



## The impact of simulation education amongst nurses to raise the option of tissue donation in an intensive care unit

### Te painga o te akoranga whakataruna i waenga i ngā tapuhi hei whakaara i te pātai mō te kōwhiri a te tūrora kia kohaina he pūtautau tinana ki te tangata kē, i roto i tētahi taiwhanga whakaora mate taumaha

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#### Abstract

When a person dies, tissue donation is possible in most circumstances, but raising the option of tissue donation with family is difficult at such a stressful time. It is suggested that a lack of education and experience deters nurses from entering into that conversation. However, this impacts on the availability of tissue for transplantation. This study explores the impact of simulation education on the nurses' perception and experiences of raising the option of tissue donation with families of deceased patients in an intensive care unit. A qualitative descriptive approach using semi-structured interviews was used. Twenty-one nurses took part in simulated education sessions involving family conversations about tissue donation. Five of these consented to be interviewed about their perceptions and the impact of the simulation on their clinical practice. Thematic analysis revealed four main themes: rehearsal, confidence, the nurse-family relationship, and sharing. The nurses gained a better understanding of the language to use to raise the option of tissue donation. All appreciated the opportunity to learn from each other and share experiences. The

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Atherton, S., Crossan, M., & Honey, M. (2020). The impact of simulation education amongst nurses to raise the option of tissue donation in an intensive care unit. *Nursing Praxis in Aotearoa New Zealand*, 36(1), 20-29. doi: 10.36951/27034542.2020.003

#### Ngā ariā matua

Ina mate he tangata ka taea te koha pūtautau tinana mō te nuinga, engari he uaua te whakaara i te pātai ki te whānau i tēnei wā taumaha. Ko te huatau, nā te kore i akona, nā te tauhou ki ēnei āhuetanga, ka pēhia ngā whakaaro o ngā tapuhi, e kore ai e tīmata te kōrerorero. Ahakoa, ka pā tēnei ki te wāteatanga mai o ngā pūtautau tinana hei whakawhitinga ki te tangata kē. Tā tēnei rangahau he tūhura i te pānga o te akoranga whakataruna ki ngā whakaaro me ngā wheako o ngā tapuhi mō te whakaara i te kōwhiringa kia kohaina he pūtautau tinana, ki ngā whānau pani, i roto i tētahi taiwhanga whakaora mate taumaha. I whakamahia tētahi huarahi kounga whakaahua nā te whakamahi uuiunga i āhua whakatepea. I whai wāhi ētahi tapuhi (n=21) ki ētahi wāhanga akoranga whakataruna kei roto nei ngā kōrerorero ā-whānau mō te koha pūtautau tinana. Tokorima i whakaae kia uia mō ō rātou whakaaro me te pānga o te whakataruna ki ā rātou mahi āwhina tūrora. Nā te tātaritanga ariā ka puea ake ētahi ariā matua e whā: ko te whakaharatau, ko te māia, ko te whanaungatanga i waenga i te tapuhi me te whānau, me te whakawhitiwhiti. Nā konei ka piki ake te kaha o ngā tapuhi ki te whakamahi reo tōtika hei whakaara i te kōwhiringa o te koha pūtautau tinana. He mea tino whai-kiko ki te katoa te ako tētahi i tētahi, te whakawhiti kōrero hoki. Ka noho te whakataruna nei



simulation reassured the nurses that their role is to raise the option of tissue donation rather than seek family consent. This study provides evidence that simulated tissue donation conversations are of benefit to nurses in the intensive care unit. Increasing nurses' confidence and abilities in raising the option of tissue donation will potentially impact on the availability of tissue for transplantation in Aotearoa New Zealand.

hei whakamaharatanga mā ngā tapuhi ko tā rātou he whakaara i te kohanga pūtautau, ehara i te mea, he kimi i te whakaaetanga a te whānau. Nā tēnei rangahau kua takoto he taunakitanga he whai hua ngā whakataruna kōrerorero mō te koha pūtautau mā ngā tapuhi i tētahi taiwhanga whakaora mate taumaha. Mā te whakapiki i te māia me ō rātou pūkenga whakaara i te kohatanga pūtautau ka piki ake, ki te titiro rā i muri nei, te wātea o te pūtautau hei whakawhitinga ki te tangata kē, i Aotearoa.

## Keywords / Ngā kupu matua

intensive care / te whakaora mate taumaha; New Zealand / Aotearoa; nursing education / te akoranga tapuhi; simulation / te whakataruna; tissue donation / te koha pūtautau

## Introduction

Internationally, there is a growing need for donated tissue that far exceeds the amount of tissue donated from deceased donors (Council of Europe, 2018; Donate Life America, 2018; NHS Blood and Transplant Services, 2019). The same situation is evident in Aotearoa New Zealand (Organ Donation New Zealand, 2019). Commonly deceased tissue donation and transplantation refers to the donation of eyes for sclera and corneas, skin, bone, and heart valves; whereas deceased organ donation and transplantation commonly refers to the donation of solid organs such as kidneys, heart, liver, and lungs (Ministry of Health, 2016). Unlike organ donation, tissue donation may be a possibility in most circumstances when a person dies (Organ Donation New Zealand, 2019). In 2017, sixty deceased tissue-only donors were facilitated by Organ Donation New Zealand and the majority (36; 60%) were from an intensive care unit (ICU) (Organ Donation New Zealand, 2017). While the government recognises the need to increase organ donation, tissue donation is not emphasised to the same degree (Ministry of Health, 2017). The low number of tissue donors compared to need

(Ministry of Health, 2018) emphasises the importance of this study exploring the impact of simulation education on ICU nurses' experiences of raising the option of tissue donation with families of deceased patients.

## Background

Organ and tissue donation evolves from decisions made by families and whānau of deceased donors, often in an ICU setting, at a very stressful time. Therefore, the option of tissue donation is often not raised with the families of potential deceased donors by health professionals, or volunteered by family members themselves (Potter et al., 2017). It is suggested that a lack of experience and education deters health professionals from entering into a tissue donation related conversation (Jelinek, Marck, Weiland, Neate, & Hickey, 2012; Weiland, Marck, Jelinek, Neate, & Hickey, 2013). This has a negative impact on the number of individuals who could benefit from tissue transplantation (Loo, Rabbetts, & Scott, 2008).

Although the first corneal transplant preceded the first organ transplant by almost 50 years (Crawford, Patel, & McGhee, 2013), deceased tissue donation has



not received the same attention in the literature, or in clinical practice, as deceased organ donation. The lower profile of deceased tissue donation is acknowledged by the Australian and New Zealand Intensive Care Society who state that “although tissue donation tends to have a lower profile than solid organ donation in intensive care, it is important that the potential for tissue donation is considered after every death in the ICU, emergency department or elsewhere” (2013, p. 53).

### **Tissue donation in Aotearoa New Zealand**

In Aotearoa New Zealand tissue that can be donated post-mortem for the purposes of transplantation includes skin, heart valves, and eyes. This is less tissue than in North America where bones and tendons can also be donated (Donate Life America, 2018). However, within Aotearoa New Zealand, skin and heart valve donation can only be facilitated for those who die within the Auckland and Waikato regions. Eye donation can be facilitated throughout the whole country (Ministry of Health, 2016). Tissue can be donated up to forty-eight hours following death and can be facilitated whether an individual has died at home or in hospital (Organ Donation New Zealand, 2019). This time delay between death and donation is possible because eye, skin, and heart valve tissue does not depend on an intact blood supply to maintain integrity. The donated tissue can be transferred and transplanted into a recipient in an avascular state.

### **The nurses' role**

In ICU, nurses may take a leading role in raising the option of tissue donation with recently bereaved family members. In some district health boards (DHBs) in Aotearoa New Zealand the nurses' role is limited to raising the option of tissue donation only. Should family members agree to the donation of their loved one's tissues or require further information then this is provided by a donor co-ordinator from Organ Donation New Zealand. Organ Donation New Zealand is the national service for deceased organ and tissue donation (Organ Donation

New Zealand, 2017). The service involves co-ordination of organs and tissues from deceased donors, providing information and ongoing support for families who have donated, and working with health professionals to ensure that processes for deceased donation are nationally consistent and meet ethical and legal standards (Organ Donation New Zealand, 2017). This support and advice for health professionals is provided by experienced, senior intensive care specialists who work together with specialist nurses designated as donor co-ordinators (Organ Donation New Zealand, 2019).

Anecdotal experience from one ICU in Aotearoa New Zealand suggests that the option of tissue donation may not be routinely offered to the families of potential deceased tissue donors. This is not unique, with a similar situation identified and described in Great Britain (Loo et al., 2008). A lack of knowledge, experience, and role uncertainty all impact on a health care professional's willingness to enter into a tissue donation conversation with bereaved families (Jelinek et al., 2012; Weiland et al., 2013). Nurses are also influenced in their decision-making by their perceptions of how family members may react. For example, fears of an unanticipated reaction, particularly around causing further upset to already grieving families, is a deterrent for many (Lerpiniere & Verble, 2009). This can be exacerbated in situations where there is little time to build a relationship and rapport with suddenly bereaved families, such as in ICUs.

Education and training of nurses has been found to impact on consent rates in a Dutch study that focussed on the presence of nurses during donation-related conversations (Jansen et al., 2011). This study found consent rates were higher (58%) when a nurse was present when donation was requested compared to when a nurse was not present (42%) (Jansen et al., 2011). The significance of education was also a finding in research conducted in an emergency department in the United Kingdom (Lerpiniere & Verble, 2009). Nurses were infrequently engaging in conversations related to



tissue donation with the families of potential deceased tissue donors. However, after a teaching programme was instituted conversations with families of potential deceased tissue donors became more frequent (Lerpiniere & Verble, 2009).

## Simulation

The opportunity for health professionals to experience and witness infrequent events in an environment that poses no risk to actual patients is powerful and supports the use of simulation to mitigate risk and improve patient safety (Cato & Murray, 2010; Leigh, 2011). Aspects of team behaviour such as communication, decision making, and managing one's own emotional responses have been termed non-technical skills (Andersen, Jensen, Lippert, & Østergaard, 2010; Brindley & Reynolds, 2011) and developing these facets through simulation in a less pressurised, but nonetheless demanding situation has value. Paediatric oncologists, haematologists, and critical care physicians who had completed a fellowship, rated observing their colleagues' interactions as the most helpful way of learning how to engage in difficult conversations (Kersun, Gyi, & Morrison, 2009). The simulation should be followed by a debrief (Jeffries, 2007). Actions and communications that could have perhaps been done or said differently during the simulation can be explored during the debrief after a simulation scenario has been completed. The debrief is guided by a facilitator and supports reflection and an understanding of the simulated event (Cato & Murray, 2010). Positive behaviours and decisions made during the simulation can be re-enforced and learning is encouraged through active reflection (Jeffries, 2007). Neill and Wotton (2011) describe the debrief as central to the simulation and suggest that the debrief may be more beneficial to learning than the simulation itself.

## Aim

The aim of this research was to explore the impact of simulation education on nurses' perceptions and experiences of raising the option of tissue donation with

families of deceased patients in an ICU. The research question: What are the effects of simulation education on the nurses' experience of raising the option of tissue donation with family members of potential deceased tissue donors in the ICU?

## Methods

A qualitative descriptive approach was selected to fully explore the experience of the nurses in raising the option of tissue donation.

### Study setting and participant selection

This study was undertaken in a single, level three adult ICU in a metropolitan city in Aotearoa New Zealand. A level three ICU has the capability to provide a full range of critical care therapies which includes complex life-support for an undetermined period (College of Intensive Care Medicine of Australia and New Zealand, 2011). Participants were selected using purposeful sampling. Purposeful sampling ensures that participants have specific knowledge or experience related to the topic under investigation, and therefore promotes the collection of in-depth, rich, and meaningful data (Polit & Beck, 2017). Participants were considered eligible to participate if they were a nurse employed in the study setting and had participated in a previous study day facilitated by the department for end-of-life and included a simulation of raising the option of tissue donation with families.

### The simulated experience for this study

Raising the option of tissue donation with bereaved family members of potential tissue donors was the purpose of the simulation, which took place in the clinical area of the ICU. The staff involved in facilitating this low fidelity simulation were an intensivist, two organ donor co-ordinators from Organ Donation New Zealand, and two nurse educators. Participating ICU nurses were provided with a flow chart detailing the sequence of events in tissue only donation (see Figure 1) and a prompt card with suggested words and phrases

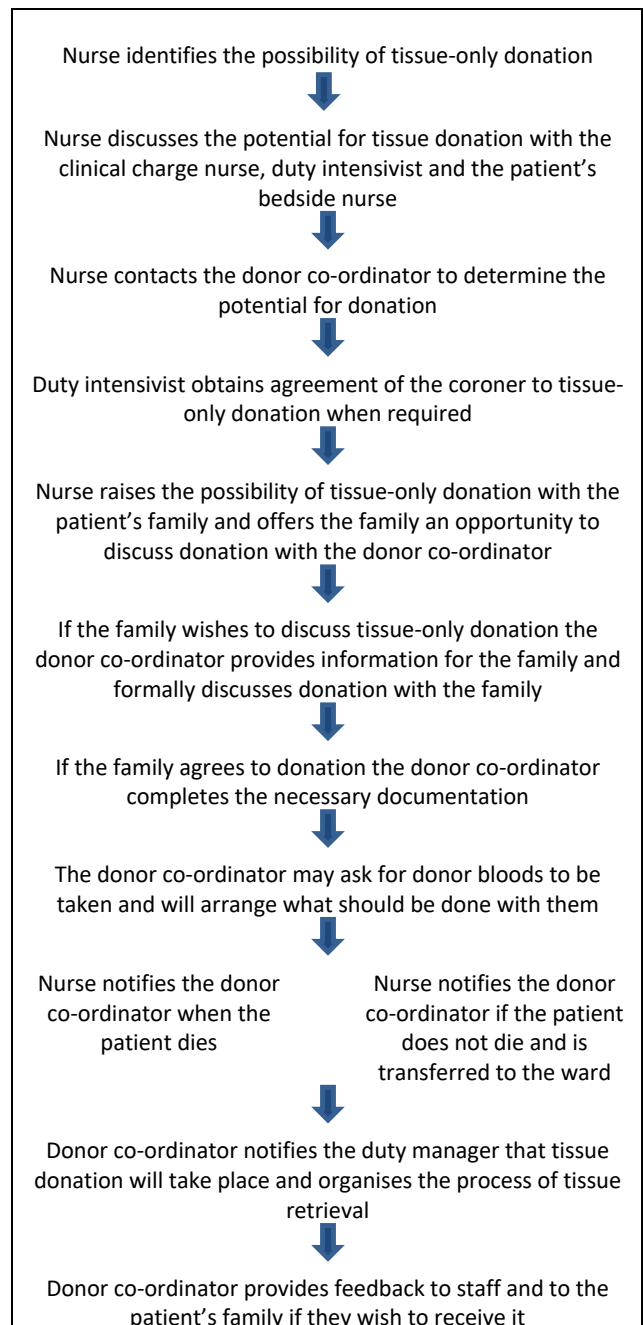


which were drawn from the Australian and New Zealand Intensive Care Society (ANZICS) *Statement on Death and Organ Donation* (2013). All staff participated as either the nurse in the simulation, or as an observer. The simulation began with a ward round involving an end-of-life scenario. The participating nurse assessed the situation and was able to ask the intensivist if this was a case where tissue donation might be a possibility. If the intensivist agreed, the nurse simulated ringing a donor co-ordinator to discuss the patient further. If the donor co-ordinator agreed, the nurse then raised the option of tissue donation with family members. The simulated family asked questions similar to those a family might ask in reality. The simulated family did not always agree to the option of tissue donation so that the participating nurses had the opportunity to respond to a family declining, as well as a family agreeing to tissue donation. A debrief took place following the simulation. Each simulation lasted for about an hour, with debriefing and discussion making up at least half of this time. The lead author was involved with facilitating the simulation and undertook the data collection using semi-structured interviews at a later stage to explore whether this education supported nurses in their ability to engage in a tissue donation conversation.

### Ethical deliberation and approval

Engaging the lead author in both facilitating the simulation and data collection was cause for much deliberation. We carefully considered the effect her position might have on the participants and data gathered through interviewing nurses where the lead author was also employed as a nurse educator in the ICU study site. Although the lead author had an ongoing professional relationship with the participants, she did not hold a managerial position. None of the participants reported to her and there was no direct recruitment of participants. Additionally, being involved in the ICU provided an emic or insider's view, which meant a shared understanding of aspects, in this case related to the complexities of ICU nursing (Polit & Beck, 2017).

**Figure 1: Sequence of events in tissue-only donation**



Ethical approval was obtained for this study from the University (UAHPEC Ref: 014875) and the relevant District Health Board Research Office (Ref: A+6772). A total of 21 nurses met eligibility criteria and were invited to participate in this study. Five nurses consented to participate in the interviews.





## Data collection

Data was collected using individual face-to-face semi-structured interviews with five participants within one year of the simulated experience. An interview guide ensured a consistent approach (see Figure 2). In addition, one interview was undertaken as a pilot, enabling the interview guide and questions to be tested and to ensure familiarity with the digital recording equipment. Interviews were recorded and transcribed verbatim and participants were provided with a copy of the transcript for verification and clarification. The verification and checking of what participants have actually said is considered an important aspect of ensuring study credibility (Polit & Beck, 2017). Participants were asked to provide any amendments within one week of receiving the transcript, but no amendments were requested. As data collection progressed similar thoughts and experiences were detailed by the participants. This similarity guided the lead author to understand that data saturation had been achieved. Data saturation is the point at which any further information collected becomes redundant as nothing new is being added or revealed in the data (Polit & Beck, 2017).

## Data analysis

First the interviews were transcribed by the lead author. Data was analysed using a four-step approach described by Polit and Beck (2017):

1. First each interview was listened to without pause.
2. The transcript of each interview was read from start to finish providing a sense of the whole. Attention was given to the participant's voice, pauses in dialogue and emphasis placed on specific words or phrases.
3. Separate, emerging themes were then identified and extricated from the interviews.
4. These themes were then further studied to attach meaningful understanding to the words and expressions used.

Data analysis identified four themes: rehearsal, confidence, the nurse-family relationship, and sharing.

Figure 2: Interview guide

Interview Guide
<b>Introduction</b>
1. Discuss consent & confidentiality; brief explanation of aims of project
<b>Experience of raising the option of tissue donation</b>
1. Can you tell me about your experience of end-of-life care since you attended the tissue donation simulation held during the end-of-life study day?
2. Do you remember if the option of tissue donation was raised?
3. Who raised the question?
4. When was this option considered?
5. Did the family agree or decline?
6. If agreed, what then happened?
7. If declined, what was your impression of how the family were?
<b>Non initiation of raising the option of tissue donation</b>
1. Have there been any occasions when you have not raised the option of tissue donation?
2. Can you tell me about that experience?
<b>Simulation experience</b>
1. What did you get out of attending the tissue donation simulation teaching?
2. What were the positive aspects of the course?
3. What aspects of the course could be improved or enhanced?
4. Do you have any suggestions as to what would help in the future when considering raising the option of tissue donation?
<b>Conclusion</b>
Thank you for your time and for sharing your experiences with me.
Is there anything else you would like to tell me?

These are described next using illustrative quotes. To maintain anonymity no participants have been identified through the data, and data has been presented from all five participants.



## Findings

Five nurses were interviewed. In addition to participating in the simulation about raising the option of tissue donation, three of the nurses had also received previously didactic education on tissue donation. The remaining two nurses had received informal education on tissue donation from colleagues. All of the nurses had been involved in end-of-life care and may have been involved in a clinical situation involving tissue donation following their participation in the simulation. For all nurses, raising the option of tissue donation was considered “not an easy thing to do” and viewed as “a hard discussion”.

## Rehearsal

The most dominant theme from the nurses’ interviews was having the opportunity to practice and rehearse what to say to a family. All of the nurses commented on the advantages of being able to practice: “It did help, just the whole practice ... so it’s not the first time you’re ever talking about it”. Another emphasised that “practice is only what helps in those situations, of which words we do and don’t use”. Some nurses found that the simulation replicated how they felt in real life. For them, this made the rehearsal of the conversation realistic:

*Even though people often think it [simulation] doesn’t replicate real situations, well it does because you’re nervous in front of people and you can feel the adrenaline running having to say it in front of people, and that is how it is often in front of families.*

Within the whole process of raising the option of tissue donation, the nurses viewed the actual words used as crucial to maintaining good relationships with the family and avoiding causing further distress. For the nurses there was no room for mistakes, as one nurse emphasised saying:

*In a real-life scenario you have to do well because every word you say to them, every word counts.*

By actually holding a conversation, even within a simulation was helpful, with one nurse saying: “It’s not until you put it into verbal communication that it makes

sense”. Through participating in the simulation, the nurses gained an appreciation of what was considered unbiased, sensitive language. This was helped by having a set of phrases or words they could use. Participating in the simulation and having the opportunity to rehearse the language to use contributed to a feeling of confidence.

## Confidence

One nurse summed up her experience of raising the option of tissue donation in a real-life situation after participating in the simulation by explaining:

*Without having done that simulation I probably would never, I don’t know, felt confident enough to have the words and be able to answer any questions from the family. I [would have] not answer[ed] questions and refer[red] them to the next person.*

This participant also felt better prepared to respond to questions from the family. The confidence to engage with family members in conversations around tissue donation was further strengthened as the simulation confirmed that this was part of their nursing role. They felt that they now had permission to raise the topic themselves: “It is okay to bring these things up and that’s what we want to do in these situations”. Furthermore, the simulation clarified that it was not necessary to be a specialist or senior nurse. As one nurse stated: “You don’t need to be a specialist nurse, you can just be the bed-side nurse”. Confidence was also linked to knowing there were people and resources, such as the flow chart, available to support them in having the conversation:

*If we want to bring up these issues we can. And we do then have the resources to follow through with it. That is a good, positive thing.*

## The nurse-family relationship

Being able to raise the option of tissue donation themselves was important to the participants as they felt the person raising the option of tissue donation should already have an established relationship with the family:



*If I am in the bed space, I would prefer that I was the one talking, rather than some external person coming in and having that discussion. Just because I feel like they [the family] then think I'm trying to hide things from them if I don't do it myself. And I would rather us, like if they have an issue with it, I would rather us talk about it altogether and work through that problem, rather than have some external person, and then them not trust me as the nurse in the bed space.*

Despite it being a difficult conversation for them to initiate, they indicated a strong preference for being able to raise the option themselves. Building and maintaining rapport with family members was closely linked to the belief that they themselves should raise the option of tissue donation.

### Sharing

Part of the simulation was an opportunity for sharing through debrief and discussion. The nurses could explore what had happened and consider what had worked well and what they could do differently. One nurse commented that, "in simulation you get help from colleagues telling you what to do". As well as appreciating the guidance of colleagues while participating in the simulation, the nurses found value in observing each other. They could see the different ways other nurses broached the subject and how they interacted with simulated family members. One nurse stated that "it was interesting to see how people approach somebody and approach the subject". Being present and absorbing what was said was a key part of the simulation for this nurse: "Just being around, hearing somebody's correct wording is what you need to hear".

The simulation involved an intensivist and donor co-ordinator so that nurses could simulate conversations with these health professionals. The nurses appreciated that the donor co-ordinator could also share her experiences and knowledge regarding donation discussions. Many

of the nurses commented on this: "I really liked that we had the donor co-ordinator there". The inclusion of the donor co-ordinator reinforced that raising the option of tissue donation with family members is just that, raising the option and that it is "important that we provide the opportunity". One nurse expanded on this by saying:

*I know that the donor co-ordinator mentioned that it was important that we provided the opportunity to say yes or no, and that was a success on our part, rather than counting everyone who said yes as a success because asking people, and people's right to say yes or no is part of the whole process. It's not, you know, solely, getting a yes. That isn't what it's all about.*

### Discussion

The nurses in this study spoke about how difficult they found raising the option of tissue donation with a patient's family in a real-world situation. Loo et al. (2008) learned that over a two-year period in a metropolitan emergency department only 45 out of 242 families of potential tissue donors were approached about tissue donation. This figure indicates less than 20% of families are approached. The literature confirms that donation conversations are not easy and it is recognised that these conversations take an emotional toll on the staff involved (Shemie et al., 2017).

A deficit in knowledge and the need for education related to organ and tissue donation is a significant deterrent in staff engaging in donation-related activities (Jelinek et al., 2012). Additionally, role uncertainty regarding organ and tissue donation can be a barrier (Weiland et al., 2013). Donation-related knowledge was shown to increase following participation in donation-related simulated scenarios (Karabilgin et al., 2015; Wood, Buss, Buttery, & Gardiner, 2012). Similarly, the nurses in the present study reported a better understanding of the sequence of events in tissue only donation and the role of the donor co-ordinator after the simulation.





Lerpiniere and Verble (2009) found that where education was provided to nurses an increase in the approach to families of potential tissue donors was evident. Furthermore, Sebach and McDowell (2012) highlighted that staff who had face-to-face training, including interactive role playing scenarios felt better prepared to initiate a tissue donation conversation, mirroring findings from this study.

The effects of simulation education on teamwork and communication is well documented (Andersen et al., 2010; Brindley & Reynolds, 2011). Simulation is also used to support staff to communicate sensitively when involved in difficult conversations, such as giving bad news (Marken, Zimmerman, Kennedy, Schremmer, & Smith, 2010; Meyer et al., 2009). Whilst studies were identified that aimed to uncover the value of simulated donor conversations, outcomes were often related to subsequent numbers of consents to donate (Anders, Johnson, & Toler, 2014; Siminoff, Traino, & Genderson, 2015). Most of the literature relating to donation conversations concerns either both tissue and organ donation, or solely organ donation. As yet, tissue donation alone has not received the same attention as organ donation (Australian and New Zealand Intensive Care Society (ANZICS), 2013). The present study explored the nurses' experience of raising the option of tissue donation within the intensive care setting with the emphasis on raising the option of tissue donation, rather than gaining consent to donate.

### Limitations and area for further research

Although the number of nurses interviewed was small, the sharing of their experiences has provided unique and meaningful findings. Additionally, participants for this study were only drawn from one ICU and some of the views and opinions expressed by the participating nurses in relation to raising the option of tissue donation may reflect this group's cultural values and dynamics.

Extending this study to nurses from other ICUs and hospitals is therefore recommended. A cost benefit

analysis was not included in this study. Simulation can be resource intensive and costly, yet cost is infrequently reported in relation to simulation (Zendejas et al., 2013). Nonetheless, the purpose of this study was not to ascertain the cost-effectiveness of simulation education but rather to explore the experience of nurses in raising the option of tissue donation after participating in simulation education. Determining associated costs is an area for further research. These nurses may have gained the same knowledge had they participated in more traditional means of education, but this was not a comparative study. Internationally there has been a lack of focus on tissue donation research, as most has focused on the combination with organ donation. Support for tissue donation focused research is therefore warranted.

### Conclusion

This qualitative study involved interviewing five ICU nurses who had participated in a simulated education session related to conversations with family about the option of tissue donation. Nurses viewed raising the option of tissue donation with families of deceased patients as being difficult conversations, and while they were concerned about adding additional stress to a grieving family, it was important to them that they initiated the conversation. A simulation with the chance to practice this type of difficult conversation was found to be realistic and beneficial in terms of providing the opportunity to rehearse the words to use, and this increased participant's confidence to raise the issue of tissue donation in real life. Additionally, simulation, and notably the debrief, supported participants sharing and learning from each other. This study adds to the paucity of literature related to the option of tissue donation and has the potential to improve the number of tissue donations.

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