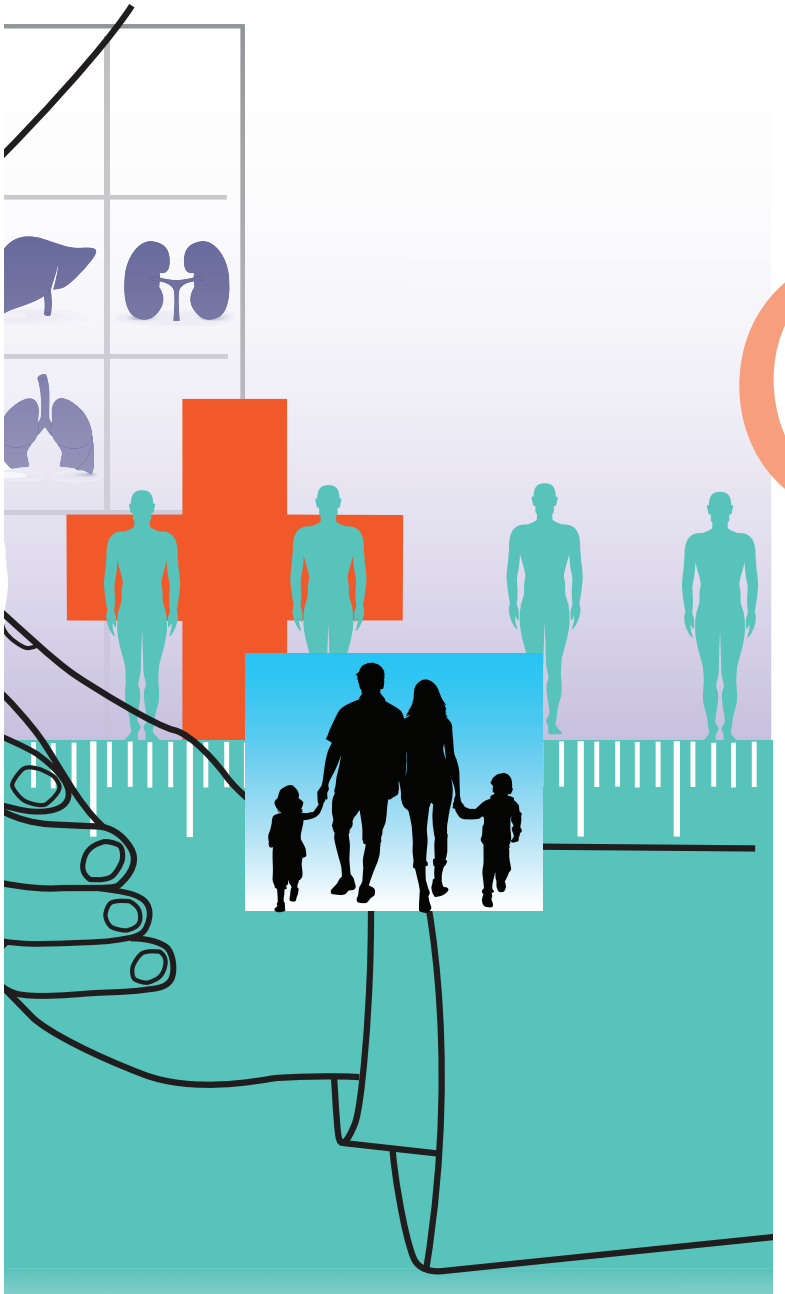
Donation after

Simulating and implementing family

circulatory death

presence in the OR



CE 2.0 ANCC CONTACT HOURS

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Circulatory death is defined as the "irreversible cessation of circulatory and respiratory functions."[1] In Donation after Circulatory Death (DCD) procurements, donor death is diagnosed by the assessment of electrocardiography and monitoring the arterial pulse for cessation of heartbeat.[1] There are three circumstances in which organs become available for procurement: patient death determined by neurologic criteria (brain death), patient death determined by circulatory or cardiopulmonary criteria (DCD), or relatively healthy adults who voluntarily donate a single kidney, portion of a liver, or portion of a lung to a patient in need.[2] The new procedure of allowing family presence in the OR applies to DCD procurement procedures only.

Organ offers are sent out to transplant programs with details of the impending recovery once a patient has been deemed appropriate for organ donation and authorization has been obtained. Specific recovery contingencies must be met in order to protect the recipients and to provide them the best transplant outcomes. The OR process for organ procurement at OSF Saint Francis Medical Center utilized two rooms during the donation process.

The family was with the patient in the first unsterile OR while a separate OR was being prepared

for the procedure. Once the patient was extubated and death was declared, the donor was moved to the procedural OR, was prepped and draped, and recovery of organs proceeded.

According to the American Society of Transplant Surgeons, efforts should be made to minimize both warm and cold ischemia times during DCD organ procurement and transplantation.[3] In order to reduce the warm ischemia times, Gift of Hope approached OR leadership asking that extubation and procurement take place in one OR, thereby allowing family in the sterile OR.

Family presence in the OR

Family presence in the OR is an ethically challenging issue for nurses, physicians, and family members. OR staff may have difficulty with family presence in the OR due to the stressful environment and the time spent waiting for the patient to die and then to quickly remove the organs for donation. Some staff members may feel discomfort or anxiety with death, since this is not a normal occurrence in the OR, while others may have difficulty with the whole concept of withdrawing life support, feeling conflicted between trying to honor the wishes of the patient or family and the nurse's desire to advocate for the patient and to do no harm.[4] Staff may have personal feelings, which may create distress and a negative attitude toward organ donation, while others may struggle with balancing organizational policies and procedures and their own beliefs toward caring for a patient.[5,6]

Meyers and colleagues interviewed family members who had been present during a resuscitation and/or invasive procedure and found that the family members reported that being present was beneficial to themselves and their loved one.[7] It made the family members realize the seriousness of their loved one's condition, provided them comfort, decreased their worry/lessened helplessness, and facilitated grieving. Furthermore, family members felt that it was their right to be present at their loved one's side. All of these findings were expected to parallel how families would feel about being present for their loved one's death prior to DCD.

The risk to organ donation is substantial if the procedure of having family present in the OR is not followed. Studies indicate that donation can be lost due to families declining organ donation so they can be at their loved one's side after withdrawal of life support and pronouncement.[4] Some families feel they need to be with their loved one as they die so that their loved one does not feel abandoned at that moment. Organ donation and family presence can often help the family begin to heal knowing that something positive has come from this tragedy.[4] Being sensitive to the needs and wishes of the family is imperative so that they do not feel any regret with their decision to donate or with the donation process.

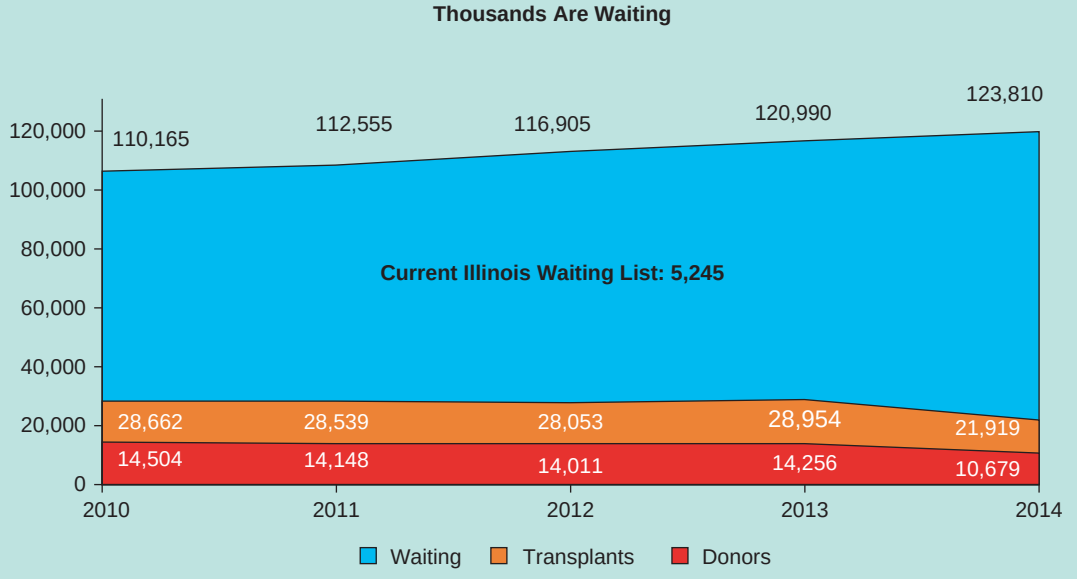
The family's ability to be at their loved one's side at the time of death could not be taken away, as this is part of the grieving process for many families. The two-room procedure specifically allows for this grieving to take place. The challenge was to determine how to have the family present in the OR while maintaining sterility and the impact the environment would have on them. During the inquiry into this concept, the authors did not come across many institutions that had implemented the practice. As such, OR leadership was very hesitant to allow this change. During the first meeting with select members of the Organ Donation Steering Committee who were proposing this new procedure, the answer from OR leadership was a resounding "no."

Turning point

Subsequently, a case took place that caused Gift of Hope (www.giftofhope.org) and OSF Saint Francis Medical Center to reevaluate the current procedure. In the case of a particular organ donor, the transplant program that originally accepted the organ offer for the liver later declined due to the extubation and recovery occurring in two separate ORs. Because when two separate ORs were used, the organs would be subjected to additional, warm ischemia time due to the travel from the extubation room to the recovery OR as well as additional time for the prepping and draping before the recovery could take place. This unfortunate turn of events caused a spiral of issues.

In order to try and maximize the donation, Gift of Hope placed another offer out for the liver, which in turn delayed the recovery of the kidneys. While updates were given to the donor family, the additional wait time was emotionally too much for them, and they ultimately rescinded their authorization for donation. This situation placed a father who was grieving the death of his daughter in a very difficult position, and in the end, organ donation did not occur. Three life-saving transplants did

Critical organ shortage



The Annual Report of the U.S. Organ Procurement and Transplantation Network and the Scientific Registry of Transplant Recipients: Transplant Data 2010 through 2014. Department of Health and Human Services, Health Resources and Services Administration, Healthcare Systems Bureau, Division of Transplantation, Rockville, MD; United Network for Organ Sharing, Richmond, VA; University Renal Research and Education Association, Ann Arbor, MI. Used with permission.

not take place, and there was an overwhelming feeling of disappointment from the OR team.

Gift of Hope and OSF Saint Francis Medical Center began to discuss how to ensure that this would not happen again. Since some transplant programs were only accepting livers where extubation and recovery were happening in the same room, Gift of Hope suggested reconsidering a one-room process. Although many institutions do not allow family presence in the OR, there are many organizations that support family presence during resuscitation of the patient and/or invasive procedures, which include The American Association of Critical Care Nurses (www.aacn.org), National Association of Emergency Medical Technicians (www.naemt.org), the National Association of Social Workers (www.naswdc.org), and the American Heart Association (www.heart.org).[8-11] Many institutions similarly have hesitated implementing this major change. This may be likely due to a fear of the unknown; a practice that seems like a great departure from practices that have worked well.

Ultimately, OR leadership did not want to risk transplant programs refusing donated organs. With the rates of organ donation already having trouble keeping pace with demand, resulting in a critical shortage of available healthy organs, it was determined to not allow this to happen (see *Critical organ shortage*).[5]

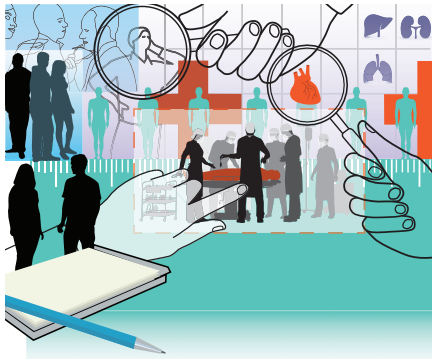
Organizational culture

As predicted, there was overwhelming resistance when OR staff was introduced to this new procedure. OR staff members were uncomfortable and were very vocal in their opposition. The staff was concerned primarily about maintaining sterility and the possibility of the family contaminating the sterile field. Due to these concerns, OR Leadership felt that a member of the OR team should remain in the OR to monitor the field when the family was present. Since the surgical technologist would need to remain scrubbed in and sterile, it was determined it would be their function to remain in the OR.

The staff does not normally deal with family presence or withdrawal of life support in the OR, and OR leadership was concerned for their emotional well-being. The surgical technologists

who must stay in the OR when family is present may feel as if they are being intrusive and present for a private, intimate moment. Furthermore, there may be increased stress and discomfort for staff when a patient dies outside of the 90-minute timeframe, which precludes them from being an organ donor as defined by hospital policy. The staff member can be impacted by the family members' grief or may have a tendency to personalize the situation.[12]

The new procedure development needed to be handled carefully because converting OR staff from resistance to acceptance would be a difficult venture. If this procedure was going to be implemented successfully, there needed to be a way to show the OR staff how this could work. Education and procedure development would prove to be key in transforming the culture of the OR and securing acceptance.



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Implementation strategies

Since having family present in the OR was not a process that surgery leadership or OR staff initially embraced, a simulation of the event was planned to pilot a new procedure that would honor the wishes of the family yet maintain the sterile environment in the OR. Many different aspects in the OR needed to be considered as the simulation was being planned:

- Draping the patient to minimize the family's view of the field
- Prepping and draping the patient in a fashion that allows family as much access as possible for touching the patient
- Devising a plan for room set up to minimize instruments/equipment that are visible to the family
- Planning a phone communication process to minimize disruptions and to not appear disrespectful to the family
- Maintaining sterility
- Evaluating family members for suitability to be in the OR environment
- Deciding on the process flow of the exiting procurement team from the OR and the entrance of the family member(s)
- Determining the effect of the atmosphere on the surgical technologist who remains in the room to monitor the sterile field.

Objective of the simulation

The objectives of the simulation and new procedure included the following:

- Implement successful extubation and procurement of organs in one OR suite
- Decrease organ ischemia times so that quality organs are provided for transplant
- Develop a process for successful funneling of the Gift of Hope procurement and transplant team in conjunction with family entering and exiting the OR suite
- Identify gaps in the procedure and implement system changes as needed
- Develop education for family to ensure their safety and comfort while maintaining sterility in the OR.

Process development

The scenario for the simulation would begin with the patient in the ICU and end at the procurement incision time. Furthermore, this complex simulation needed to be no longer than 45 minutes due to time constraints of the busy OR schedule and the large number of interprofessional team members who would participate in the simulation (see *Procedure comparison*).

An important aspect of the entire process was ensuring that members of the procurement team were not present in the OR at the same time as family, as that would be considered a conflict of interest.[4] Additionally, members of the transplant team should not be "involved in decisions related to patient prognosis, withdrawal of ventilator/organ-perfusion support, or determination of death."[3]

Choosing participants

Many participants were needed to play the roles within the simulation. Including key stakeholders

Procedure comparison

Current procedure	Proposed new procedure
OR where extubation/declaration takes place is not set up–no equipment/supplies present. Only personnel present are ICU RN, declaring physician, respiratory therapist, and Gift of Hope Donation Specialists. Family may request presence of pastoral care.	OR is set up with all necessary instruments and equipment. Coolers are covered or out of sight of family. Same personnel present as before. Family may request presence of pastoral care. Camera is set up so that OR staff can monitor the sterile field.
Family with their loved one in a separate unsterile OR suite from extubation through declaration of death.	Family with their loved one in sterile OR suite where procurement will take place. Family with loved one from extubation through declaration of death. Family is educated prior to arrival on sights/sounds/smells of OR.
Patient is on stretcher covered with blanket while with the family.	Patient is supine on OR table with one arm extended (allows exposure for family to touch). Patient prepped and draped in a fashion allowing access for family without risk of contamination. Timeout completed.
After declaration of death, the donor is transported from separate unsterile OR suite to sterile OR suite where procurement will take place. Donor is then transferred to the OR table, prepped, and draped. Equipment is hooked up, timeout takes place, and procurement begins. Process can take 15-45 minutes.	After declaration of death, family is escorted from the OR, after which the procurement team enters the OR suite. Donor is already prepped and draped. Procedure begins in approximately 2 minutes.
Procurement team performs hand scrub, gowning, and gloving as patient is transported into sterile OR suite in preparation for the procedure.	Procurement team performs hand scrub, gowning, and gloving after patient is prepped and draped (prior to family presence). Procurement team remains in Center Core or other open OR (out of the sight of the family) until it is time for the procedure.
If the donor does not expire within 90 minutes of extubation, the patient is no longer able to be an organ donor and is taken to another area of the hospital for comfort measures until they do expire.	If the donor does not expire within 90 minutes of extubation, the patient is no longer able to be an organ donor and is taken to another area of the hospital for comfort measures until they do expire.

of the interdisciplinary and interprofessional staff members as part of the simulation was crucial, with the most resistant staff members encouraged to participate. Intentional recruitment of these employees was paramount, as most organ procurements occur on second or third shift. A list of disciplines participating in the simulation is listed below. A manikin was utilized as the role of the patient. Three nonmedical individuals from the Volunteer Services department participated as family members. Their role and participation was an essential concept in the simulation, as this would capture the families' feelings and reactions (also known as frames) and assessment of "human factors" of the process and atmosphere of the OR.

It is imperative that the individuals chosen for the role as the family members have no medical background, as many patients and their families have little or no medical background. The rationale behind that theory is that this would provide the OR team and Gift of Hope team the perspective and frame of the layperson with critical feedback, allowing improvement of any gaps identified in preventing the care of their emotional and spiritual needs.

The use of three family members was imperative, since by policy, only two family members are allowed to be present in the OR due to space

constraints. Using a third family member allowed the opportunity to judge the reaction of the third family member who could not be present in the OR and to determine if the needs of that family member were being met while in the waiting room.

Participants are listed below:

- Two transplant surgeons
- One declaring physician
- Two circulating nurses in the OR
- One surgical technologist
- One surgery charge nurse
- One respiratory therapist
- One neuro ICU RN
- Three Gift of Hope participants
  - One donation specialist
  - Two organ recovery coordinators
- Pastoral care.

Simulation event

All of the participants met in a conference room prior to the simulation and were briefed on the specifics of the simulation event. All members were

Debriefing takeaways

What went well	Opportunities for improvement
Great team effort. One team member was not more important than the other. Communication was strong.	Need updates for third "family member" in waiting room–such as everything progressing and the procedure was started.
Per simulation participant portraying "mother of DCD patient": everyone kind and soft-spoken, answered questions.	Family would have liked one more time to pray with pastoral care in the OR.
Per simulation participant portraying "wife of DCD patient": emotional but felt comforted. Felt there was enough exposure to touch patient with the arm extended.	Suggested soft music and dimmer lighting in OR when family present.
Per simulation participants portraying "family of DCD patient" in OR: visual in OR was appropriate and patient draped appropriately.	Need to focus preeducation to family on extubation of patient–such as common for eyes and mouth to open during this process.
Medical staff gave moment of silence in ICU, which was appreciated.	Family felt anxious not being able to ride in elevator during transport to the OR (not enough room).
	The respiratory therapist (RT) and other staff should be dressed in scrubs on unit so they are ready to walk into OR.
	Limited number of RTs in the hospital who are available to travel with the patient to the OR and remain until extubation need more advanced notice and planning time prior to starting the process.
	Declaring physician had difficulty auscultating the heart without compromising sterility.
	Transplant/procurement team outside OR could be heard talking–slightly distracting.
	OR staff concern with draping and maintenance of sterility.
	How do the staff handle children in the OR–if they are one of the family members?

asked to sign the audiovisual waiver, since videotaping was planned for educational purposes. Following the briefing, participants and observers disbursed to their designated areas. The simulation process began in the Simulation Lab's ICU and finished in one of the actual OR rooms (in situ simulation) at the time of incision. One of the effects of a realistic simulation scenario is immersion to the point of a real response. This simulation was extremely realistic with staff members' emotions apparent during the process.

Debriefing

Debriefing is the crucial element in simulation, with an appropriate debriefing lasting two to three times the length of the actual simulation. This is the period where the learning, reflections, and process gap analysis take place. All participants gathered in the conference room for a mandatory one-hour debriefing immediately following the simulation. The participants were encouraged to save all their thoughts and conversations until they arrived to the debriefing room. The following were also present at the debriefing: an ethicist, the CNO, Gift of Hope's CEO, Gift of Hope's donation coordinator, the surgery manager, and surgery director. Everyone participated in conveying their perspectives of the simulation during the debriefing, which was led by the clinical education nurse scholar, who is certified in healthcare simulation education, adult learning theories, and debriefing (see *Debriefing takeaways*).

A scribe was present to document the key debriefing topics and highlight what participants felt went well and what were opportunities for growth. The simulation resulted in not only a distinct shift in the OR staffs' attitude toward this new procedure but identification of both process and educational gaps. What seemed inappropriate and unconventional at first now seemed slightly promising. Highlights of the simulation and debriefing session can be viewed at the following link: www.youtube.com/watch?v=pkWCyAd62HI.

Project implementation and effectiveness

Development of the procedure for family presence in the OR prior to DCD procurements was accomplished utilizing information learned during the simulation and debriefing. The video of the simulation is used as an educational tool for physicians and staff as well as outside transplant teams. Several changes have been made to the procedure, however, as real experiences identify issues not seen during the simulation. For example, the method of draping the patient performed in the simulation was not acceptable to OR staff, so they were provided the opportunity to devise a method for draping the patient that would allow family to be at the head of the table with their loved one without compromising sterility (see *Draping of patient*).

Furthermore, during implementation, it became very evident that the surgical technologist had great difficulty remaining in the OR with the patient due to the feelings this experience raised. For example, some surgical technologists became emotional as a result of their own personal losses, and the expressive actions of family members, such as singing to their loved one, proved taxing. Ultimately, the procedure was changed so the surgical technologist was not required to stay in the OR during the time the family was present. A camera (actually a baby monitor) was purchased and placed in the OR so the sterile field could be monitored from an adjacent area.

Draping of patient

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Moving forward

Many lessons were learned in the development and implementation of this new procedure. The simulation was a key factor in developing the procedure and changing the attitude of skeptical staff members.

One of the transplant surgeons called the simulation an eye-opening event because of the opportunity to see the emotional aspects of this process, which had only seemed technical before the simulation. Staff involvement in creating their own method of draping that would provide comfort for both the family and staff served as an example of how they embraced this unique change. There have been 10 DCDs since implementation of the new procedure, each case is thoroughly reviewed, and feedback is obtained from those involved. The goal of these reviews is to continually make improvements to the procedure, allowing us to better serve those we care for. **OR**

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