulnar nerves. His arms are not resting on his arterial line or his IV tubing. I place a grounding pad on his thigh to take the current back to the cautery machine during surgery and get ready to prep his face while the surgeons scrub their hands in the hallway.

The surgeons place sterile blue towels around the patient's face and drapes that extend over his head and cover his entire body. Like an airline pilot reviewing a final safety checklist before take off, the entire team stops to verify the following before the incision during our verbal "Time Out":

- Necessary Introductions: There is a visiting doctor observing, wearing his Stanford badge, and I introduce him to the rest of the team.
- Correct Patient and Procedure: “This is Jim XYZ. He is here for a maxillo-mandibular advancement by Drs. Riley and Powell.”
- Correct Position: “He is supine.”
- Correct Operative Site: “The correct site is draped.”
- Consent: “The consent is complete, accurate, and signed.”
- Images and Implants: “The patient’s photos and x-rays are up, and the correct implants (plates and screws) are on the field.”
- Allergies: “The patient has no known allergies.”
- Prophylactic Antibiotic: “Kefzol, 1 gram given at 0745.”
- DVT Prophylaxis: “SCDs are on and running.”
- Aseptic Technique: “Our integrators and indicators were checked.”
- Any Critical or Unusual Steps Anticipated: “No.”
- Procedure Duration: “Four hours.”
- Anticipated Blood Loss: “500ml. One auto unit was confirmed with the blood bank.”
- Any Patient Specific Concerns: “His wife and son left their cell phone number on the pink slip in the chart.”

I plug in the suction, cautery, and the surgeons’ headlights. I confirm the settings on the cautery and plug in the nitrogen and electrical power equipment. Jenielyn and I confirm the labels and expiration dates of the cold saline and local anesthetic that I transfer to her back table. She clearly initials and labels both of them. Now that the surgery is underway, I catch up on my documentation.

I then check the instruments and supplies for our next patient’s surgery, a tonsillectomy and genioglossus advancement. The personnel in the core support the technologists and nurses by providing us with instrumentation and sterile supplies. We couldn’t do our job without them.

As I open additional sponges and needles throughout the surgery, I update the original count on our board. The surgery lasts about four hours. About an hour before the end of the surgery, Dr. Bohman hands the 45 minute notice to me to send to North ICU. I send a bed slip along with

it and remind the orderly to check the bed, making sure that it moves easily into the sitting position—something imperative for post-op airway management. I call out to pre-op to make the next patient ready.

Upon closing the wounds at the end of surgery, Jenielyn and I do the first count which is correct. After the second, then final correct count, I conduct the team debriefing that all team members discuss:

- Name of Procedure and Wound Class: “Maxillo-mandibular advancement, clean-contaminated.”
- Counts: “Both counts are correct.”
- Specimens: “There are no specimens.”
- Equipment/Instrument Problems: “None.”
- Key Concerns for Recovery or Management of Patient: “None.”

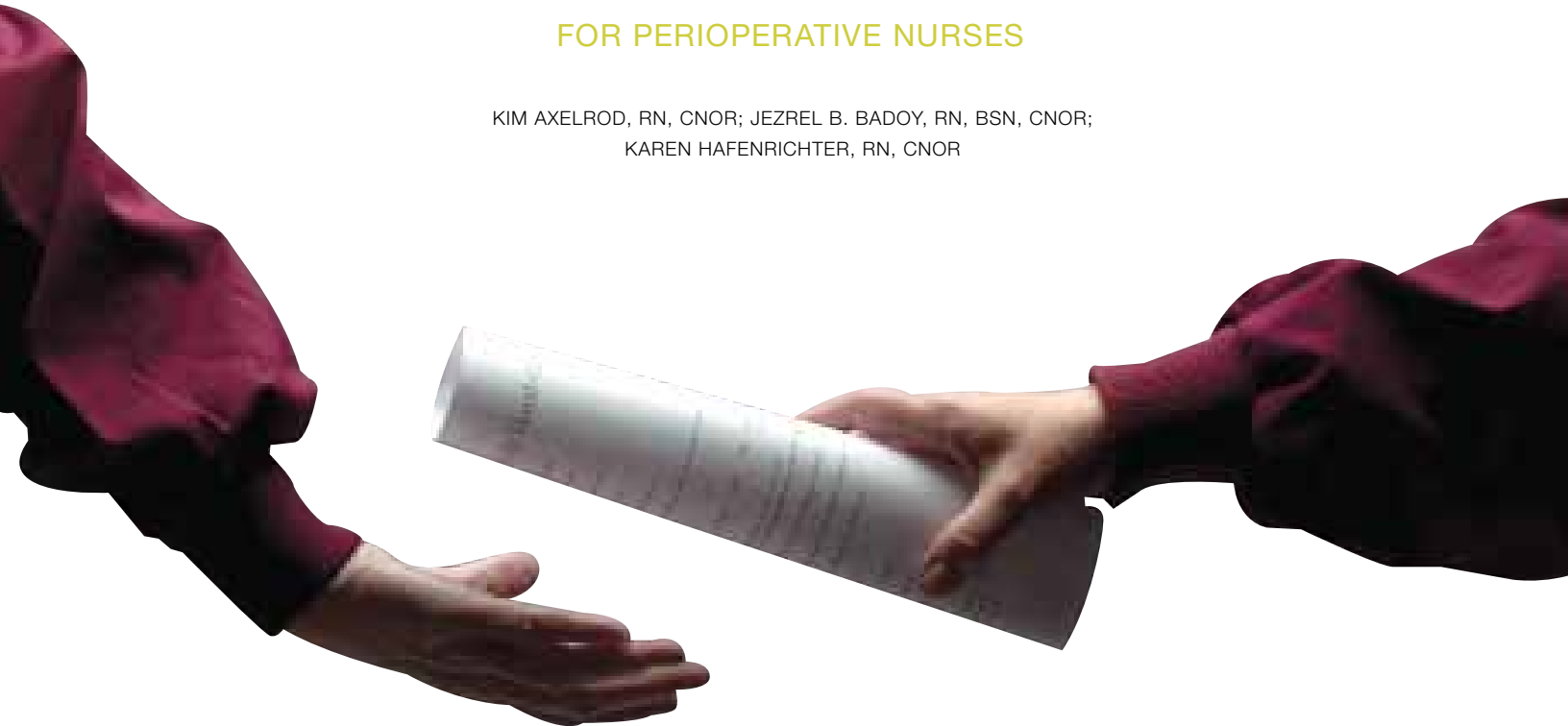
I give North ICU a 15 minute warning and take a room assignment. I check the patient’s arm for his ID band. I also complete the implant sheet and secure his x-rays and photos. I stand next to the patient to assist Dr. Bohman as needed during extubation. Dr. Riley applies a nasal decongestant to the patient’s nose to reduce swelling and prevent bleeding.

The patient is sitting up in his bed after extubation, awake but very drowsy. He breathes easily with oxygen by mask at 6L/minute. The surgeons and anesthesiologist accompany him to North ICU. As I sit down to finish my charting, I feel a sense of satisfaction after a very smooth surgery. SN

Hand-off Guide

FOR PERIOPERATIVE NURSES

KIM AXELROD, RN, CNOR; JEZREL B. BADOY, RN, BSN, CNOR;
KAREN HAFENRICHTER, RN, CNOR



Effective communication between caregivers is vital for patient safety. This is especially critical during “hand-off” situations, such as shift changes, when vital pieces of information could be left out or even misunderstood and wrongly interpreted. Such a mistake has the potential of costing the patient’s life.

Several articles and studies have focused on improving hand-off communication. However, it is rare to find a guide for intraoperative nurses during shift changes. It is during this period that nurses need to be extremely alert since the patient’s status and acuity could change in an instant. In addition, factors such as positioning and availability of equipment and prosthesis need to be considered. Not having the necessary supplies could lead to aborting the procedure.

Recognizing this need, the Nursing Practice Council of the Main Operating Room (MOR) initiated the formulation of a hand-off guide for nurses during the operative period. Fine-tuned over several weeks, the final guide was presented to the operating room staff in the form of a PowerPoint

presentation. In addition to explaining the importance of hand-off procedures and how they are emphasized by JCAHO, nurses were also taught techniques on how to provide effective hand-offs.

Shared governance in this Magnet® institution has provided the staff autonomy to initiate best practices. A staff-developed guide for effective hand-offs during the intraoperative period has great potential to improve patient care and outcomes. Several months after implementation, nursing staff confirmed that the guide significantly made change-of-shift reports more accurate and complete. The guide assisted in facilitating a smooth transition of effective nursing care. **SN**

Sharing their Wealth of Knowledge

EXPERIENCED STANFORD OR NURSES AS EDUCATORS

MARY LOU JACKSON, MSN, RN, CNOR, OR EDUCATOR

Many years ago in a hospital far away, an OR nurse named Sharon taught me how to scrub my hands, put on a sterile gown, pass instruments, and scrub and circulate in simple cases.

This eventually led me to a career in more complex cases in many specialties including cardiovascular. It has been my goal throughout my career as an OR nurse and educator to be that same gentle and nurturing guide while paying strict attention to critical details that ultimately affect patient outcomes. Although I have only been a Stanford OR educator for three years, there have been ample opportunities to recognize that same wonderful teaching spirit in Stanford OR nurses with whom I have the privilege to work every day.

Continual education is critical in all areas of the hospital if nurses are to effectively care for their patients. Education is highly valued and appreciated at Stanford. When nurses join the OR team, education and competence are the predominant themes while completing their OR region and surgical specialty orientation. Since every nurse brings different knowledge and skills, orientation is customized to meet each nurse's needs. Sheryl Michelson, RN, MS, BC, Manager of Perioperative Education, and I work diligently to teach in the OR region; however, OR nurses learn the most from each other, just as I learned from Sharon. Whether it is the initial welcome of an orientee while sharing a cup of coffee, teaching how to assess a patient preoperatively, or setting up a complex surgical room, the nurse as a teacher in the OR is extremely important for the satisfaction and success of the nurse learner.



One teaching method the Main OR (MOR) staff members utilize to meet the need for knowledge and skills is scheduled education sessions, which provide an opportunity for nurses to share their expertise. One MOR nurse, Kim Axelrod, recently gave a slide presentation on radiation safety in surgery as part of her safety improvement endeavor involving lead aprons for staff protection. For the MOR nurses unable to attend a scheduled session, information and education is acquired from a weekly multi-page bulletin written by Jonathan Fuller, RN, which he posts and distributes through email.

Colorful posters are a creative teaching method used in the MOR to present educational information and competency requirements. The convenience of having a poster near the control desk allows staff on all shifts to review the latest policy updates. Considering the complexity and myriad details of perioperative patient care, it is important to have references for future access. The MOR is rich with resources that nurses have created, from binders about liver transplants and eye surgeries, to photos and diagrams on robot laparoscopies, to a general MOR pocket reference booklet.

The energy and enthusiasm of our nurses to help each other learn and strive for excellence is inspirational. To teach another while having the responsibility of patient care takes confidence, energy, compassion, and a lot of patience. Nurses teaching nurses in any capacity is a gift given to help others gain knowledge, skills, and competence. Special accolades are due to the nurses who remember what it was like when they were once rookies and then create a holistic and individualized learning environment that fosters growth and satisfaction. Thank you to all the nurses who share their expertise! **SN**

The Miracle of Microsurgery

MICROVASCULAR FREE FLAPS IN HEAD AND NECK RECONSTRUCTION

ANNAMARIE VARO, RN, CNOR, ASSISTANT PATIENT CARE MANAGER

Plastic surgeons use microsurgery to restore the form and function of the human body that may be disfigured due to trauma, cancer, or surgery. Microsurgery is a technique in which surgeons use an operating room microscope to repair blood vessels and nerves that are otherwise too small to operate on. It is used to transfer or “transplant” tissue from one part of the body (the donor site) to another (the recipient site) for the purpose of reconstruction.

When part of the jawbone has been removed due to a cancerous tumor, the most important application of osseocutaneous free flaps is the reconstruction of the mandible. Common donor sites are the iliac crest, the fibula, and the scapula. While the tumor surgeon is working in the head and neck region to remove the tumor, a second surgical team can work on harvesting the fibula. The unit of tissue that is transferred, called the “flap,” maintains its own blood supply. Often two surgical teams are able to work simultaneously, which helps expedite the operation and shorten the overall operative time. Two nursing teams are generally required to help keep the instruments separate, since one site is contaminated with tumor cells and the other site is not. Because the fibula bone requires special instrumentation, such as bone clamps, power tools, plates, and screws, experienced nursing teams familiar with the equipment of each surgical team are vital to performing a smooth operation and to

minimizing the risk of complications. Patient safety is a prime concern, and therefore close coordination between surgical teams, nursing teams, and anesthesiologists is required. The ability to restore normal configuration of the jaw line and occlusion of the teeth is critically important to the patient’s outcome after surgery. Misalignment in the jaw can lead to an inability to properly chew food, swallow, or even speak. Plastic surgeons must have the skill and ability to shape a fibula bone into a jaw, as well as reconnect the blood vessels to restore adequate circulation to the tissues.



PREOPERATIVE PROCEDURES

Because these cases are long and difficult, usually 10-16 hours, each team member is vital to the outcome and success of the patient. The nursing team consists of two circulators (nurses who are non-sterile team members) and two scrub persons, who can be nurses or surgical technologists (sterile team members). The role of the circulator is to be the patient’s advocate. The patients are in an unfamiliar environment, away from everyone and everything they know, so it is the nurse’s responsibility to make sure the patients and their environment remain safe. During preparation, one circulator and both scrubs proceed to the operating room suite after morning report. This team will ensure all equipment, instruments, and supplies are present to start the case. They prepare the operating room (OR) suite, making it ready to receive the patient and begin the procedure. The nurses are responsible for confirming that all equipment needed for the procedure is in the room and in working order; they check the surgical bed to make sure it operates correctly and all components are visible; and they assist the two scrubs to open sterile items and instruments and retrieve anything missing. They also check with the transfusion laboratory to see if blood products are available, retrieve medications from pharmacy that will be needed during the procedure, and supply anesthesia with their paperwork, labels and any other item they may need. One nurse prepares the room while the other checks the

patient in for surgery, making sure the patient is aware of the procedure, then checks the patient's labs and answers any questions the patient may have. After the nurse has documented the condition and readiness of the patient, the OR is ready to accept the patient.

COMPLEX CASES

When the patient enters the OR suite, he or she is greeted by the surgical nursing team. Circulator nurse #1 will continue to coordinate the room activities while the nurse who greeted the patient in the preoperative region will focus on the patient, giving the patient a strong connection with the nurse. Before the patient is given anesthesia, the nurse also provides a warm blanket and places a pillow under the patient's knees, and will hold the patient's hand while the patient gets drowsy during administration of anesthesia. This nurse reassures the patient that he or she will be there throughout the case. After the patient is asleep, the circulator nurses monitor and coordinate all activities in the room while managing the patient's care. These nurses are responsible for always knowing the patient's status and controlling the environment, thereby allowing the rest of the surgical team to focus on their tasks without distractions. Two nursing teams are vital in these microvascular free flap surgeries because two simultaneous procedures are performed and two surgical set ups are thus needed. One team will focus on the head and neck portion of the case in which all instruments will be contaminated with the cancer cells. A second team, the harvest team, will be set up with plastic and microvascular instruments used to obtain the fibula bone and muscle, which will fill the

defect. Each team works simultaneously, making sure not to cross contaminate the two surgical sites. The circulator nurse must focus on sterile technique throughout the room and of each team member. It is this nurse's responsibility to inform each member of the team when there is a break in sterile technique and to advise the correction immediately. At any one time, the circulating nurse could be managing eight to ten people in the sterile field, including surgeons from each service, fellows, residents, and scrub personnel.

Because small items can be accidentally left in the wound, all sponges, sharps, supplies, and instruments must be carefully counted. Accurate counts are the responsibility of the entire team, but it is the nurse and the scrub that perform the count. The process consists of a minimum of three counts: baseline, which is the count before the surgical incision; first count, when the closing of the surgical site is started; and the final count, when the skin is being closed. Because this surgery is a two-team, two-surgical site procedure, counts have to be done for each area. The counts consist of a "Two Person Count," meaning a scrub and a nurse must count each item and must visualize each item during the count. Many of these items could potentially be retained in a patient and the primary responsibility of ensuring no item is left behind rests with the circulator nurse. Due to the length of the procedure, additional counts are performed for shift changes. All counts are documented and report is given to ICUs.

Continued on page 21



MICROVASCULAR EXPERTS (LEFT TO RIGHT) GARY PHILLIPS RN, BODIL GRODUM, RN, LINDA CAMPBELL, RN, MARGARET GABAT, RN, AND DIONIE LAGMAY-LOWE, RN, GATHER AROUND ONE OF THE NEW HD MICROSCOPES THAT ALLOW SURGEONS TO PERFORM MICROSURGERY IN THE MAIN OPERATING ROOM.

TOO MUCH PRESSURE

REDUCING INTRA-OPERATIVE PRESSURE ULCERS

DANA GONZALES, RN, ASSISTANT PATIENT CARE MANAGER, NEUROSURGERY, MAIN OPERATING ROOM
 RAY PICKETT, RN, ASSISTANT PATIENT CARE MANAGER, SAU/PACU

During sleep, the body protects us from lying on the bony areas of our ankles, back, elbows, heels and hips for too long by changing positions every few hours. Yet patients undergoing surgery don't have this natural protection due to the paralysis of anesthesia.

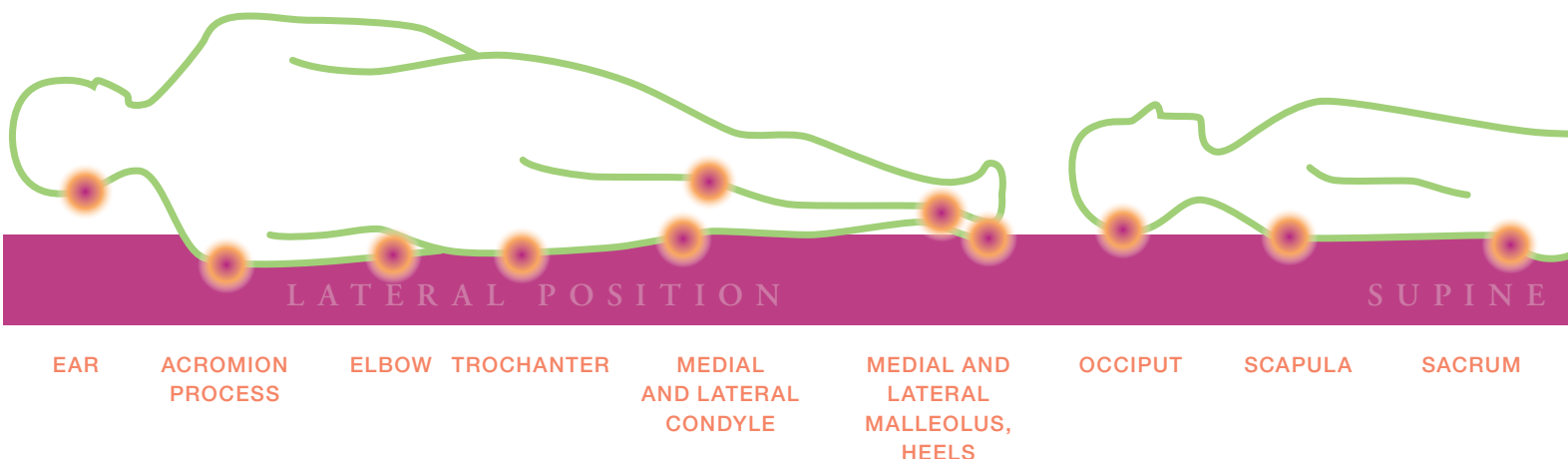
As a result, these delicate areas close to the skin can develop pressure sores – skin damage caused by staying in the same position for long periods of time. Reports estimate that prevalence rates for these ulcers surpass 15% of hospital inpatients, and incidence rates range between 7% and 10%.¹ Moreover, “nearly 60,000 U.S. hospital patients are estimated to die each year from complications due to hospital-acquired pressure ulcers, and the average hospital incurs between \$400,000 and \$700,000 in annual direct treatment costs for hospital-acquired pressure ulcers.”¹ Finally, “costs to heal pressure ulcers have been reported from \$2,000 to \$70,000 per wound,” and conservative

totals estimate the national cost for treatment between \$1.3 and \$3.5 billion annually.^{2,3}

Patients with pressure ulcers are affected emotionally and financially, as well as physically.^{4,5} They are subject to pain, disfigurement, additional treatment, increased hospital stay, loss of income, loss of independence, and possibly even loss of life.^{5,6,7}

The Main Operating Room has thus combined nurses from the preoperative area, the Operating Room, and the Wound Care Team to form a multidisciplinary task force to keep our patients free from acquiring pressure sores and ulcers. The goal of the task force is to bring the Braden Scale, preexisting patient conditions, and expected intraoperative factors together to create a comprehensive tool that can be utilized to greatly reduce the incidence of hospital-acquired pressure ulcers in surgical patients.

Since approximately 42% of all hospital-acquired pressure ulcers occur in surgical patients,⁸ identification of risk factors allows nurses to focus on prevention techniques. Intraoperative pressure ulcer prevention begins with the



preoperative assessment. A thorough skin assessment is performed prior to patients' arrival in the OR. The preoperative nurses inform the intraoperative team of any patients who are at risk for developing or have existing pressure ulcers. Any existing pressure ulcers are then staged I-IV or "unstageable," documented, and photographed to improve our ability to monitor wound status.

Stanford currently uses the Braden Scale to help establish a preoperative skin integrity assessment. This scale is the most widely used tool for assessing a patient's risk of developing a pressure ulcer. The scale consists of six subscales: mobility, activity, sensory perception, moisture, nutrition, and friction and shear. The mobility, activity, sensory perception, moisture, and nutrition subscales are scored from 1 to 4. The friction and shear subscale is graded from 1 to 3. The subscale scores are totaled with a range between 6 and 23. The lower the score, the greater the risk.⁹ Braden scores of less than or equal to 16, or a subscale score of 1 on moisture and mobility, requires nurses to initiate the pressure ulcer care plan and to contact the physician to consider ordering a specialty bed for the postoperative phase.

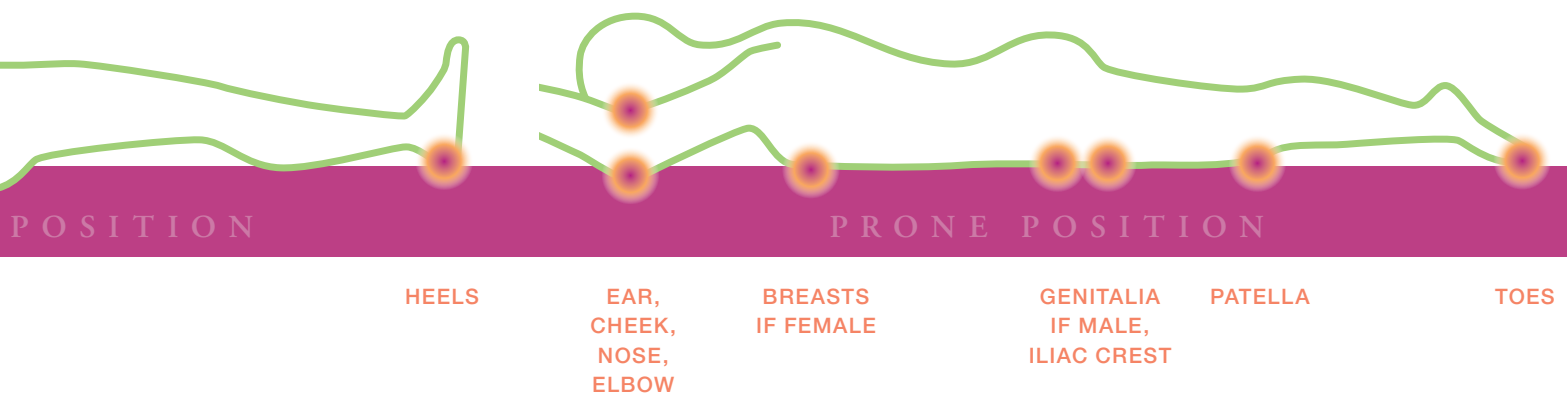
The task force has identified other important indicators to consider as patients are assessed for risk of acquiring an intraoperative pressure ulcer:

- Age of 60 years or greater
- Laboratory values that might be indicative of poor nutrition such as a low albumin, protein hemoglobin, and/or hematocrit
- Weight extremes, obesity, or low body mass index

- Vasoactive medications, chemotherapy, steroids, and psychotropic drugs
- Blood pressure with a diastolic of less than 60 mmHg
- Co-morbidities such as cancer, heart/respiratory/neurological diseases, or a diagnosis which indicates poor peripheral perfusion, such as diabetes or vascular disease
- Intraoperative risk factors such as type of procedure, expected length of procedure, position, and blood loss
- Expected intraoperative temperature management

This process can greatly reduce the incidence of hospital-acquired pressure ulcers in surgical patients. As a team, by increasing our focus on the patient in a more dynamic way, we can improve our patients' chances of making their stay as uncomplicated as possible. **SN**

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Robotics

THE FUTURE OF LAPAROSCOPIC SURGERY AT STANFORD

ANNE GANZON, RN

IRMA (JO) PERRY, RN, ASSISTANT PATIENT CARE MANAGER, GENERAL SURGERY

The Stanford operating room introduced robotic surgery in 2003, when the first da Vinci Robot from Intuitive Surgical rolled in and offered patients the ultimate in minimally invasive surgery with its three arms poised for action. It has revolutionized standards of care in the industry, far surpassing traditional laparoscopic options.

offering all the advantages of minimally invasive surgery with its small incisions and pencil-like instruments.

The da Vinci system consists of three separate parts. One is an ergonomically-designed control console for the surgeon, located up to 20 feet away from the patient. The second part is a gangly, spider-like machine with 4 arms – one arm to hold the highly magnified 3D camera and the other three arms to maneuver the patented tactile sensitive “Endo Wrist” instruments. These special laparoscopic instruments are designed much like a human wrist, with a similar circular range of motion that allow the surgeon to use the instruments much as he would use his own fingers and hands to tie sutures and dissect tissue. He has the ability to get behind organs with these special tips. The third part consists of the high-definition video monitor positioned on top of a tower that houses the computer, the 3D high resolution camera, and all the da Vinci Robot technology.

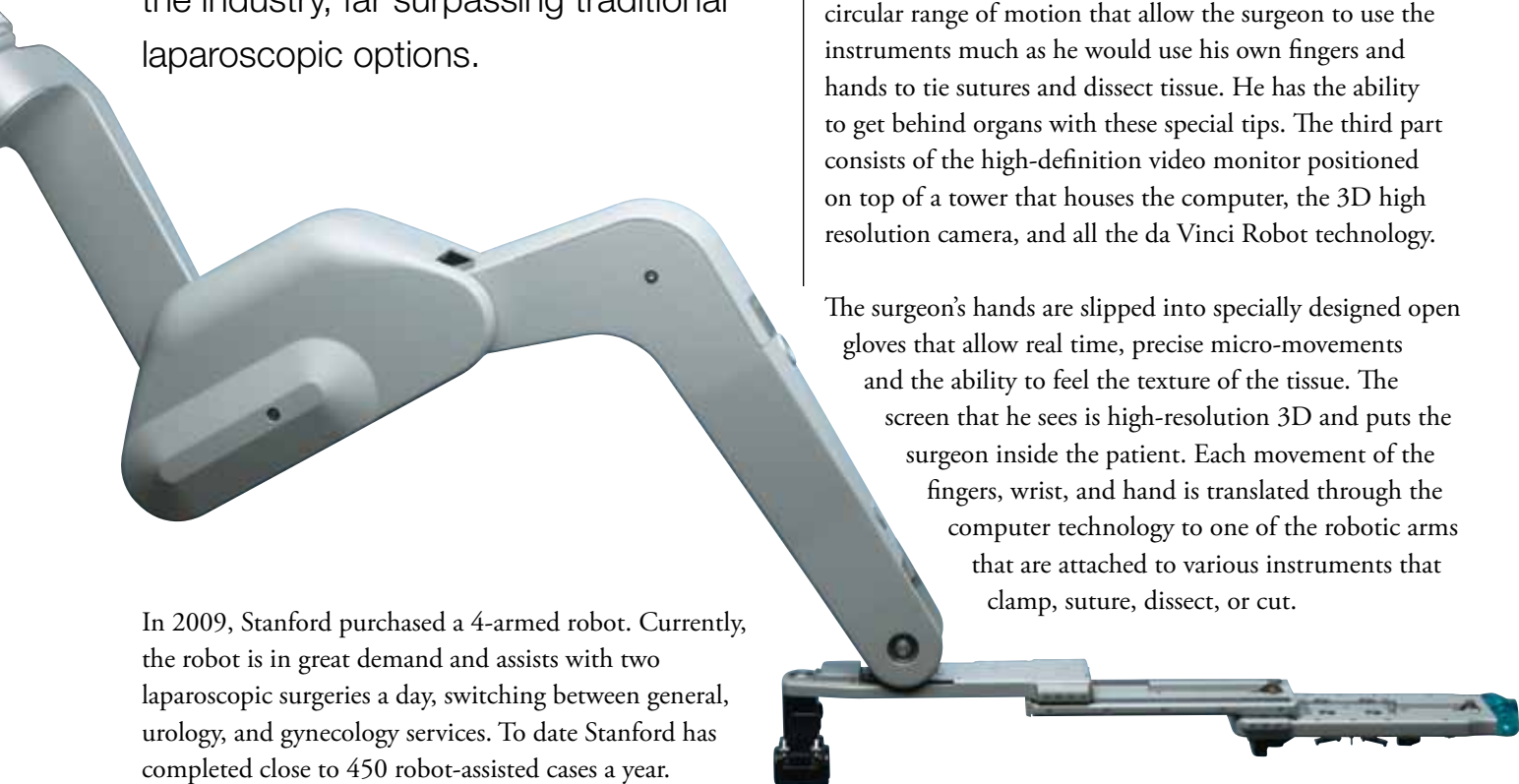
The surgeon’s hands are slipped into specially designed open gloves that allow real time, precise micro-movements and the ability to feel the texture of the tissue. The screen that he sees is high-resolution 3D and puts the surgeon inside the patient. Each movement of the fingers, wrist, and hand is translated through the computer technology to one of the robotic arms that are attached to various instruments that clamp, suture, dissect, or cut.

In 2009, Stanford purchased a 4-armed robot. Currently, the robot is in great demand and assists with two laparoscopic surgeries a day, switching between general, urology, and gynecology services. To date Stanford has completed close to 450 robot-assisted cases a year.

THE FUTURE IS HERE

The word “robot” conjures up ideas of “Star Trek” and science fiction’s computerized characters whose programming can sometimes go awry. The da Vinci Robot is anything but that. It is a high-tech surgical instrument completely controlled by the surgeon and the nursing team,

NINE INCH INCISIONS ARE A THING OF THE PAST WITH THE INVENTION AND INTEGRATION OF ROBOTIC TECHNOLOGY.





ANGEL DERECHO, RN, JOEL BALUYOT, RN, JAKE LERIOS, ST, AND VERONICA HUGHES, CST, PREPARE THE ROBOT, CONSOLE, AND EQUIPMENT FOR A CASE.

ROBOTIC CHAMPIONS ON BOARD

Assisting the surgeon is a highly trained team of “robotic champions,” nurses trained in the technical skills of robotics. Mila Sesmundo, RN, Precy Pesigan, RN, and Anne Ganzon, RN, have attended hands-on sessions at the Intuitive Surgical laboratory, and are knowledgeable about the intricacies and delicate nature of each instrument. The technical nature of integrating medicine, operating technique, asepsis, and patient safety is coordinated by nurses.

Positioning of the patient in a robotics case presents unique challenges. The docking of the 4-arm base requires the circulating nurse to carefully steer a very heavy yet delicate machine within centimeters of the patient. The surgeon relies on the surgical team to correctly install the right instruments, prepare the ports, and supervise the robotic arms. The nurse’s role is key to coordinating every activity and to monitoring the computerized messages on the screen to ensure patient safety.

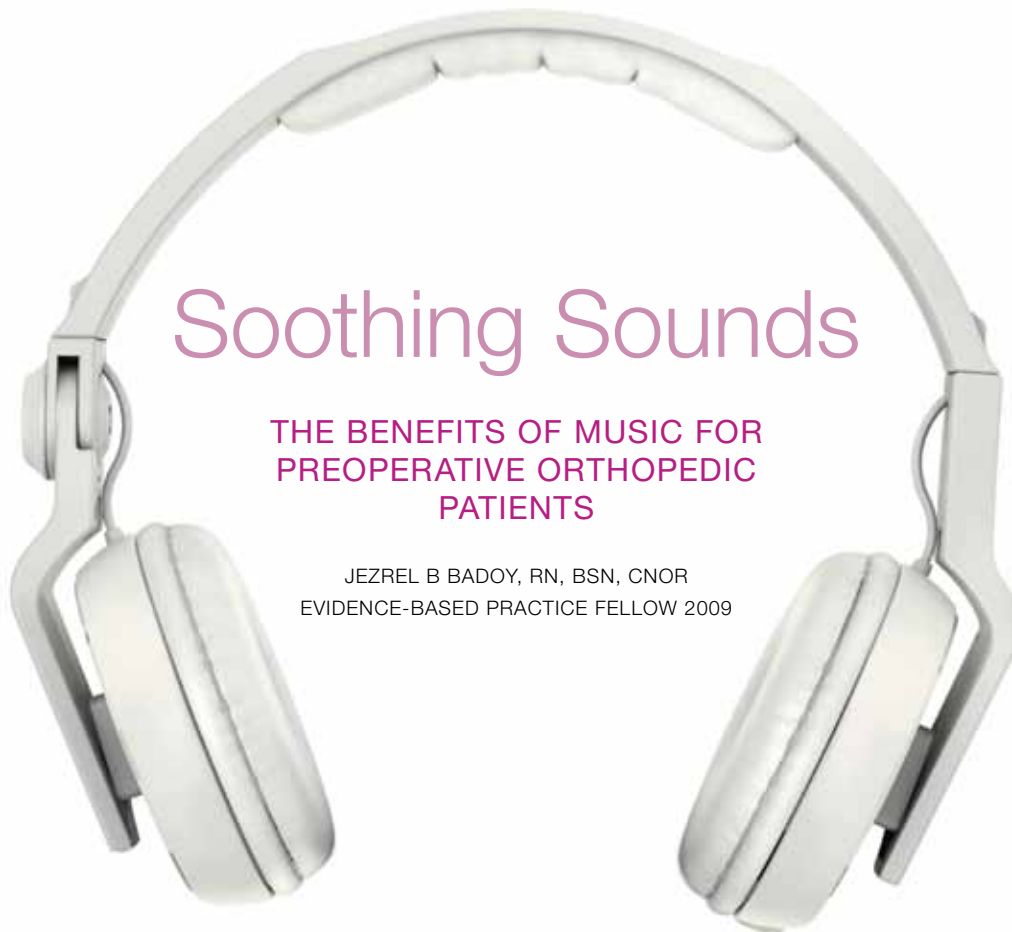
SAY GOOD-BYE TO 9-INCH INCISIONS!

At Stanford, the surgeons and the da Vinci Robot perform procedures related to kidney disorders, prostate cancer, endometriosis, uterine fibroids, uterine prolapse, and other cancers. The robot offers many advantages, including benefitting patients by minimizing tissue damage. Say good-bye to 9-inch incisions! There is also a decrease of intraoperative blood loss and postoperative pain, resulting in a shorter hospital stay and a faster return to normal

activities. There is a decreased risk of infection and the patient can return home in a matter of days instead of weeks. Overall recovery is accomplished in weeks instead of months.

With our most recent purchase of a single-port unit, Dr. Homero Rivas and Dr. James Lau are performing single-incision, one-port procedures such as cholecystectomies, appendectomies, and hernia repairs. The single port surgeries almost guarantee recovery with no visible scars because the incision is made through the umbilicus. Stanford is one of just two centers worldwide to use the robotic platform for these purposes.

With an increase in minimally-invasive techniques and the development of advanced equipment and instruments, the da Vinci Robot has allowed our patients to experience surgery that is less traumatic than historical “open” surgery. Stanford robotic nurses are leading our robotics program by having superior techno-surgical skills and ensuring patient satisfaction case by case. They exemplify the teamwork ethic, working together with cooperation, active participation, and individual initiative. **SN**



Soothing Sounds

THE BENEFITS OF MUSIC FOR PREOPERATIVE ORTHOPEDIC PATIENTS

JEZREL B BADOY, RN, BSN, CNOR
EVIDENCE-BASED PRACTICE FELLOW 2009

For most of us, music is a vital part of our existence. This performance improvement project, utilizing a comparison group evaluation, has the purpose of determining the effectiveness of music in decreasing anxiety among preoperative orthopedic patients.

Patients waiting for surgery experience different levels of anxiety. This fear of the unknown and loss of control can lead to negative physiological outcomes, such as poor wound healing and increased chance of infection.

The goal of this project was to discover whether the added use of music is more effective than routine nursing care in decreasing preoperative anxiety in orthopedic patients.

Two groups of orthopedic patients were compared: one with routine nursing care and the other with the opportunity to choose prepared music intended for relaxation, received through headphones. A questionnaire

incorporating an “anxiety scale” was administered to both groups. Both groups rated their anxiety levels before listening to music and then at least 20 minutes after. Other factors that can affect responses were also covered, including patients’ perception of the quality of care they received while being in the preoperative area.



Based on responses from the 16 respondents of this small test of change, the music group’s anxiety level decreased much more than the non-music group’s, whose average anxiety level actually increased after almost 30 minutes. In fact, one respondent who was initially almost in tears because he missed his wife – who recently passed away, and would have been with him in the waiting area – appeared more relaxed and calm after listening to the music offered to him.

There was not much difference between the two groups in terms of perception of care received in the preoperative waiting area, although the music group had slightly higher scores.

Relatively inexpensive and easily accessible, the positive effects of music can be utilized as evidence-based practice to promote relaxation before surgery, which is a testament to Stanford’s goal to provide excellent patient care. **SN**

A Culture of Communication

BRINGING ADVERSE EVENTS TO THE TABLE

ISOBEL FOX, RN, BSN, CCRN, BETH SACHRO-BONET, RN, BSN, CCRN,
KIM BOLLINGER, RN, MSN, CCRN, NANCY CLARK, RN CCRN, AND JULIE SHINN, RN, MA CCRN

When the nurses in North Intensive Care Unit (NICU) wanted to promote a culture of open communication where nurses felt safe discussing adverse events, they launched a quality improvement project to make it happen.

Critical instability, unexpected events, iatrogenic complications, ethical dilemmas, and communication conflicts can be the source of considerable staff nurse distress, especially when associated with a poor patient outcome. So the nurses in NICU initiated a literature search to look for examples of nursing morbidity and mortality conferences or debriefing designs. Publications revealed that these types of sessions could have a positive impact on patient outcomes, prevention of adverse events, enhanced patient safety and opportunities for staff education.

The nurses then instituted staff-led debriefing forums where nurses could identify and analyze potential nursing practice factors that would lead to improved patient safety and quality of patient care. Criteria for selection of cases included high risk and low volume scenarios, “near misses,” and reportable events or situations with opportunities for staff education. After reviewing the cases, forums were held where patient cases were presented and analyzed. Open discussion was encouraged and supported at each session, including a review of relevant literature, evaluation of current procedures, and identification of opportunities for improvement. From these sessions, practice changes were identified and presented to unit leadership for adoption.

CASE STUDY

A 70-year-old man was transferred from an outside hospital to NICU for management of pneumonia and sepsis. The patient arrived intubated, with a foley catheter and central

line access. The first day, the RN informed the ICU team several times about the patient’s low urine output. The physician’s response was that it was due to renal failure. The patient’s BUN and creatinine were within normal limits. The second day after admission, the patient became oliguric. A bladder scan revealed the patient had 1000ml of urine in his bladder. Attempts by the nurse to irrigate and to remove the foley were unsuccessful. A Urology resident also attempted to deflate the foley catheter balloon by using a specialized wire, which was also unsuccessful. The patient was taken to the operating room to have the catheter surgically removed. It was found that the foley catheter valve had crystallized and had adhered to the bladder wall.

Several articles on foley catheter deflation problems were reviewed and Stanford Hospital’s policy and procedure for foley catheter insertion and removal was presented to the group. A significant finding was the possibility of crystallization of the inflation valve when fluid other than sterile water is used to inflate the foley balloon. To help educate the NICU staff, a summary of the articles reviewed plus a synopsis of our discussion was sent to all nursing staff by email. In addition, the nursing staff was educated on the availability and use of bladder scans. The staff’s response to reviewing, discussing and evaluating these cases and educating the NICU nurses was very positive.

Finally, a questionnaire was distributed to 60 staff nurses to determine how effective the debriefing forums were in influencing clinical practice. There was a 100% response rate. Findings indicated that 66% of the staff was familiar with the debriefing forums and 50% had discussed the sessions with another colleague. The survey indicated a 48% increase in bladder scanning, a direct practice change outcome from the session. Intangible outcomes reflected a positive enthusiasm for the opportunity to participate in collegial discussion with recognizable clinical review as a valuable educational tool. **SN**



Crisis Nursing

A PERSONAL PERSPECTIVE
VERONICA SHERWOOD, RN

In the early 1990s, when I started as an ICU nurse at Stanford Hospital & Clinics, the crisis nurse was seen as an extra set of hands, responsible for admitting patients, bed moves, helping with breaks, and starting IVs. At night we would fetch food, transfer patients, and even open the PACU in the middle of the night to recover patients. Slowly, the role has evolved to one of autonomy and authority. The crisis nurse now is looked upon as a leader, an expert, and a resource.

A TYPICAL DAY

After receiving report, we usually talk about what happened on the prior shift, how many codes, rapid responses, and traumas there were, and if there are any patients with special concerns. After report, the crisis nurses will usually round on their assigned units. The critical care crisis nurse is responsible for eleven units and the medical/surgical crisis nurse is responsible for the rest of the hospital, approximately 13 units. During rounds, the crisis RN will connect with the charge nurses of different floors and discuss the day. In some units, this can mean that many patients may have to travel for different studies, and the crisis RN will be needed to help on the floor. In other units, this can mean that they are understaffed that day or have very high acuity patients. The critical care crisis nurse is expected to arrive and help when paged to traumas, code

blues, and rapid response activations. During traumas, we draw blood, start IVs, and travel with the patient to the CT scanner. At codes or RRTs (Rapid Response Teams), we are in more of a position of leadership. The crisis nurse works in conjunction with the ICU team and unit nurses to provide rapid and appropriate care for the patient in crisis. If the hospital is full and there are no beds in the ICU, the crisis nurse will stay with the patient, effectively bringing the ICU level of care to the general floor.

Another duty of the critical care crisis nurse is to receive and care for patients coming from other hospitals for advanced stroke interventions. These patients will usually present to an outside hospital with an embolic stroke. They may or may not receive tissue plasminogen activator (tPA), also known as a “clot-buster.” If the stroke has not resolved,

they may be transferred directly to Stanford's Neuro-IR team for intervention. The crisis nurse meets the patients as they arrive at Stanford and accompanies them throughout the intervention until they are safely in the hands of the ICU.

While the critical care crisis nurse is taking care of his or her units, the medical/surgical crisis nurse is busy at the bedsides of multiple patients. Frequently, their day will consist of multiple IV placements, accessing ports, and discontinuing PICC lines. But sometimes they will spend their entire shift giving chemotherapy to patients who are not on a chemotherapy floor. Coordination of this process can be challenging. The nurse is often running between pharmacy, the physician, and the unit in order to make sure all is safe for the patient. Both critical care and medical/surgical crisis nurses frequently function in a teaching role. Bedside nurses will call upon the crisis nurse as a reference when an unfamiliar type of patient arrives on their unit, for example, when a postoperative orthopedic patient is on a non-orthopedic floor with a reinfusion constavac. The crisis nurse may be called to reinforce previous knowledge of skills, such as chest tubes or the rapid infuser.

THE OPPORTUNITY TO TEACH AND LEARN

In asking my co-workers what is best about this job, I received many answers. Almost all crisis nurses said that they value their autonomy and the fact that we are seen as a resource and an authority. I have been involved in multiple situations with newer nurses who needed someone with a little experience to affirm their gut instinct. I have been stopped in the hallway and asked to look at a patient because the nurse feels that something is not right, and she wants a second set of eyes. More often than not, I am able to assist that nurse through the process of moving up through the chain of command until her patient's needs have been met. This empowerment of nurses is by far the most rewarding part of my job.

I have the opportunity to interact with nurses from all over the hospital with different types of specialties. Every day I learn something new from someone, and every day I have the opportunity to impart some knowledge as well.

So please, even if you don't hear codes and RRTs being called overhead, know that the crisis staff is busy supporting Stanford nurses doing what they do best, advocating for patients, families, and their co-workers! **SN**

Garrett Chan Elected as a Fellow in the American Academy of Nursing



Garrett Chan, PhD, APRN, FPCN, FAEN was inducted as a fellow in the American Academy of Nursing (FAAN) on November 13, 2010 in Washington, DC. He was one of 116 nurse leaders selected from across the country. The Academy is made up of more than 1,600 nursing leaders among the 2.6 million nurses in the United States.

Dr. Chan was nominated by Julie Shinn, RN, MA, FAAN from North ICU at Stanford, and Dr. Gail Pisarcik Lenehan, EdD, RN, FAEN, FAAN, President-Elect of the Emergency Nurses Association (ENA) and clinical nurse specialist at Massachusetts General Hospital.

Dr. Chan's contributions to nursing are focused on three areas: 1) advancing palliative care in emergency care; 2) developing the clinical nurse specialist (CNS) role in emergency care; and 3) promoting research and evidence-based practice in emergency nursing. He currently is an elected Fellow in the Academy of Emergency Nursing (FAEN) and acts as a palliative care nurse (FPCN).

Dr. Chan is a nationally and internationally recognized leader in emergency palliative care. He has authored content and taught in national train-the-trainer curricula addressing palliative and end-of-life care in emergency and critical care. Dr. Chan is also recognized as an expert in CNS practice in emergency care and leads efforts to articulate and defend the role of CNS as an advanced practice nursing (APN) role. He is a member of the National Association of Clinical Nurse Specialists Practice Committee.

Dr. Chan advances research and evidence-based practice in emergency nursing by serving as past-chair of ENA's Institute of Emergency Nursing Research, conducting research on behalf of ENA, and reviewing abstracts and funding proposals. Dr. Chan was the principle investigator and lead author of the research project, Research Needs Assessment of Emergency Nurses, which identified the research needs and barriers experienced by emergency nurses in conducting and implementing research and evidence-based practice. Dr. Chan created Research and Evidence-Based Practice Poster Awards to recognize the outstanding projects that advance emergency nursing.

Bringing Care to the Philippines

REMY WONG, RN, BSN PCCN

When I decided to pursue a career in nursing, I knew that one day I would want to use my skills and knowledge to educate and help those who are less fortunate. Last February, I had the amazing opportunity to join a seven-day surgical mission sponsored by Bay Area Surgical and Medical Association (BASMA) to Daet in the Philippines.

Our team was comprised of surgical nurses and physicians from the ENT, OB-GYN, general surgery, and anesthesia departments. Our primary objective was to perform thyroidectomies, hysterectomies, cholecystectomies, and hernia repairs.

Since this was my first medical mission, I was unsure what to expect and also unclear what was expected of me. I was anxious, excited, and scared about how different practicing nursing would be outside of Stanford Hospital & Clinics.

However, the more experienced volunteers were wonderful in improving my confidence. They recommended that I keep an open-mind and try to be flexible and adaptable – advice that was valuable but easier said than done.

We started our first day at the Camarines Norte Provincial Hospital by examining patients and determining whether they were good surgical candidates. Most of the patients had traveled from distant provinces and had been waiting all day to see us. We were able to examine all the patients that had come, but were unable to schedule all of them for surgery. The hardest part was explaining to patients that we did not have the proper equipment to perform the surgery they needed or that because of the limited space, we had to prioritize the patients who needed surgery the most. Yet all the patients were grateful to be seen and heard.

We started our day at 7 a.m. by pre-oping the patients as they arrived. As a recovery room nurse, I would gather a quick history and physical, start IVs and fluids, and give whatever medications were necessary. When patients were finished with surgery we would receive them in the recovery room and monitor them until they were stable enough to be transferred to the floor.

REMY WONG, RN, (PICTURED PAGE 21, ON LEFT) VOLUNTEERED IN THIS RECOVERY ROOM AT CAMARINES NORTE PROVINCIAL HOSPITAL IN DAET, PHILIPPINES AS PART OF A SURGICAL MISSION ORGANIZED BY BAY AREA SURGICAL AND MEDICAL ASSOCIATION.





The hospital, though modern for that province, had no running water or alcohol gel. Each of us carried our own hand sanitizer in our pockets. The recovery room where I worked consisted of three gurneys, one table, and a few oxygen tanks. I had no cardiac monitors, IV pumps, or emergency equipment that I was used to. I performed all vital signs manually, calculated and titrated all drips and medications by hand, and sat at the patients' bedside to monitor their breathing. There were no doctors at the bedside, so most of the time it became my responsibility to give pain medications and decide when I thought the patient was stable enough to be transferred. This may seem like an easy task, but to feel solely responsible for your patients at times was very scary. Even with all these differences, the most difficult part was not being able to communicate with the patients. The majority of them spoke Tagalog, and translators were scarce. Simple questions such as "are you in pain?" and "how do you feel?" were difficult to communicate. I found myself wishing I had brought my "Faces Pain Chart" with me. I had to rely heavily on hand gestures and my clinical judgment to determine the needs of my patients.

During the surgical mission, I worked long hours, from 7 a.m. to 8 p.m. every day. But honestly, none of it seemed like work. I had a team of great volunteers and in a short week we had developed a sense of camaraderie because we had accomplished so much together. The Filipino people were some of the most gracious and generous I have ever met in my life. They were a pleasure to care for, and it was the everyday interactions with these people that were so humbling. They reminded me of why I entered the profession of nursing in the first place. **SN**

MICROSURGERY

Continued from Page 11

POSTOPERATIVE CARE

After the procedure, the nurse who took responsibility for charting ensures that all of the documentation is complete. While one nurse checks the documentation, the other circulator puts all unused supplies and instruments away and proceeds to prepare the suite for the next patient.

Postoperatively, these patients will typically be in the ICU for two to three days, followed by another ten days on a non-ICU unit. Recovery can be difficult and patients are kept on bed rest with little movement for the first two days. They cannot eat or drink anything for a minimum of two to three weeks after surgery, and are often on a ventilator from which they must be weaned. There are numerous tubes and drains that must be managed, as well as the patient's pain. Approximately one week after surgery, issues start to resolve and patients begin to feel better; patients are able to start getting out of bed and become more independent.

The major risks for this type of procedure are bleeding, infection, pain, blood flow problems, loss of flap, saliva leakage, and wound healing problems. As with any surgery, a patient who undergoes anesthesia and surgery faces the risks of stroke, heart attack, blood clots, and death. Prognoses for these patients are generally good, however, the prognosis in regard to the cancer is variable, and dependent on whether it is a primary versus a recurrent tumor, if the patient had prior treatments, and if all cancer was fully removed. Follow-up for this type of microsurgical procedure is usually one to two weeks after surgery, four weeks after surgery, and then six to eight weeks after surgery. When the jaw is recreated in these surgical procedures, the microvascular surgeons are able to recreate the contour of the patient's jaw. The surgery takes an emotional and physical toll on the patient. With a good prognosis, the patient can make a full recovery and return to normal activities of daily life. **SN**

The microvascular nursing team includes: Nanette Araujo, ST, Linda Campbell, RN, Laura Clausen, ST, Adeline Emmerling, ST, Lorellie Evangelista, RN, Margaret Gabat, RN, Heather Gilles, RN, Bodil Grodum, RN, Amy Hamachi, RN, Joan Kline, RN, Dionie Lagmay-Lowe, RN, Gary Phillips, RN, Jenielyn Rivas, ST, Dorothy Tsang, RN, and Joni Wiggins, ST.

The BMT/ICU Utilization Project

END-OF-LIFE DECISIONS AND GOALS OF CARE IN THE BONE MARROW TRANSPLANT UNIT

TRISHA JENKINS, RN, BSN, MPA, BMT PATIENT CARE MANAGER

Clear communication and clearly established goals of care are essential for the care of all patients. It is especially vital for critically ill patients with advanced illnesses such as bone marrow transplant patients. Since BMT patients are usually long term patients, the healthcare team establish close relationships with their patients and families, making the communication regarding end-of-life decisions an emotionally difficult one.

Examples of the difficult decisions to be discussed with patients and families are: “As the patient becomes more critically ill, should they be transferred to ICU? Or, should the patient remain in the BMT unit and cardiopulmonary resuscitation (CPR) withheld if the prognosis is not favorable for survival? What information does the family need to make the best decisions for their loved one?”

The BMT healthcare team knew patients and families needed clear and consistent communication to make informed decisions about goals of care, which included end of life decisions and whether a patient should or should not be transferred to the ICU. The team planned to first gather more information and data before proceeding and developed The BMT ICU Utilization Project. This project, now into its fifth year, uses evidence-based practice guidelines and the probability of survival for appropriate admission of BMT patients to the ICU.

HISTORY OF PROJECT

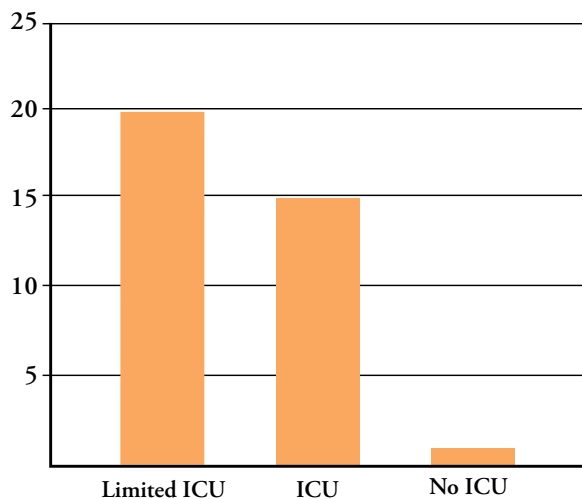
In 1998, a Stanford study showed the most common recommendation from families of patients who died at Stanford was to increase communication. The families wanted more information about the patients’ condition and prognosis. At that time, almost half of the families felt they received contradictory messages and about a quarter felt they received conflicting recommendations. These contradictions made it difficult for the families to make informed decisions about their loved-ones’ care. Although this was over 10 years ago, issues of inadequate communication, insufficient information, and contradictory messages from the medical teams continue to cause problems for patients, families, and the healthcare team.

At busy academic medical centers such as Stanford, communication between the medical and consult teams can be fragmented, resulting in conflicting information and recommendations to patients and their families. When patients and families don’t have a clear understanding of prognostic information, they are unable to make educated decisions for themselves and appropriate goals of care for their family members.

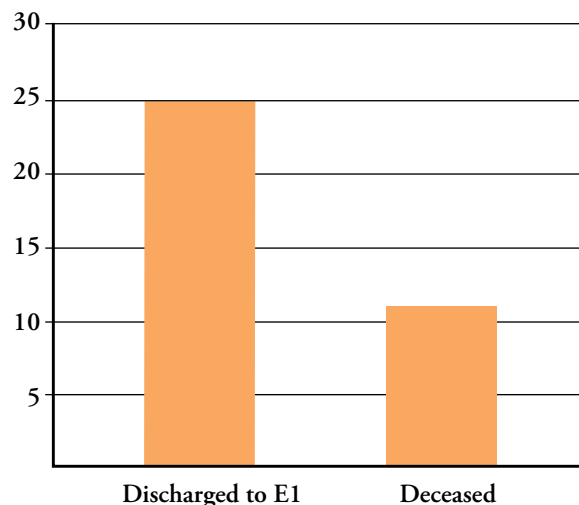
PROJECT

Five years ago we put together a team that developed guidelines for appropriate admission of BMT patients to the ICU based on current literature, five years of our outcome data, and prognosis. A process was outlined to improve communication between the teams and the families, which includes daily joint rounds between the BMT and ICU teams during which we can discuss each patient’s status and agree on the plan of care. Both teams then meet with family members every two to three days in the ICU to update them on their patient’s condition. The medical teams collaborate with patients and their families to determine appropriate goals of care. When needed, a palliative care consult is requested.

**BMT CASES TRANSFERRED TO ICU
FY2010**



**BMT ICU OUTCOMES
FY2010**



OUTCOMES

In 2009, there were 36 patients admitted from the BMT to the ICU. Fifteen patients met criteria for ICU recommendation and 20 patients met criteria for limited ICU trial with frequent re-evaluation. Only 1 out of the 36 patients did not meet the criteria for ICU; however, the patient was transferred based on a request from family members. In this case, following many meetings with the family during the patient's 10-day stay in the ICU, the family agreed to withdraw support. Of the 36 patients who were admitted to the ICU, 25 (70%) were discharged from the ICU.

Our ICU length of stay has been decreased in half (since 2006) and is averaging 6 days, down from a high of 12 days. Total BMT ICU days have also decreased to 209 in FY10 from 443 days FY09. Our ICU days as a percentage of total BMT inpatient days decreased to 3.4% from a high of 7% of total BMT inpatient. We are in the process of analyzing our data and will be presenting 6 month and 1 year survival following patient discharge from the ICU.

A CASE STUDY

Patients and their families are not always informed enough to make decisions for appropriate goals of care. The following scenario describes an example of communication issues addressed in the project finding. The consulting team had a meeting with the husband of a critically ill ICU patient who was in multi-organ failure and on life support.

The ICU team knew, based on our criteria and probability of survival, that the patient would not survive.

The consult team, which had a relationship with the family, asked the husband if the staff should perform CPR if his wife's heart stopped. The husband, not clearly aware of the prognosis, requested that CPR be performed. The physician tried to explain why CPR may not be the best decision, but the communication came across as vague. The husband asked the physician about his wife's prognosis, but the question was not directly answered. Therefore, the husband chose to discuss this decision with his family, but without the information he really needed to make an informed decision. The next day, the husband told the ICU team he wanted everything done to sustain his wife's life, including CPR. By not providing clear communication, the team was unsuccessful in directing the family towards a more appropriate decision for this patient.

After meeting again with the husband and his family, both the ICU and consulting teams explained that CPR would not be appropriate in her case. They clarified the patient's prognosis and reasoned that CPR would not benefit or change the outcome. When the patient's son asked if the patient would survive, both the medical teams affirmed, "Unfortunately not." With this prognostic confirmation, the family made the decision to keep the patient comfortable, without CPR, and to eventually withdraw life support. This was a difficult decision for the family;

however, with clear communication regarding the patient's medical state and prognosis, the family was comfortable with the decision.

Patients and their families look to the medical team to make recommendations and they often rely on the healthcare team to guide their decision-making process. They frequently ask, "If this was your mother, husband, or child, what would you do?" It is helpful for both physicians and families to address questions in this way, as it makes the situation real and personal.

ICU director, Dr. Norm Risk, who is experienced in facilitating these difficult conversations, reflected, "I believe the key issue in communication is to project caring about the patient. Sometimes it is best to personalize it and to offer up front that you would not do CPR on your own wife or son if they were in this situation, and that coming to a painful decision about not wanting to do CPR is primarily an expression of caring about their family member. Families that believe we care deeply recognize the wisdom of this; families that think we are sparing resources, or don't value their loved ones, withhold their consent. It's all about putting yourself in spirit and in fact in the boat with the family, wanting to rescue their loved ones but mournfully admitting our limitations. Credibility is everything and starts with genuinely being pained by loss of patients."

Communication between the medical team, the patient, and the patient's family members continues to be a challenge. Nurses can be integral in identifying and facilitating this important communication. The role of the nurse is often to stay with the family and patient after the doctors have had this difficult conversation with them and listen to their concerns and fears about making end-of-life decisions for their loved ones. If the patient is in the ICU, the patient's primary nurse and/or resource nurse will check in with family and encourage them to take breaks on the BMT unit where they can reach out to staff nurses for support. The BMT medical team will also hold family meetings with the ICU doctors, our social worker, and a member of the BMT nursing management team.

As seen by the outcomes, this project has been successful. We are hopeful this project can be a model for other services that are struggling with helping families decide the appropriate goals of care. In addition, this model can assist physicians with decisions to transfer patients to the ICU. Clear communication is critical for patients and their family members to make informed decisions, managing valuable resources in health care, and for the appropriate utilization of the ICU.

With the help of the BMT/ICU Utilization Project, we are improving the clarity of information we provide to patients and their families that empowers the family members to make educated decisions regarding patient care options. SN

"Bone marrow transplantation is a complex procedure requiring effective communication with patients, their caregivers, nurses, nurse coordinators, doctors, social workers, and pharmacists. We are fortunate because the nursing management at our program developed a patient-focused process designed to improve effective cross-communication."

– Robert Lowsky, MD, BMT Attending

In Recognition

CERTIFICATIONS/ RECERTIFICATIONS

AOCN – Advanced Oncology Certified Nurse

Nancy Quinn – May 2010

CCNS – Critical Care Clinical Nurse Specialist

Mary Lough – March 2010

CCRN – Critical Care Registered Nurse

Ricel Amarille – January 2010

Darren Bates – April 2010

Lumen Beringuel-Canos – June
2010

Noreen Del Napoles – May 2010

Eric Dwight-Gilroy – January 2010

Rachel Griffin – June 2010

Sally Eastman – January 2010

Jennifer Leonard – January 2010

Alice Lirette – June 2010

CEN – Certified Emergency Nurse

Tiziana Rubatto – February 2010

CMSRN – Certified Medical- Surgical Nurse

Genelyn Aban – May 2010

CNL – Clinical Nurse Leader

Angela Vega – May 2010

CNN - Certified Nephrology Nurse

Fasika Damtew – May 2010

CNOR – Certified Nurse Operating Room

Chadwick Hannah – January 2010

Gina Igel – March 2010

Stacey Rupprecht – January 2010

CPEN – Certified Pediatric Emergency Nurse

Gary Yip – April 2010

CRN – Certified Radiology Nurse

David Allan – June 2010

OCN – Oncology Certified Nurse

Brittany Epperson – August 2010

Josephine Galindez – February 2010

Farzaneh Kashfipour – May 2010

Sandra Olin – August 2010

PCCN - Progressive Care Certified Nurse

Scarlette Aliga – April 2010

Veronika Crandall – May 2010

Jean Dasilao-Argonza – February
2010

Angelica Calderon – February 2010

Sily Joseph – February 2010

Fang Liu – July 2010

Carlos Ocampo – July 2010

Sandra Ruiz – May 2010

Chelsea Simkins – May 2010

Christina Wing – July 2010

PMHCNS-BC – Clinical Nurse Specialist in Adult Psychiatric & Mental Health

Anne Klevay – January 2010

DEGREES

MASTER/GRADUATE DEGREE

Corey Fry MS, NP, RN, CCRN,
Master of Science in Nursing, Acute
Care Nurse, University of California,
San Francisco, June 2010.

Christopher Hernando, RN, MS,
Master of Science in Nursing,
University of California, San
Francisco, June 2010.

Karen Juan, RN, MSN, NP, Master
of Science in Nursing, University
of California, San Francisco, June
2010.

BACHELOR/UNIVERSITY DEGREE

Stella Marinos, RN, BSN, CNOR,
Bachelor of Science in Nursing,
Governors University, May 2010.

DOCTORATE/UNIVERSITY DEGREE

Amina Huda, PhD, RN, APRN-BC,
Doctor of Philosophy in Nursing,
University of California, San
Francisco, June 2010.

APPOINTMENTS/AWARDS

Christine Hartley, Assistant Clinical
Professor in the Department of
Physiological Nursing, University of
California, San Francisco, April 2010.

Judith Wilson, Dean's Scholar, San
Jose State University, May, 2010.

ARTICLES AND PUBLICATIONS

J.J. Baumann: "Neurologic
Alterations," Critical Care Nursing:
Diagnosis and Management, 6th
Edition, Mosby Elsevier, January
2010.

Christine Hartley: "Transplantation,"
Critical Care Nursing: Diagnosis and
Management, 6th Edition, Mosby
Elsevier, January 2010.

Annette Haynes: "Cardiovascular
Disorders," Critical Care Nursing:
Diagnosis and Management, 6th
Edition, Mosby Elsevier, January
2010.

Mary Lough: "Genetics, Sedation,
Delirium, Cardiovascular, Renal,
Endocrine," and Co-editor, Critical
Care Nursing: Diagnosis and
Management, 6th Edition, Mosby
Elsevier, January 2010.

CONFERENCE PRESENTATIONS

Tammy Baltic: "Instituting Change: A
Survival Guide," Oncology Nursing
Society National Congress, San
Diego, CA, May 2010.

Carol Bell: "Evaluating an Electronic
Medical Records System in an
Outpatient Infusion Center for
Consistency with ASCO/ONS
Chemotherapy Administration Safety
Standards," Oncology Nursing
Society National Congress, San
Diego, CA, May 2010.

Kelly Gould Bugos: "Ten Things I
Learned about Hematology this
Year," Oncology Nursing Advanced
Practice: Innovation through
Practice, Scripps Cancer Center,
San Diego, CA, March 2010.

Kelly Gould Bugos: "Elderly: The
New Face of Transplantation,"
Oncology Nursing Society National
Congress, San Diego, CA, May
2010.

Jason Herring: "Implementation of an
Oncology Specific Electronic Health
Record," Oncology Nursing Society
National Congress, San Diego, CA,
May 2010.

Mary Lou Jackson: "Association
of Perioperative Registered Nurses
(AORN) Congress Update," AORN
of San Jose Spring Workshop,
Mountain View, CA, April 2010.

Patricia Jenkins: "Two Innovative
Critical Care Programs: An End
of Life Program and a Blood and
Marrow Transplant (BMT) Triage
Program," Beacon 2010 Annual
Exchange, Santa Clara, CA, April
2010.

Chrystl Low, RN, CNOR: "Deep
Brain Stimulation Surgery," AORN
of San Jose, Spring Workshop,
Mountain View, CA, April 2010.

Theresa Mallick-Searle: "Functional
Rehabilitation in Pain Management,"
3rd Annual Pain & Substance Abuse
Management Forum, Chicago, IL,
July 2010.

Sheryl Michelson: "Careers in
Perioperative Nursing," DeAnza
College Student Nursing
Organization Day, Cupertino, CA,
April 2010.



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