Nurses' Knowledge, Attitudes, and Beliefs Regarding Organ and Tissue Donation and Transplantation

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Synopsis

The acute shortage of human organs and tissues for transplantation has been attributed in part to health professionals, including nurses, for their reluctance to recognize and refer suitable candidates for donation. In 1988, nurses' knowledge, attitudes, and beliefs regarding organ and tissue donation and transplantation were assessed using a 70-item questionnaire. Respondents included 1,683 nurses employed in 62 rural and urban hospitals in the Midwest. Only 365 respondents (21.7 percent) reported having requested tissue donations and 243 (14.4 percent) reported having requested organ donations.

However, of those who requested tissue or organ donations, 270 (74 percent) obtained consents for tissues and 150 (61.7 percent) obtained consent for organ donations. Respondents were knowledgeable about organ and tissue donation (mean score of 7.5 on a 0 to 10 knowledge scale with 10 as highest) and reported attitudes and beliefs were moderately positive. Factors that were significantly correlated with the number of requests made for organs and tissues and the number of consents obtained included nurses' knowledge, attitudes, and beliefs about donation; nurses' perception of their own confidence in their ability to request tissues and organs; being a supervisor; and working in an emergency department.

MODERN MEDICAL AND SURGICAL TECHNIQUES, along with the use of immunosuppresive agents, have transformed organ and tissue transplantation from experimental procedures to acceptable medical treatments for end-stage renal, heart, lung, liver, and pancreatic disease.

The number of tissue transplants, including cornea, bone, heart valves, and skin are increasing annually. Unfortunately, the supply of organs and tissues for transplantation has not kept pace with refinements in transplantation techniques, resulting in a critical national shortage of sufficient organs available for transplant. On a given day there are about 18,000 patients awaiting kidney transplantation, 1,800 awaiting heart transplantation, and 200 awaiting heart-lung transplantation (*1*). The most recent published estimate of the number of patients seeking corneal transplantation is 3,500 to 5,000 in 1987 (*2*), and current estimates are believed to be close to 5,000. Waiting lists for all organs and tissues increase daily as more potential recipients are identified.

More than 20,000 people annually suffer brain death from trauma. Only 15 percent may become cadaver organ donors, however, resulting in a potential loss of 34,000 kidneys and 17,000 hearts, lungs, livers, and pancreata (*3*). The basis for the current organ donor shortage is considered not a problem of inadequate numbers of potential donors, but rather suboptimal utilization of the available donor-organ pool. In most instances, organ donors have suffered neurological brain death, but their circulation and breathing are maintained artificially.

'The more experienced the nurse, the more likely the nurse was to request and receive consent for organs and tissues.'

In a report from the Surgeon General's Workshop on Organ Procurement, C. Everett Koop, MD, concluded that the "public's awareness of the usefulness of multiple organ procurement needs to be heightened," and that lack of "awareness and communication on the part of professional people is a significant problem" interfering with the procurement of organs (*4*). A 1985 Hastings Center report cited the unwillingness of medical professionals to ask relatives of brain-dead patients for organs as the major reason for the shortage of transplantable organs (*5*).

In an effort to improve the supply of organ donors, Federal and State legislation has been enacted. The 1986 Federal Omnibus Budget Reconciliation Act mandated that hospitals accepting Medicare and Medicaid payments have written guidelines for routinely requesting organ and tissue donations, including the notification of recognized organ procurement agencies about possible donors (*6*). Related legislation has been enacted on the State level and as of March 1988, 43 States had passed so-called required request legislation (*7*). Noncompliance with Federal legislation could result in withdrawal of Medicare funding to an institution (*8*).

Enactment of required request legislation has placed health professionals, especially physicians and nurses, under increasing pressure to approach the patient's family regarding organ and tissue donation. Although the request for donation may be a shared responsibility of the physician, nurse, and other health professionals, the nursing professional serves as a vital link in the process (*9–13*). Nurses consider organ procurement to be part of their professional responsibility (*14*). They provide nursing care to trauma victims and are in a position to identify patients who may meet the brain death criteria and thus become potential organ donors.

Once the patient has been declared brain-dead and the family has accepted this irreversible condition, organ and tissue donation can be presented as an option to the next of kin. Many patients who die in the hospital from cardiac or respiratory death could be donors of tissues, including bone, corneas, skin, and heart valves. Nurses frequently have established a trusting relationship with the family and are at the bedside at the time of death. When the patient meets the criteria, tissue donation should be discussed with the family.

Because of the critical role nurses play in the procurement process, this descriptive study was undertaken to assess hospital nurses' knowledge, attitudes and beliefs, perceptions, and personal actions with regard to organ and tissue donation and transplantation; and to identify those variables that are significantly correlated with the reported number of requests made for organ and tissue donations and the reported number of consents obtained. This information may be useful in the development of educational programs designed to prepare nurses for their role in making required requests.

Many factors have been identified as influencing health professionals' knowledge, attitudes, and beliefs about organ and tissue donation and transplantation and their subsequent action or inaction in procurement activities. Previous studies have identified variables that serve as barriers to physicians' and nurses' support of transplantation. These include perception of organ and tissue transplantation as an experimental procedure (*15, 16);* having insufficient information about criteria for potential donors (*12, 15–18*); lacking adequate knowledge of request policies and procedures (*12*); perceiving that they would add to the distress of surviving relatives by requesting an organ or tissue donation (*13, 15, 16, 18*); nurses perceiving a lack of physician support for donation (*17*); having concerns about legal responsibilities to donor and recipient (*3, 13, 17*); being inexperienced with organ and tissue requests and experiencing emotional distress when making requests (*12, 17*); having negative personal feelings toward organ and tissue donation (*18*); having difficulty understanding and explaining brain death (*19*); having a negative reaction to caring for the cadaver donor (*12*); lacking time to care for the potential donor (*20*); and viewing the patient's death as a professional failure (*21*).

Factors that have been shown to facilitate organ and tissue procurement by physicians or nurses include a personal commitment to organ and tissue donation, as evidenced by signing and carrying their own donor card (*16, 22*); positive personal feelings toward donating their own organs (*22*); the perception of the health professional's own family toward organ donation (*22*); the presence of a

signed donor card by the deceased donor (*17*); completion of an educational training program on organ and tissue donation (*3, 23*); and a perception of personal confidence or comfort in making a required request (*11*).

Additional sociodemographic variables indicating support for organ and tissue donation and transplantation and knowledge about the process have been identified in studies conducted with the general public. Findings from 1983 and 1985 Gallup surveys (*24, 25*) to determine the public's attitudes toward kidney donation demonstrated that the likelihood of a person planning kidney donation was correlated to educational attainment, moderate to high income (more than $30,000 per year), and being of the white race. The variables correlated as well with an increased knowledge and awareness about organ donation and transplantation. Young respondents were less likely to be aware of the organ donation process. Seventy-five percent of those aware of organ transplants could correctly define brain death. Manninen and Evans (*26*) confirmed that age (35–44 years), white race, educational attainment, and increased socioeconomic status correlated with the numbers of respondents most willing to donate organs. Earlier, Simmons and colleagues (*27*) demonstrated that these variables, along with a reported history of being a blood donor, were correlated with a willingness to sign a donor card.

Variables associated with respondents who had not signed donor cards, indicating lack of personal support for organ and tissue donation, included fear of hastiness of organ removal at death, concern with mutilation of the body, religious views, myths and superstitions (*28, 29*); and death anxieties (*30*).

For this descriptive study, the following variables were examined: nurses' knowledge, attitudes, beliefs, attendance at inservice programs, their perception of confidence in making requests, their personal actions in regard to organ and tissue donation, professional education, the number of years in nursing, the title of their position, and their area of hospital assignment. To date few studies have examined these variables from a cross-section of nurses to identify significant relationships between the reported number of requests made for organ and tissue donations and the reported number of consents obtained.

Requests for organ and tissue donations and subsequent consents were examined separately, since the circumstances under which requests for an organ donation, as opposed to a tissue donation, may be different, and the nursing unit in the hospital where the request is made and the requestor can vary. Organ donations are obtained from those patients who are declared brain-dead (cadaver donors) but whose circulation is maintained artificially on a ventilator. Organ donors are often young victims of sudden traumatic injury. Families and support persons are usually unprepared for the death. Most potential donors of vital organs are in an intensive care unit and on a ventilator.

Table 1. Sociodemographic profile of 1,683 nurses participating in a study of respondents' knowledge, attitudes, and beliefs regarding organ and tissue donation and transplantation

Variable	*Percent*
Sex:	
Female	95.6
Male	4.2
No answer	0.2
Race-ethnicity:	
White	92.7
Black	5.3
Other	2.0
Highest educational attainment:[1]	
Diploma in nursing	28.2
Associate degree in nursing	27.8
Bachelor of science in nursing	22.8
Licensed practical nurse	11.8
Bachelor of science	4.2
Master of science in nursing	2.3
Master's degree, other	1.9
Other	1.2
Title of position:	
Staff nurse	69.2
Supervisor	9.7
Head nurse	8.8
Other	4.6
Director of nursing	3.1
Registered nurse clinician or practitioner	2.2
In-service educator	2.1
No answer	0.3
Assigned department:[1]	
Medical-surgical	26.1
Intensive care unit	16.1
Other	15.2
Emergency department	8.6
Obstetrics	7.8
Floater among various departments	6.9
Operating room	6.5
Pediatrics	4.1
Psychiatric	3.4
Recovery room	2.0
Geriatrics	1.4
Outpatient	1.2
Neurosurgical	1.1
Hospital size:	
100–199 beds	35.0
More than 500 beds	20.1
200–299 beds	19.8
Fewer than 100 beds	14.7
300–399	10.2
No answer	0.2

[1]Respondent could select more than 1 category.

Table 2. Results of test of 1,683 nurses' knowledge regarding organ and tissue donation and transplantation

Item	Correct answer	Percent answering correctly
Brain death occurs when the brain stops functioning, even if the heart is kept beating by artificial means	True	95.48
Organ donation prevents an open casket funeral	False	90.08
Persons who have experienced irreversible brain death, but are maintained on a life-support system can be considered as potential organ donors	True	89.19
A person must be pronounced clinically brain dead in order to have that person's organs donated	True	83.18
Organ donors may range in age from newborn to 70 years	True	73.50
Having an infectious disease is a contraindication to being an organ or tissue donor	True	72.96
When an organ is removed, the family of the deceased donor pays for the surgery to remove the organ	False	69.16
A person who has died from a cardiac death can be considered for a tissue donation	True	65.89
At the time of death, or when brain death has been declared, required request laws require hospitals to provide families with the option of organ or tissue donation	True	65.78
If a deceased patient has signed an organ donor card, but the family does not wish to donate the organs, the hospital is required to honor the wishes of the deceased	False	45.51

Table 3. Responses to positive beliefs about organ and tissue donation and transplantation by 1,683 nurses, in percentages

Item	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	No answer
Organ donation is a gift of life to another.	61.8	33.0	2.9	1.8	0.4	0.1
Organ transplants are important to help others who are very ill	55.3	40.2	2.4	1.7	0.3	0.1
Organ transplantation is an acceptable form of medical treatment	48.5	42.7	5.9	2.1	0.4	0.4
A donor feels no pain when organs or tissues are removed at death	55.8	30.8	11.6	1.0	0.7	0.1
If I donate my organs or tissues at the time of death, it could be that a part of me will live on	28.3	30.6	21.3	14.0	5.6	0.2
If I donate my organs or tissues at the time of death, I could be doing something good for someone else	57.3	38.6	3.0	0.7	0.3	0.1
My family's grief will somehow be lessened if my organs or tissues are donated after I die	11.7	22.8	35.4	23.6	6.4	0.1
The health care costs associated with organ transplantation are worth it to save another's life	23.3	48.9	17.0	8.1	2.3	0.4
If necessary, I would accept an organ transplant in order to preserve my life	26.9	44.4	20.5	5.9	2.1	0.2

Tissue donations may be obtained from brain-dead donors or from a patient who died from cardiac or respiratory arrest. These patients may be hospitalized on any nursing unit. All deaths that occur in the hospital that meet donor criteria can be considered as potential organ or tissue donors. Reported consents obtained for organ donations and consents obtained for tissue donations were examined separately as outcome indicators of the success of required request procedures.

Method

Sample. During the period of February 10 through March 5, 1988, data were collected from 1,683 nurses employed in 62 hospitals in rural and urban centers in southeastern Missouri, southern Illinois, and northeastern Arkansas. The size of the hospitals ranged from 29 to 1,054 beds, with an average size of 294 beds. More than 95 percent of the sample was female, consistent with the nursing profes-

sion, and the most frequent age category was 30–39 years (41 percent). More than 88 percent were registered nurses, and almost 12 percent were licensed practical nurses. Of the registered nurses, 27.8 percent had obtained an associate degree as their highest level of education, 28.2 percent were diploma graduates from hospital schools of nursing, 22.8 percent had received a bachelor's degree in nursing, and 4.2 percent had received a bachelor's degree in another field. Another 5.2 percent of the respondents had received degrees beyond the bachelor's level.

More than 69 percent of the nurses indicated they were staff nurses; about 18 percent were employed in a supervisory level as a supervisor or head nurse. Medical-surgical and intensive care were the two most frequently identified units of assignment. The respondents' mean number of years practicing nursing was 12. Demographic characteristics are summarized in table 1.

Research design. A cross-sectional survey research design was selected. Directors of nursing from 120 hospitals with contracts with Mid-America Transplant Association (MTA), the regional organ and tissue procurement agency serving southeastern Missouri, including metropolitan St. Louis, southern Illinois, and northeastern Arkansas, were mailed letters describing the purpose of the study and inviting them to have their nurses participate in the survey. Sixty-seven directors of nursing responded positively.

Instrumentation. The 70 items comprising the data collection instrument were based on results of a literature review that focused on knowledge, attitudes, and beliefs of health professionals and the general public about organ and tissue donation and transplantation. Two primary sources were used for the core of the instrument, the "Donation of Human Organs for Transplantation Survey" designed by Hillman (*31*) and two public survey instruments (*24, 25*). The instrument included 10 knowledge items that were true-false, 26 belief items, and 10 professional attitude items. Forced-choice response options using a five-point Likert scale (strongly agree to strongly disagree) were selected for the attitudes and beliefs subscales. A middle category, "no opinion," was included. The remaining items were multiple-choice, yes or no, or fill in the blanks. These items solicited demographic information, assessment of personal actions of nurses and their family members in regard to organ and tissue donation and transplantation, and information about educational needs of the respondents on the subject of organ and tissue donation and transplantation. Subjects self-reported the number of times they had requested and obtained consent for tissue and organ donations.

'This study illustrates that nurses had consistent positive attitudes and beliefs toward some issues of organ and tissue donation, but they showed reticence on both positive and negative statements regarding donor families' acceptance of organ and tissue donation.'

The instrument was pilot tested with a sample of 41 nurses from one of the MTA hospitals. Item analyses, subscale intercorrelations, and reliability coefficients were calculated on the pilot sample and primary sample. Final instrument reliability for the belief and attitude subscales combined was 0.9023. For the belief subscale alone, reliability was 0.8717; the attitude subscale alone was 0.8255; and the knowledge subscale was 0.6767. Content validity was judged using consensual validity procedures.

A panel of six nursing experts reviewed the instrument for appropriateness, clarity, adequacy of response options, readability, and directions. The panel included three organ procurement coordinators with the regional organ procurement agency; a director of nursing; a nursing supervisor; and a school of medicine faculty member who had conducted prior research on organ and tissue donation. Items judged questionable by three of the six panelists were rewritten or deleted.

Data collection and analysis procedures. Questionnaire packets were mailed to directors of nursing in the 65 hospitals who had previously agreed to participate. Packets included a cover letter that explained the purpose of the study, and a statement regarding voluntary participation and anonymity of responses; the instrument; and a stamped return envelope. Initially 67 hospitals were to participate. One hospital, however, closed soon after the first inquiry and a second hospital had served as the site for the pilot and thus was not included in the study. The method of distribution of the questionnaires to the staff was left to the discretion of the director of nursing. It is not known how many of

Table 4. Responses of 1,683 nurses to negative beliefs about organ and tissue donation and transplantation, in percentages

Item	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	No answer
Having an operation after I die is an unpleasant thought	5.9	13.5	19.7	36.3	24.5	0.1
Organ and tissue donations are against my religion	0.6	2.0	14.8	43.0	39.0	0.6
Members of my family would object to donating my organs or tissues after I die	4.0	14.7	30.0	36.6	14.6	0.1
A request for organ or tissue donation would place an additional burden on my family at a time of grief	5.9	30.4	19.2	33.0	11.3	0.2
If I agree to donate my organs, the doctors or nurses might do something to me before I am dead	1.7	5.4	10.4	45.2	37.0	0.3
I want my body intact for the resurrection or for an afterlife	2.4	6.3	25.2	35.9	29.9	0.3
Organ transplantation uses too many health care dollars	5.5	18.3	25.6	34.9	15.3	0.4

Table 5. Professional attitudes of 1,683 nurses about organ and tissue donation and transplantation, in percentages

Item	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	No answer
I would feel comfortable about requesting an organ (kidney, heart, lung, liver, or pancreas) donation from a family	9.7	38.9	11.4	34.0	5.9	0.1
I would feel comfortable about requesting a tissue (bone, cornea, or skin) donation from a family	11.1	42.1	10.4	31.2	5.1	0.1
I would be more likely to request an organ donation, if I knew a patient had signed an organ donor card	27.4	55.0	6.8	8.6	1.8	0.4
The request for organ or tissue donation places an additional burden on the grieving family	5.4	45.7	18.1	26.2	4.4	0.2
The physicians I work with think it is important to request organ and tissue donations from the families of potential donors	5.5	22.2	55.2	15.5	1.2	0.4
Organ transplants are successful in prolonging and improving the quality of a recipient's life	20.4	60.2	14.3	4.2	0.6	0.3
I am confident of my ability to request an organ donation from a family	8.1	32.8	20.0	32.4	6.4	0.3
I am confident of my ability to request a tissue donation from a family	9.0	35.5	18.8	30.6	5.9	0.2
Organ donation is a positive option for the family at the time of death of a family member	13.1	50.5	25.8	8.7	1.7	0.2
Tissue donation is a positive option for the family at the time of death of a family member	13.5	50.0	26.0	8.8	1.5	0.2

the questionnaires were actually distributed during the 3-week period of the study.

A total of 1,842 questionnaires, representing 62 (95 percent) participating hospitals, was completed and returned to MTA within the study period. There were 159 incomplete questionnaires, with respondents omitting three or more answers, or nonnursing employees completing the questionnaire. These were eliminated from the study, leaving an adjusted primary sample of 1,683 subjects.

Data were analyzed using means, standard deviations, frequencies, percentages, and bivariate correlations with dependent variables (the number of requests made for organs and tissues, and the

number of consents obtained). Bivariate correlations were analyzed using the Pearson r with categorical variables being dichotomized for the analysis (32).

Results

Knowledge. Respondents were moderately well informed about organ and tissue donation and transplantation. With 10 as the highest possible score, the mean score was 7.5 (SD 2.05). More than 95 percent of the nurses knew that brain death occurs when the brain stops functioning, even if the heart is kept beating by artificial means.

Their knowledge of criteria for organ and tissue donation was inconsistent, however. For example, 89 percent correctly responded that patients who had experienced irreversible brain death and were maintained on life support could be considered as potential donors, but only 73 percent realized that having an infectious disease is a contraindication to being an organ or tissue donor. Less than 66 percent were aware that a patient who has died from a cardiac death can be considered as a potential tissue donor.

Nurses were least knowledgeable about current legislation on organ and tissue donation and transplantation. Only 46 percent knew that the family or next of kin makes the final decision whether to donate the organs or tissues, even if the deceased has signed a donor card. Some required request laws are explicit, while others imply that if the deceased has signed a donor card, no additional consent is needed (*33*). Most hospital policies require informed consent and signature from the next of kin, however, even in the presence of a signed donor card. Further, only 66 percent were aware that required request laws require hospitals to provide families with the option of organ or tissue donation. These and other responses to knowledge items are shown in table 2.

Beliefs. Nurses' personal beliefs toward organ and tissue donation and transplantation were primarily positive. With a total possible score of 80, the mean was 62.29 (SD 9.01). More than 95 percent of the sample strongly agreed or agreed that organ transplants are important to help others who are very ill. Further, 95.9 percent believed that if they donated their own organs or tissues at the time of death, they could be doing something good for someone else. Less than 35 percent strongly agreed or agreed that their family's grief would somehow be lessened if their organs or tissues were donated at death, however. Another 35.4 percent were undecided on this question. When asked to put themselves in the position of a potential recipient, 71.3 percent indicated they would accept an organ transplant in order to preserve their life (table 3).

In response to items considered to be negative or non-supportive of organ and tissue donation and transplantation, almost 20 percent strongly agreed or agreed that their family members would object to donating their organs or tissues at death; 36.3 percent responded that a request for organ or tissue donation would place an additional burden on their family at a time of grief. Only 2.6 percent confirmed that organ and tissue donations are against their religion; 8.7 percent strongly agreed or agreed they wanted their body intact for an afterlife (table 4).

Attitudes. Concentrating on nurses' professional attitudes, the maximum total score was 50 with a mean of 33.60 (SD 6.26). More than 82 percent strongly agreed or agreed that they would be more likely to request an organ donation if they knew that a patient had signed an organ donor card. Slightly more than half of the respondents agreed that they would feel comfortable about requesting a tissue donation from a family; slightly less than half would feel comfortable about requesting an organ donation. More than 44 percent strongly agreed or agreed that they were confident in their ability to request a tissue donation from a family; almost 41 percent were confident in their ability to request organ donations. Surprisingly, only 27.7 percent strongly agreed or agreed that the physicians they work with think it is important to request organ and tissue donation from the families of potential donors and more than 55 percent had no opinion (table 5).

Variables. Using Pearson r correlations, the following independent variables were examined for significant relationships ($P < 0.05$) with the number of requests made for organs and tissues and with the number of consents obtained (dependent variables): number of years in nursing, educational preparation, title of position, unit of assignment, knowledge score, attitude score, belief score, attendance at inservices, perception of confidence in requesting organs and tissues, and personal actions in regard to organ and tissue donation and transplantation (table 6). Because of the size of the sample (1,683), many small but significant correlations were identified. The directionality of the relationships, however, should be considered.

The number of years in nursing was positively

Table 6. Organ and tissue donation and transplantation: significant Pearson r correlations with dependent variables

Variable	Tissue requests made	Organ requests made	Tissue consents obtained	Organ consents obtained
Knowledge score	[1]0.14	0.08	[1]0.13	0.07
Attitude score	[1]0.15	[1]0.13	[1]0.16	[1]0.12
Belief score	0.07	0.04	0.09	0.06
Number of inservices	[1]0.23	[1]0.13	[1]0.20	[1]0.10
Tissue requests made	1.00	[1]0.76	[1]0.87	[1]0.67
Organ requests made	[1]0.76	1.00	[1]0.65	[1]0.87
Tissue consents obtained	[1]0.87	[1]0.65	1.00	[1]0.72
Organ consents obtained	[1]0.67	[1]0.87	[1]0.72	1.00
Confidence requesting organs	[1]0.21	[1]0.17	[1]0.19	[1]0.14
Confidence requesting tissues	[1]0.24	[1]0.16	[1]0.22	[1]0.14
Signed donor card	[1]0.08	0.05	[1]0.10	0.07
Discussed donation	[1]0.10	0.07	[1]0.10	0.07
Number of blood donations	NS	NS	NS	NS
Number of own organs to donate	NS	NS	0.05	NS
Number of family organs to donate	0.05	0.05	0.06	0.06
Number of years in nursing	0.08	0.05	[1]0.09	0.05
RN diploma	NS	NS	0.07	NS
LPN	−0.08	−0.06	−0.07	NS
Assoc. degree, RN	−0.05	NS	−0.07	NS
BSN	0.05	0.06	0.06	0.06
Master's degree (other)	NS	NS	NS	NS
Master's in nursing	0.06	0.07	NS	NS
Other degree beyond masters	NS	0.09	0.05	[1]0.10
Director of nursing	NS	NS	0.07	NS
Head nurse	[1]0.13	0.08	[1]0.11	0.08
Nurse clinician	0.05	0.05	NS	NS
Supervisor	[1]0.16	0.08	[1]0.13	0.06
Staff nurse	[1]−0.21	[1]−0.12	[1]−0.19	[1]−0.09
Emergency department	[1]0.10	0.08	[1]0.12	0.07
Intensive care department	NS	NS	NS	NS
Medical or surgical department	−0.09	−0.07	−0.08	−0.05

NOTE: Data significant at $P < 0.05$ except [1] indicates $P < 0.0001$; NS = not significant.

correlated with requests for tissues and organs as well as consents for both tissues and organs. The more experienced the nurse, the more likely the nurse was to request and receive consent for organs and tissues. A bachelor of science degree in nursing as the highest degree attained was positively correlated with requests and consents for organs and tissues.

The licensed practical nursing degree was negatively correlated with requests and consents of organs or tissues. Head nurse and supervisory positions were positively correlated with both requests made and consents obtained for tissues and organs. Being a staff nurse was negatively correlated with requests and consents.

Working in an emergency department was significantly correlated with requests and consents for tissues and organs. Being assigned to a medical-surgical unit was negatively correlated with requests and consents for tissues and organs. The number of blood donations the subject had made was not significant.

The following nurses' actions and personal interest in organ and tissue donation were significantly related with requests and consents for organs and tissues: signed own donor card, discussed own donation, and the number of family members' organs they were willing to donate upon death.

Scores on the knowledge, attitudes, and beliefs subscales were positively correlated with the number of requests for tissue and organs and consents obtained. Attendance at education programs (inservices) and nurses' perception of self-confidence in requesting tissue and organ donations were positively correlated with the dependent variables.

Finally, the intercorrelations of number of requests made for tissues and organs and consents obtained were examined. As expected, there was a strong correlation between requests and consents for organs and tissues. This study empirically demonstrated a high degree of correlation between requests for tissues with consents obtained (0.87) and requests for organs with consents obtained (0.87); requests for tissues and requests for organs (0.76); and consents obtained for tissues and consents obtained for organs (0.72).

Discussion

Analysis of responses to items on the knowledge subscale identified some confusion among the respondents on the criteria for organ and tissue donation and the required request laws. An earlier study by Ettner and coworkers (*34*) on transplant professionals' knowledge of donor criteria, indicated incomplete understanding of brain death and cardiac death. Sophie and coworkers (*12*) reported that lack of knowledge of donor criteria had a deleterious effect on organ procurement.

Information on donor criteria should be clarified in education or training programs. The importance of educational programs to prepare the nurse to participate in organ and tissue procurement was validated by this study. When nurses were asked to identify their primary source of information about organ and tissue donation and transplantation, almost 38 percent replied inservice training or hospital education programs. More than 57 percent of the respondents had attended at least one inservice on the subject. When asked about the strongest influence on their personal beliefs about

organ donation and transplantation, professional education was indicated by more than 43 percent, surpassing family beliefs, religion, mass media, or the fact that they knew someone who was a recipient.

Attendance at educational programs has been shown to result in increased knowledge and improved perception of confidence in the nurse's ability to request organs or tissues. Merz (*3*) reported that requests for donations tripled following attendance at educational programs directed to intensive care unit and emergency department staff. Malecki and Hoffman (*11*) reported that nurses who were comfortable or confident in making requests were successful in obtaining consents for organs in 84 percent of the cases, compared to a 100 percent refusal rate when families were approached by nurses who felt uncomfortable as requestors.

These findings were supported by our study, in which knowledge, attendance at educational programs (inservices), perception of self-confidence in ability to request donations, beliefs, and attitudes all positively correlated with the number of requests made for organs and tissues and consents obtained.

Other variables found to be significantly correlated with the number of requests made for organs and tissues and the number of consents obtained were number of years in nursing, bachelor's degree in nursing, being a head nurse or supervisor, assigned to the emergency department, personal interest in donation as indicated by signature on own organ donor card, and the reported number of organs of family members they were willing to donate in event of death.

Variables that demonstrated significant negative correlations with the dependent variables were being a licensed practical nurse, being a staff nurse, and being assigned to a medical-surgical department. Previous studies of the general public have demonstrated that higher formal education is positively correlated with supportive views of organ and tissue donation and transplantation. The licensed practical nurse has 1 year of post-high school education and the registered nurse may have from 2 to 4 years.

On a cautionary note, education may be confounded with knowledge, attitudes, and beliefs. Another explanation for these negative correlations is that practical nurses and staff nurses may not perceive organ and tissue donation to be part of their professional responsibility. Because of the high level of interpersonal skill required to approach a family about organ and tissue donation at a difficult time, the skills of a registered professional nurse and even a head nurse or supervisor may be required to make the request.

When respondents were asked who is responsible for approaching the family or next of kin for organ and tissue requests in their hospitals, more than 52 percent indicated the supervisor and 35 percent indicated the physician. More than 31 percent indicated the staff nurse also had a responsibility for making requests, however. In regard to educational preparation, frequently the head nurse or supervisor is required to have at least a bachelor's degree in nursing, which could explain the positive correlation between supervisory level and bachelor of science degree in nursing with requests made for organs and tissues and the subsequent number of consents obtained.

The nursing supervisor often is a more experienced nurse and one who has been supervising for a number of years. An earlier study by Corlett (*17*) indicated that experienced nurses were more likely to view donation as a positive option for the family. Because almost one-third of the respondents indicated the staff nurse had responsibility for approaching the family, programs to prepare staff nurses for their roles in organ and tissue procurement need to be offered.

The importance of the role of the emergency department nurse in making requests and obtaining consents for tissues and organs was supported in this study. Working in an emergency department places a nurse in a position to identify patients who have succumbed to cardiac or respiratory death and patients who could be potential organ donors. Hospitals require that in the event of a patient death, including a death in an emergency department, the next of kin is to be consulted to determine if the deceased has signed a donor card and to present the option of organ or tissue donation (*33*).

In smaller hospitals, a potential organ donor may be identified in the emergency department, but may be transferred to a tertiary center where brain death is later confirmed and organs are retrieved. The option of organ donation may be presented at different times following a traumatic or critical injury. The diagnosis of impending brain death and the initial suggestion of organ or tissue donation may be presented to the family while the patient is in the emergency department and may be discussed again later when the patient is in the intensive care unit and maintained on life support systems.

In this study, assignment to the intensive care

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unit did not demonstrate a significant Pearson r correlation with requests and consents for organ donations. Other studies, however, have identified the key role of the intensive care nurse in procurement of organs (*11–14*). Potential organ donors are maintained on life-support systems and are cared for in the intensive care unit. However, patients who are potential tissue donors can be cared for in any unit of the hospital. If the shortage of organs and tissues for donation is to be ameliorated, nurses on every unit need to be aware of criteria for potential donors.

Positive beliefs and attitudes were significantly correlated with both requests and consents for organs and tissues. A person's beliefs and attitudes are complex and develop during a lifetime. Any discussion of the recovery of organs and tissues, and the role of the nurse in the procurement process, raises some interesting ethical questions. Should nurses' beliefs and attitudes about organ and tissue donation and transplantation be identified for change through educational programs? Should all nurses be expected to make requests for organs or tissues, even when they are personally opposed, or at least ambivalent, to the concept?

Even if nurses have a positive attitude toward organ donation, if they perceive the physician as nonsupportive, should nurses still attempt to present donation as an option to the family? If nurses are aware that the deceased signed a donor card, should they attempt to convince the family to donate? Are nurses advocates of the deceased patient, the surviving family members, or the medical care system? Does the request for an organ or tissue donation place an additional burden on family members at a time of grief?

There is no one correct answer to these or other ethical questions. In this study, however, more than 51 percent of the respondents strongly agreed or agreed with the statement that the request for organ donation places an additional burden on the family at a time of grief. This reflects the perception of these respondents. In contrast, Hart (*35*) reported that families of organ donors did receive comfort from the donation process and 87 percent would donate again in similar circumstances. Batten and Prottas (*36*) surveyed 455 kidney donor families and compared their responses to a national random sample of 750 members of the public. Members of both groups agreed the act of organ donation was beneficial to the family of the deceased.

Recommendations

This study validates the importance of a comprehensive educational program to prepare nurses for their roles in organ and tissue procurement. Respondents were asked to identify topics of interest to be included in an effective education program. Suggested, in order of importance, were legal implications, how to approach the family for donations, family concerns about organ and tissue donation, care of the donor, identification of potential donors, discussion of brain death, how to approach the physician about organ and tissue donation, discussing one's own feelings about organ and tissue donation, and nonverbal communication techniques.

A comprehensive educational program should include didactic presentations, but equally as important, time for role playing and simulations as well. Participants should have an opportunity to assume the role of family member and requestor to understand both perspectives. Presentations from a panel comprised of recipients and family members of donors could be enlightening. Nurses should have an opportunity to discuss and clarify their own feelings toward organ donation.

All nurses may be invited to participate in training programs, but special emphasis should be placed on supervisors and nurses who are or will be in positions that require them to make requests. This study illustrates that nurses had consistent positive attitudes and beliefs toward some issues of organ and tissue donation, but they showed reticence on both positive and negative statements regarding donor families' acceptance of organ and tissue donation. Those nurses who are supportive should be encouraged to serve as requestors. If a nurse does not feel comfortable or confident in making requests, or is personally opposed to the concept, other resource persons should be available to them. Policy statements should include, but not be limited to, criteria for organ and tissue donors, how brain death is determined, who is responsible for approaching the family about donation, con-

sent forms, and mechanisms for obtaining assistance from the organ procurement agency.

Comprehensive educational programs should be initiated for physicians who work in areas where they may provide care for potential donors. Only 28 percent of the respondents indicated that the physicians they work with think it important to request organ and tissue donations from the families of potential donors. This is a concern, since Prottas and Batten (*37*) reported that physician support for donation was the strongest predictor of other professionals' attitudes toward donation. Physician cooperation is critical to the process. Therefore, education on the subject of organ and tissue donation should begin during training programs for both physicians and nurses and should be offered to new physicians and nurses during orientation to the hospital. Because organ and tissue requests may be a rare event in smaller hospitals and the rate of staff turnover may be high in all hospitals, educational programs on organ and tissue donation and transplantation should be repeated periodically.

An encouraging finding of this study was the high correlation of reported consents obtained following requests for either tissues or organs (0.87). This may be explained by the current trend toward toward multiple donation when organs and tissues are obtained from one donor. Another explanation is that the nurses who requested organs were the same ones who requested tissue donations. More consents were obtained for tissue donations than organs. This is not surprising since tissue donations may be obtained from patients who have experienced cardiac or respiratory death and are not limited to patients who have been declared brain dead.

In some instances it may not be possible to retrieve vital organs, but tissues may be recovered. The importance of presenting the family or next of kin with the option of organ or tissue donation cannot be over-emphasized, since in this study consents for tissues followed 74 percent of the requests and consents for organs were obtained following almost 62 percent of the requests. These statistics are comparable to those reported by a national survey of organ procurement agencies, which indicated that 70 percent of families approached for donations granted permission (*37*).

The purpose of this exploratory study was to assess hospital nurses' knowledge, attitudes, and beliefs about organ and tissue donation and transplantation and to identify variables that were correlated with the reported number of requests made for organ and tissue donations and the reported number of consents obtained. The findings indicate the need for training programs which include factual information about organ and tissue donation and transplantation, role playing and simulations, and discussion of personal attitudes toward organ and tissue donation as a comprehensive approach to preparing nurses for their roles in procurement.

'The number of tissue transplants, including cornea, bone, heart valves, and skin are increasing annually. Unfortunately, the supply of organs and tissues for transplantation has not kept pace with refinements in transplantation techniques, resulting in a critical national shortage of sufficient organs available for transplant. On a given day there are about 18,000 patients awaiting kidney transplantation, 1,800 awaiting heart transplantation, and 200 awaiting heart-lung transplantation.'

The desired outcome of such educational programs is informed nurses who are confident of their ability to make requests and thus will have increased success in obtaining consents for organ and tissue donations. Nurses must remember that they have an ethical responsibility to remain sensitive to the wishes of the donor and to the family. If a brain-dead patient has considered organ or tissue donation before death and communicated his or her wishes to the family, then the decision regarding organ or tissue donation may be simplified.

Even when prior discussions have taken place, however, the circumstances of sudden and unexpected death may obliterate prior discussions. The nurse must be able to provide complete information about organ and tissue donation in an unbiased and noncoercive manner, so that the family has the opportunity to make an informed choice. The rights of the donor, the desires of the family, and the needs of a potential recipient must be balanced and protected by the professional nurse.

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