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# Nursing Practice of an Operating Room Transplant Nurse

By Janet E. Hofer, RN, BSN

The role of the Surgical Transplant Coordinator to facilitate communication between the Medical Center's Solid Organ Transplant Coordinators, Internist, Surgeons, Pharmacy, Anesthesiologist, surgical staff team, and the patients' family members (McNatt, 2008). A look behind the "glazed" glass Operating Room doors, at Hillcrest, you will find an energetic, intelligent, compassionate surgical transplant call nurse coordinator, Renee Pink RN, reviewing the surgical schedule for the day. She has received emails and phone calls from the Solid Organ Coordinators identifying the perspective organ donor and recipient patients, their ABO blood cross match, tissue histology, and

medical record identifications. Renee compiles the data and completes the Patient Identification / ABO Verification Cross Match forms Fig 1 and places the documents in the medical record chart of the recipient patient.

Two surgical teams, comprising of a surgical scrub person, circulating nurse, anesthesia resident, and attending, surgeon resident, and attending are assigned to two separate operating room suites in close proximity to each other. Renee Pink RN orchestrates the staff and their assignments with a "Surgeon's Briefing" for the day Fig. 2. Today's transplant will be a "living donor" kidney. Living donors may be members of the immediate family, friends, co-workers, even strangers as long as the cross-match ABO blood type are the same for both the donor and recipient, and tissue histology is negative for reactive antibodies.



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PLACE IN DONOR/RECIPIENT "CONSENT" SECTION OF CHART  
DONOR / RECIPIENT COMPATIBILITY VERIFICATION

DONOR: \_\_\_\_\_ ABO \_\_\_\_\_  
LIVING DONOR MVA: \_\_\_\_\_ ABO \_\_\_\_\_  
CADAVERIC UNOSA: \_\_\_\_\_  
RECIPIENT MVA: \_\_\_\_\_ ABO \_\_\_\_\_

SIGNATURES & DATE/TIME

DONOR TRANSPLANT SURGEON/PA: \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_  
RECIPIENT TRANSPLANT SURGEON/PA: \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_  
RECIPIENT'S CIRCULATING RN: \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_

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SURGEON BRIEFING FOR TRANSPLANT  
Date Of Surgery: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Hours of Time of Surgery: \_\_\_\_ Yes No  
Induction Therapy: Yes No  
Place Kidney on Left or Right Side: Yes No  
Positive Cross Match: Yes No  
Other: \_\_\_\_\_  
Transplant Coordinator: \_\_\_\_\_

DONOR	RECIPIENT
PLACE PATIENT LABEL HERE	PLACE PATIENT LABEL HERE
<ul style="list-style-type: none"> <li>• Allergies</li> <li>• Blood Product Availability</li> <li>• Surgeon</li> <li>• Scrub</li> <li>• Circulator</li> <li>• Anesthesia Attending</li> <li>• Anesthesia Resident</li> <li>• Pharmacy Staff</li> <li>• Additional Staff</li> </ul>	<ul style="list-style-type: none"> <li>• Allergies</li> <li>• Blood Product Availability</li> <li>• Surgeon</li> <li>• Scrub</li> <li>• Circulator</li> <li>• Anesthesia Attending</li> <li>• Anesthesia Resident</li> <li>• Pharmacy Staff</li> <li>• Additional Staff</li> </ul>

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Renee reviews the recipient's medical record to verify the patient's potassium and glucose are within a normal range. Up to date lab results are a crucial factor in determining the course of action to take for the recipient patient.

Both the donor and recipient patients are transported to the Pre-operative room after completion of their admission process. All required informed consents, history and physical, laboratory data, etc are completed and up to date. Renee and the transplant nursing team review the medical records to ensure the appropriate ABO Verification and tissue cross match forms are present and documented.

The patients and their family members are invited to visit with each other, in the Pre-operative Holding area, prior to the donor and recipient patients' entrance to the Operating Room. Often the donor and recipient are related or know each other well. The family members are given the opportunity to visit and provide support for each other while waiting for the patients to be transferred to the surgical suite, which has led to a favorable response from patients and family and has promoted a positive family centered care environment.

Our Pre-operative process for living donor kidney transplants has changed recently. How did this change come about? In the final quarter of 2009, the O.R. Transplant Nurses observed that the donor and recipient patients were being transferred to the Pre-operative area in a "staggered fashion." The donor would arrive first, be interviewed by the donor surgical team, and transported to the O.R. suite. The recipient patient and team would wait for the "donor" team to give the green light to send and start the recipient surgery. This process is known as "Donor Driven" transplantation. The recipient patient's OR suite was not utilized efficiently and lengthy delays in the surgical start times and cold ischemic times were reported.

The viability of a donor transplanted organ directly correlates with the length of cold ischemia time (Mikhakski,



2008 and Warle, 2010). Shortened ischemic times result in better recipient response with respect to both short term and long viability of the organ.

Renee and the transplant team were very concerned with the "cold ischemic times," for the living donor kidney and for the recipient, which they knew were exceeding an hour. Cold ischemia is described as the amount of time the kidney organ is not perfused with blood. It begins when the donor kidney is cross clamped stopping all blood flow into to and out of the organ. Once the organ is removed, from the donor, the surgical team quickly flushes the kidney, removing the donor's blood, with an iced solution, known as UW, designed for tissue preservation. The kidney is then placed on an ice bath of 0.9% Normal Saline, sterile drapes are applied with aseptic technique, in preparation for transport to the recipient patient's OR suite for transplantation. Cold Ischemia concludes when the recipient surgeon has anastomosed the kidney artery and vein to the recipient's iliac artery and vein respectively, with the restoration of blood flow perfusion to the organ.

Renee and the transplant surgical team as evaluated evidence based data on the living donor cross clamp time and recipient re-perfusion times.

The data, collected by the Quality Assurance team, from the transplant service, verified "cold ischemia" times that exceeded one hour between January to November 2009.

Today, both patients arrive in the pre-operative unit together. The surgical teams, pharmacist, anesthesiologists, and nursing staff conduct the Universal Protocol, identifying the correct patients, consent, surgical site, procedure, and organ verification together as a group Fig. 3. The donor kidney is cross clamped and removed for donation only after the recipient surgeon has dissected and isolated the iliac vessels assuring the patient is a good candidate for transplantation. This approach is referred to as "recipient driven". Data collected from November 2009 to present have demonstrated cold ischemic times under one hour thus supporting the "recipient driven" approach as an improvement with quality patient care.

Here is a brief explanation of the Living Donor Kidney Transplant Surgery (Meeker, Rothrock, 1999). The recipient patient is transferred to the OR suite, placed in a supine position on the gel padded surgical bed with both arms, palms up, supported on gel padded arm boards at 90 degree angles. Any arteriovenous fistula will



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*Perhaps the opportunity to witness the inspiring work of the transplant surgical nurse would offer a different perspective of the nursing practice conducted behind the “glazed glass” doors of the Operating Room.*

be palpated and documented as to the site location and presence of a bruit. Warming blankets are placed over the patient’s head and shoulders and lower extremities to assist in keeping the patient normothermic.

The OR nurse circulator will place a 16fr 5cc Foley catheter with a “y connector” for bladder instillation of Neomycin solution. Sequential stockings are placed on the lower extremities for circulatory support. A safety strap is placed over the patient’s hips from one side of the bed to the other. The transplant OR nurse will assess the patient for correct positioning to avoid potential skin issues and pressure on the arteriovenous fistula prior to prepping for surgery.

The patient’s “marked” surgical site, the right lower quadrant of the abdomen, is clipper cut for hair removal as needed. Prep solution of Chlorohexidine is applied to the surgical site starting from the incision site and working to the outer parameters of the abdomen using aseptic technique. The recipient patient’s surgical site will be draped with four towels and towel clips followed by the Transverse Laparotomy sheet using

sterile technique. When all members of the transplant surgical team are ready, a final “Time Out” will be called to verify the correct patient, surgical site, consent, and ABO verification of both the donor and recipient patients.

A curved right lower quadrant incision is made cutting through the skin, subcutaneous layer, and fascia. Bleeding is controlled with silk suture ties and electrocautery. The surgeon dissects the tissue to expose the hypogastric and iliac vessels Fig 4.

The donor kidney is now removed from the ice bath, wrapped in iced radiopaque gauze, exposing only the vessels, and brought to the surgical field once the recipient iliac artery and vein are isolated. Two angled vascular clamps are placed on the recipient’s internal iliac vein. The surgeon makes a “slit,” opening the vessel and irrigates with Heparin and 0.9% saline solution using an irrigating bulb tip on a 30ml syringe.

The surgeon will anastomoses the renal vein to the side of the recipient’s iliac vein using 6-0 doubled armed Prolene sutures. Once the vein anastomosis is completed the iliac artery will be clamped with two curved vascular Bull Dog clamps. The iliac artery is opened using a vascular “punch” the size of a 4mm hole. The renal artery is sutured to the recipient’s iliac artery using the 6-0 doubled arm Prolene sutures. The surgeon removes the vascular clamps and checks the suture lines for leakage and any repairs made as necessary. The transplanted kidney is now perfusing and the transplant nurse documents the unclamping and reperfusion times in the medical record. Warm saline irrigation solutions are utilized to warm the kidney and surrounding tissues. The anesthesiologist administers diuretics intravenously upon the request of the transplant surgeon.

The surgical procedure will continue with the anastomosis of the ureter to the bladder. The OR nurse is

instructed to start filling the patient's bladder with the Neomycin irrigation until instructed to stop and clamp off the Foley catheter. The bladder irrigation distends the bladder for better identification of the organ structure, as well as providing bladder washing.

Access to the bladder wall is made using a surgical knife and incising the bladder 4cm in length. The surgeon trims the ureter in a "spatula" shape opening. The bladder-ureter anastomosis is made using 5-0 pds absorbable sutures.

The surgeon removes the self retaining retractor, blades, sponges, and instruments upon completion of the ureter / bladder anastomosis. Copious amounts of warm 0.9% saline irrigation are used to bathe the surgical site and are then aspirated out for inspection. The final observation of the transplanted kidney and surrounding tissues is performed to assess for any signs of bleeding and/or trauma. Once the surgeon has completed the inspection the team calls out for closure. Both the scrub person and circulating R.N. will conduct a count of the instruments, sponge, needle, and sharps used during the course of the procedure. The counts start from the surgical field, to the Mayo Stand, then the O.R. nurse's "back table" Fig 5. The surgical team is informed of the counts. If the counts are correct, the closure of the surgical wound continues. If incorrect, the surgical team stops closure and conducts a sterile field and surgical suite inspection until the missing item is located. Each count conducted is followed by a Radio Frequency Identification Device (RFID) scan to detect any retained sponges as an adjunct to the surgical counts.

The circulating R.N. will call the Post Anesthesia Care Unit and provide a telephone briefing to the Post Anesthesia Care Unit or Surgical Intensive Care Unit Nurse as a verbal "hand off." Information given includes the patient's identification, surgical

procedure, status of the patient, and any significant data such as allergies, drains, lines, procedures, and blood products given. Anesthesia is reversed and the patient is awakened in the OR prior to transfer to their surgical recovery unit. The patient has now been given a new lease on life.

Meanwhile the families for the donor and recipient are kept up to date with the surgical process by Tina Kress RN, Living Donor Transplant Coordinator. She will be joined by the transplant surgeons at the end of the surgery to discuss the procedure and post operative recovery.

This brief description of a Living Donor Kidney Transplant only hints at the complexity of patient care delivered by the multi-tasking transplant nurse in the Operating Room. Perhaps this glimpse will stimulate an appreciation of the inspiring work of the transplant

surgical nurse and will provide a different perspective on nursing practice conducted behind the "glazed glass" doors of the Operating Room.

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