A simultaneous quintuple kidney transplant took place at Baltimore's Johns Hopkins Hospital on Nov 14, 2006. The historic event was made possible by a kidney swap involving 4 transplant candidates who each had a relative willing to donate a kidney and a fifth candidate who matched a donor who had offered a kidney to no particular individual for altruistic reasons.

Because of tissue or blood incompatibility, none of the relatives of the 4 patients could donate to the family member who needed a kidney, but each was a fit for one of the other patients.

The logistics for 5 ORs, instruments, and staffing for this marathon of operations required planning by the OR nursing coordinator, nurse manager, and transplant team staff nurses; ICU and inpatient unit nurse managers as well as the transplant coordinators, anesthesiologists, and transplant surgeons—all accomplished in 2 weeks. The group had only 2 meetings—at 1 week before and 2 days before the transplants.

It began with a telephone call

“It all started 2 weeks before the operations were performed, when we got a call from Hopkins’s transplant center director, Robert Montgomery, MD, asking us to start looking for a day when we could work out 5 empty ORs and staffing to accommodate 5 simultaneous transplants,” Brenda Nack, RN, MSN, CNOR, nursing coordinator for the general OR, told OR Manager.

Making 5 rooms available required other services to give up their block time, noted Patti Wieczorek, RN, MSN, CNOR, nurse manager of the cardiac, vascular, and transplant surgery services.

Beds were also needed in the ICU, postanesthesia care unit (PACU), and patient unit.

OR nurse planning

In planning for staffing, Wieczorek said, “We looked at the staff scheduled for that day who had the expertise for doing transplants. Then we looked at those who were off and asked them to come in and work overtime.” Only a couple of nurses had to come in, and they were willing to do so. Some of the evening staff were asked to come in early.

Two nurses were assigned to each OR, with relief staff and a charge nurse to check on the rooms to make sure they were running smoothly.

“We staffed a little higher than we normally would for transplants because of the circumstances and because we wanted to make sure everything was coordinated,” noted Wieczorek.

After the first meeting, the OR staff pulled the preference sheets for all of the surgeons, determined which instruments and equipment would be needed for each room, and made a list of anything that might have to be rented, such as slush machines for the donor kidneys.

The 5 transplant surgeons who perform kidney transplants participated, plus a urologic surgeon who operated on one of the donors, and fellows and residents.

“The staff really went above and beyond what they were asked to do,” said Wieczorek. “They had the case carts picked the week before the surgeries. The day
Five-way domino transplant

Parent: Child

Married

Married

Married

Red arrows show how unrelated donors were matched in 5-way kidney transplant at Johns Hopkins Hospital.
before, they went through the carts again to make sure everything was there.”

The night staff made sure all supplies and equipment were distributed to the right areas. The transplant staff came in a half hour early on the morning of the procedures to set up the rooms and check equipment and supplies.

**Pairs unaware**

None of the donors, who came from as far away as Florida and Maine, knew each other or met before the operations.

Preoperatively, the donors and recipients were separated as much as possible, which was difficult because they were all coming into the same area at the same time, noted Katie Stegner, RN, BSN, a member of the vascular transplant team. The staff was fairly successful in separating the patients, who were not aware of who else was involved. The OR ran a full schedule on the day of the transplants, so the areas were full of other patients also.

Donors and recipients met at the press conference a week after the transplants, only because they all wanted to and gave permission.

“The main reason we keep the patients and their families separated is because we don’t want anyone to feel pressure,” Nack noted. “It is the donors’ decision to go through with the surgery, and they can pull out at any time. That is also why we started all of the surgeries at the same time, because up until the incision is made, they can pull out.”

**The day of surgery**

All 5 donors had their kidneys removed laparoscopically, with their cases starting at 7:45 am. Four of the donated kidneys stayed in the room where they were removed, and the recipients’ surgeries were performed in those same ORs, with both operations performed by the same surgeon.

The fifth donor kidney was removed by the urologic surgeon and immediately taken to a sixth OR set up for the fifth recipient. That transplant surgeon was also performing a liver transplant that day and wanted to start the kidney transplant as soon as possible.

All donor operations ended between 11 am and 12 noon. As soon as the donors left the OR, the room was turned over by a turnover team, while the scrub and circulating nurses went to eat.

As soon as an OR was turned over, the recipient was brought in. All starts for the recipient cases were staggered as the donor cases finished, and all finished between 5:30 pm and 6 pm.

**Staffing in the rooms**

RNs circulated for all the cases and scrubbed for most, with 2 surgical technologists (STs) also scrubbing.

Stegner, who scrubbed and circulated in one of the rooms, said everything went smoothly.

“All of the nursing and anesthesia transplant staff and surgeons worked well together, as they do every transplant day,” Stegner noted. “It was pretty much a routine day except that we did 5 transplants at the same time.”

She said she and her colleagues would have no problem doing a quintuple transplant again.

“The main thing is to have a good support system, good team work, and good communication,” Stegner said.

All of the donor patients were healthy, did well in surgery, and were discharged within 2 days. The recipients, who differed in preoperative severity of illness, all did well intraoperatively. Some were discharged in a week, with others staying longer.

**A plea to clarify transplant law**

Dr Montgomery has advocated the pairings system that allowed the 5-way kidney swap since he led the first triple-swap transplant at Johns Hopkins in 2003.

He noted in the press conference that as of August 2006, less than 12,000 of the 72,500 patients waiting for transplants had received a kidney, with only about 4,400 involving live donors.
He made a plea to Congress to clarify the organ donor and transplant law so a national matching program to facilitate kidney-paired donation (KPD) could be organized by the United Network for Organ Sharing (UNOS).

Under current federal law, organs cannot be donated with the expectation that the donor will receive consideration or payment.

In KPD transplants, donors donate with the expectation that a specific person will then receive a compatible organ from a different donor. There is concern that this expectation could be considered a form of compensation for donation and run afoul of the law.

Clarifying the law would encourage broader use of KPD and save thousands more lives of critically ill children and adults, Dr Montgomery said.

—Judith M. Mathias, RN, MA