

Teaching organ and tissue donation in medical and nursing education: a needs assessment

Context—Research on organ donation education is limited by its reliance on convenience samples (ie, small sample sizes and local schools) and its failure to assess methods of instruction on the topic.

Objective—To describe medical and nursing students' training in organ donation by examining curriculum content and methods of instruction by using a national sample of medical schools and a statewide sample (New York) of nursing schools.

Design—Self-report online survey.

Participants—Nursing and medical deans responsible for curriculum development and evaluation.

Main Outcome Measure—Participants provided information on the inclusion of specific topics in organ donation, skills related to organ donation, and the declaration of personal donation intentions within their respective educational programs. Methods of instruction on such topics (eg, standardized patients, lectures, small groups) also were assessed.

Results—Although many educational programs include an organ donation component, a significant proportion of schools failed to provide instruction on donation consent processes, definitions of brain and cardiac death, and the discussion of organ donation during a routine health care visit. Most schools rely on lectures as the sole method of instruction. Recommendations are made for how deficits in instruction might be addressed through future interventions and education. (*Progress in Transplantation*. 2009;19:343-348)

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It is widely recognized that the United States faces a public health crisis in the form of an organ shortage. This shortage results in a long list of individuals waiting for, and sometimes never receiving, lifesaving organ transplants.^{1,2} During the first 11 months of 2008, 45 096 names were added to the transplant waiting list,³ with the number of candidates on the waiting list reaching a staggering 110 026 names as of June 14, 2009.⁴ Such figures are even more daunting when one considers that only 12 929 donors donated organs during the first 11 months of 2008.⁵ Although multiple suggestions have been offered for resolving the organ shortage, ranging from policy changes⁶ to public education,⁷ the education of health care professionals is also an important aspect to consider in furthering the cause of donation. Health care professionals are an information source about donation^{8,9} and are considered influential in encouraging donation.^{10,11} Specifically, in this article, we describe the current state of organ donation education as reported by a sampling of deans of medical and nursing schools.

Role of Health Care Professionals in Organ Procurement

Historically, health care professionals have been responsible for identifying potential organ donors at the time of death and asking for familial consent to donation.¹² However, 2 pieces of legislation—required request and routine referral laws—have changed the role of health care professionals in the procurement system. Required request laws state that all eligible families must be offered the option of organ donation, while routine referral laws require that hospitals notify a local organ procurement organization (OPO) of a patient's impending death.⁶ Such laws are intended to allow specially trained OPO coordinators to request donation, rather than having untrained hospital staff approach a family.¹³ These laws have resulted in some improvements in procurement success¹³ and have changed the process of approaching families for donation. Physicians and other health care professionals are no longer encouraged (unless specially trained as designated requestors)

to approach a family for donation.¹⁴ Under the current request system, however, health care professionals still play an important role in increasing the donor pool. Health care professionals must be able to respond to family-initiated questions about donation, educate a family about brain death, and be involved in “team huddles” to collaborate with OPO coordinators on the best methods of approaching a potential donor family.^{14,15}

One method of creating a pool of health care professionals who are knowledgeable about organ donation or to better prepare health care professionals for their ultimate roles in organ donation processes may be to educate health care students while they are still enrolled in medical or nursing schools. Both medical and nursing students have been documented as having generally positive attitudes toward donation,¹⁶⁻¹⁸ with up to 80% of students reporting signing a donor registry or card.¹⁷ Unfortunately, such positive attitudes toward donation have generally been accompanied by low levels of knowledge on the topic.^{19,20} Specifically, students in various samples lack knowledge on donation consent processes, brain death, and donor eligibility criteria.^{17,19-20}

Educating future health care professionals on the topic of organ donation is necessary, as many of the identified barriers to donation, such as families who decline donation because of a failure to understand brain death,²¹ are directly relevant to the role of health care professionals. Encouragingly, studies of medical and/or nursing students have documented students’ increased knowledge, self-efficacy, attitudes toward donation, and favorable program evaluations following intervention.²²⁻²⁴

Assessment of the Current State of Medical and Nursing Education

A significant limitation of the previous research on health care students and organ donation is the failure to consider how organ donation is implemented in health care programs across the United States. To date, only 1 study²⁵ has addressed how a national sample of nursing schools provides education on organ donation, and this study was focused on specific topics incorporated into the curriculum; it did not involve assessment of specific methods of instruction that may be more or less effective in promoting donation or assessment of efforts to teach students to declare their own donation intentions. In medical schools, efforts are even more limited, with studies based on data available from other countries or small local samples in the United States (<4 universities).^{16,17,19} Specifically, we were unable to identify any national effort to study organ donation instruction and assessment of such instruction, including instructional methods, topics, and techniques for assessing students’ donation knowledge in medical schools.

The present study involves a survey of a national sample of medical schools and a statewide (New York) sample of nursing schools on organ donation topics contained in their curriculum and the methods used to instruct students on such topics. Research efforts in medical education are advanced by providing national estimates of instruction on donation topics and information on the methods used to assess students’ donation knowledge. Current efforts in nursing education²⁵ are supplemented by describing methods of instructing students about donation. Results of the present study will provide a framework for future interventions in the medical/nursing student community, identifying areas where students are in need of further education.

Methods

Overview

The present study was designed to examine methods of instructing students and assessing their knowledge about organ donation, using a national sample of medical schools and a statewide (New York) sample of nursing schools. Individuals in charge of education or curriculum development were identified and received an e-mail invitation to participate in an online survey (developed through www.surveymonkey.com) that queried respondents as to how organ donation topics, skills related to organ donation, and the declaration of personal donation intentions were addressed within the school’s curriculum. All study procedures were approved by the university’s social and behavioral sciences institutional review board.

Participants

On the basis of information available from the American Medical Association and the New York State Nurse’s Association, lists were compiled of accredited nursing schools in New York and medical schools in the United States. By visiting each school’s Web site, we obtained e-mail addresses for the individuals in charge of curriculum development (eg, medical school deans, medical education coordinators, nursing deans, directors). Such a process resulted in the identification of 126 deans in medical schools and 107 deans or directors in New York nursing schools, all of whom received an e-mail invitation to participate in the survey. Two and 3 weeks after the first round of e-mails, nonrespondents were sent additional reminder invitations.

Survey Design

On the basis of a review of the relevant literature and communication with professionals in the donation and transplantation fields, a survey was developed to examine medical/nursing school curriculum content in the following 3 areas: (1) instruction in deceased organ donation, (2) instruction in skills related to organ donation, and (3) assessment of students’ knowledge

regarding organ donation. All questions were multiple-choice and aimed to explore both the inclusion of the content area within a school's curriculum and the method of instruction (ie, lecture, small-group interaction, patient interaction, standardized patient, or "other" methods) used to present the material to students.

Results

Instruction in Deceased Organ Donation

Representatives from a total of 54 medical schools and 50 nursing schools completed the survey, resulting in response rates of 42.8% for medical schools and 46.7% for nursing schools. Respondents from 40 medical schools (74%) and 34 nursing schools (68%) indicated that their program currently provides instruction on organ donation within the curriculum. Across schools, donation was considered to be an "important" topic of instruction (28 medical schools, 52%; 21 nursing schools, 42%), followed by "somewhat important" (14 medical schools, 26%; 11 nursing schools, 22%) and "mandatory/critical" (9 medical schools, 17%; 10 nursing schools, 20%).

Of the schools that taught organ donation, respondents were asked to indicate the methods used (ie, lectures, standardized patients, patient interaction, small group, other methods of instruction) to instruct students on the topic. Respondents identified as many methods of instruction as applied to their respective curriculum; thus, multiple methods could be selected by a single program. Results indicate (Figure 1) that all schools relied heavily on lecture to educate students about donation, with medical schools being more apt than nursing programs to include instruction through small groups or patient interactions.

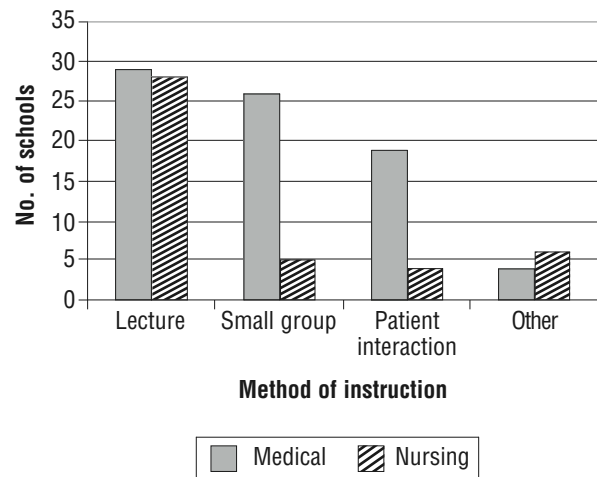


Figure 1 Teaching about organ and tissue donation.

Respondents were also asked to describe how students at their school are instructed about specific donation topics (eg, organ/tissue donor eligibility). Results (Table 1) indicate that about 20% of medical schools fail to teach students about the process of obtaining consent for donation, and approximately 12% of nursing programs fail to teach students about brain and cardiac death.

Skills Related to Organ Donation

Respondents from all schools, regardless of whether they provided instruction in postmortem organ donation, were asked to report how students at their school are taught about 2 related issues: (1) how to discuss end-of-life issues (eg, health care proxy, advance directive) with a patient, and (2) how to discuss organ

Table 1 Topic-specific instruction in organ and tissue donation^a

Topic	Method of instruction											
	Lecture		Small group		Patient interaction		Standardized patients ^b		Other method		Do not teach	
	Med (n=40)	Nurs (n=34)	Med (n=40)	Nurs (n=34)	Med (n=40)	Nurs (n=34)	Med (n=40)	Nurs (n=40)	Med (n=40)	Nurs (n=34)	Med (n=40)	Nurs (n=34)
Organ and tissue donor eligibility	23 (58)	25 (74)	16 (40)	5 (15)	11 (28)	3 (9)	1 (2)	0 (0)	1 (3)	4 (7)	3 (9)	
Individuals responsible and the process of obtaining consent for donation	20 (50)	23 (68)	15 (38)	4 (12)	10 (25)	2 (6)	1 (2)	0 (0)	0 (0)	8 (20)	3 (9)	
Definitions of brain and cardiac death	31 (78)	23 (68)	18 (45)	2 (6)	11 (28)	1 (3)	0 (0)	0 (0)	2 (6)	2 (5)	4 (12)	
Magnitude of the need for organ procurement	24 (60)	24 (71)	15 (38)	3 (9)	10 (25)	2 (6)	0 (0)	1 (2)	1 (3)	5 (12)	2 (6)	

Abbreviations: Med, medical schools; Nurs, nursing schools.

^a Values in table are No. (%) of schools.

^b Nursing schools did not report use of standardized patients for any topic and thus are excluded from this table.

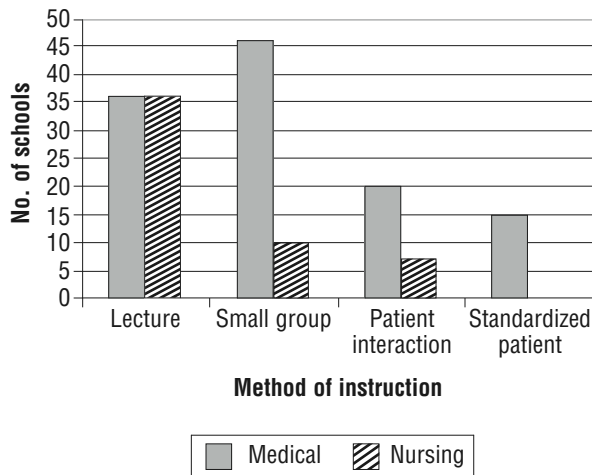


Figure 2 Teaching end-of-life issues.

donation at a routine health care visit. Respondents from all medical schools indicated that they presently teach end-of-life issues, and respondents from only 4 nursing schools indicated that instruction on end-of-life issues was not part of their curriculum. In contrast, respondents from 27 medical schools (50%) and 21 nursing schools (42%) indicated that their school does not provide instruction on discussing organ donation in a routine health care visit.

Of the schools who do provide instruction on skills related to donation, respondents were again queried about the method(s) of instruction used in teaching these topics (Figures 2 and 3). Results indicate a preference among medical schools, as compared to nursing schools, for using active methods of instruction (eg, standardized patients, small groups, patient interactions) to teach skills related to donation. In addition, respondents from all schools were asked if and how they teach students to document their personal donation decisions (Table 2). Results indicate that a significant proportion of medical and nursing students are not taught to consider donating their own organs or the methods of providing consent for donation.

Assessment of Knowledge About Organ Donation

In total, respondents from 21 medical schools (39%) and 30 nursing schools (60%) reported that they assess students' knowledge about organ and tissue donation. Of those medical schools that used an assessment, short-answer examinations ($n=9$, 43%), standardized patients ($n=4$, 19%), oral examinations ($n=1$, 5%), and "other" methods ($n=7$, 33%) of assessment, such as multiple-choice examinations, small-group interactions, or observation of students in a clinical context, were common. Of the nursing schools that assessed students' knowledge of organ donation, methods used included primarily short-answer examinations ($n=12$;

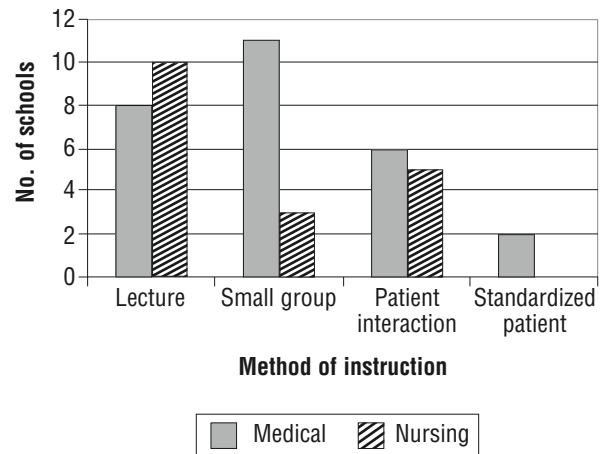


Figure 3 Teaching about discussion of organ and tissue donation during routine health care visits.

40%) and "other" methods of assessment ($n=2$; 7%) such as multiple-choice examinations.

Discussion

Students' Knowledge of Donation and Related Topics

Results of the current study indicate a number of deficits in medical and nursing students' training with regard to organ and tissue donation. Although many programs have incorporated education on organ donation into their curricula, results of the present study indicate specific topics that may be worthy of greater inclusion in students' studies as deans and directors of health care training programs consider future curriculum planning. For example, many students are not taught how to discuss donation at a routine health care visit, to consider donating their own organs, or how to give consent for organ donation (Table 2). Additionally, 20% of medical schools fail to teach students about the process of obtaining consent for donation, and approximately 12% of nursing programs fail to teach students the definitions of brain and cardiac death. Such skills may be important for students to be exposed to before entry into the workforce, as many health care professionals still indicate difficulties with understanding and explaining brain death or the nuances of the procurement process to families.^{14,26}

Although knowledge gained in medical/nursing training may not translate directly to professional practice, training is often a prerequisite for behavior change.²⁷ Thus, changes to medical and nursing school curricula may create a cadre of health care professionals who are better primed to learn about and implement appropriate donation practices at their place of employment.

Results of the current study also describe the methods of instruction used to teach students about organ donation. Lectures were the most frequent form of instruction across a variety of topics in both medical

Table 2 Instruction on declaring personal donation intentions^a

Topic	Method of instruction											
	Lecture		Small group		Patient interaction		Standardized patients		Other method		Do not teach	
	Med (n=54)	Nurs (n=50)	Med (n=54)	Nurs (n=50)	Med (n=54)	Nurs (n=50)	Med (n=54)	Nurs (n=50)	Med (n=54)	Nurs (n=50)	Med (n=54)	Nurs (n=50)
Teach recognition of the importance of donation	25 (46)	30 (60)	20 (37)	6 (12)	13 (24)	3 (6)	2 (4)	0 (0)	0 (0)	0 (0)	9 (17)	8 (16)
Teach students to consider donating own organs	10 (19)	16 (32)	6 (11)	5 (10)	4 (7)	0 (0)	0 (0)	0 (0)	2 (4)	1 (2)	27 (50)	17 (34)
Teach students how to give personal consent to donation	10 (19)	17 (34)	12 (22)	4 (8)	6 (11)	0 (0)	0 (0)	1 (2)	2 (4)	1 (2)	22 (41)	17 (34)

Abbreviations: Med, medical schools; Nurs, nursing schools.

^a Values in table are No. (%) of schools.

and nursing schools. Although nursing schools relied very little on small groups, patient interactions, or standardized patients, medical schools did use such methods of instruction, albeit at a lower rate than lectures. Active learning methods, such as patient interactions and standardized patients, have been recognized as having beneficial outcomes²⁸; for example, students become more positive toward course topics instructed through active learning techniques. In addition, scholars²⁹ point out that active learning methods are related to student reports suggesting course content is more applicable to their future careers.

Applied to the domain of organ donation, results of the present study indicate that future curriculum planners should not only consider the topics covered in a given program with regard to donation, but also the format of instruction. Perhaps the integration of more active learning methods at the college/university level can create a pool of health care professionals who view donation and donation-related topics as more pertinent to their future career choices.

Intervening With Medical and Nursing Students

The present study should be viewed as a baseline representation of how organ and tissue donation is currently incorporated into medical and nursing school curricula. Results are relevant to deans responsible for directing program content, instructors of specific courses, and researchers interested in intervening with medical and nursing students. To guide the decisions of such individuals, researchers must next determine how to engage and educate students with regard to donation. For example, given the presently identified deficits in donation education, nursing and medical programs might turn to their colleagues at OPOs to

provide instruction on topics that may be unfamiliar to instructors themselves. In addition, OPO staff may offer valuable insight into the constantly changing policies (eg, registries of intent vs registries of consent) that surround the donation/transplantation field. In the present study, 4 nursing schools did identify working with staff from a local OPO as an “other” method of instructing students about donation. Other schools also might benefit from implementing such practices, particularly as recent interventions with medical students that have involved OPO staff²³ have proven successful.

Limitations and Future Research

The present study contributes to the literature on donation education by providing a survey of the donation topics included in medical/nursing schools' curricula, identifying methods of instruction used by schools, and examining how students are taught to declare their personal intentions with regard to donation. Although such a study is intended to be useful to those who provide instruction to future health care professionals, the study is not without limitations. First, although survey response rates were respectable (approximately 45% overall), responding and nonresponding schools were not compared to determine if participants differed characteristically from nonparticipants. Thus, participants might have been more favorable toward donation. A second noteworthy limitation of the study was its reliance on a statewide, rather than national, sample of nursing schools. As prior national assessments of donation topics included in nursing education exist,²⁵ current efforts can be viewed as a supplement that expands knowledge on the methods of instruction most often applied in schools.

In addition to the limitations noted, the present study leaves much room for future research in terms of advancing education about organ donation. Future researchers are challenged to examine the optimal methods for instructing students in donation—perhaps by comparing active learning techniques to more recent approaches in learning that match students' needs and characteristics to the method of instruction.³⁰ In addition, future research should examine how donation skills taught in the course of one's education might translate to one's treatment of such topics in professional practice.

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