HOSPITAL BARRIERS TO THE PROCUREMENT OF CADAVERIC KIDNEYS FOR TRANSPLANTATION

By

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Several studies have shown that hospital-based procurement programs fail to secure sufficient donor kidneys in-house. This study examines the institutional and knowledge barriers to the procurement of donor kidneys for a typical urban teaching hospital and the reasons for the failure.

A combination of documentary examination, survey and interview methodologies were used to achieve study objectives. Hospital personnel, mostly those in contact with the donation process, constituted the study population, in particular, nursing personnel, physicians and hospital administrators.

It was found that (1) gaps exist in the procurement process, i.e. not all the donor kidneys were accessed under existing policies and guidelines; (2) major institutional and knowledge barriers exist which inhibit the procurement process. For example, institutional policies and procedures lacked clarity, definition or were non-formalized. Also relevant hospital personnel were unable to identify all suitable donors.

This study adds to our knowledge of impediments to the donor kidney procurement process. It highlights the need to formalize, clarify and define institutional policies and to provide adequate knowledge to relevant staff of the institution. The study also indicates a need for coordination of the donation process in order to secure adequate numbers of donor kidneys.
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CHAPTER I
INTRODUCTION

Human organ transplantation is now an accepted, therapeutic modality for the treatment of patients with irreversible, end stage renal failure. (Grant et al., 1986) Advances in technology have, over the past decade, greatly improved the success of such procedures. Today, transplantation offers the patient improved chances for survival and the opportunity to return to an active, functional life. (Robinette et al., 1985)

This study examines the obstacles associated with procuring transplantable, cadaveric kidneys in a teaching hospital. The role of teaching hospitals as tertiary care, referral facilities is essential in the identification of patients for donorship. They are also important in obtaining consent from relatives of patients and in retrieving organs. The hospital ensures that the donor kidneys are preserved in viable condition for transplantation and transported to recipients where they will be surgically implanted.

The number of transplants performed has rapidly increased and so has the demand for viable organs. For example, in 1987, 72 kidneys were imported from outside of British Columbia for the provincial transplant programs. (PORT, 1987) Many authors have indicated there are an adequate number of organs potentially available but that the problems appear to lie in the inability of organ transplant hospitals to obtain
them. (Bart, 1981; Robinette et al., 1985) What appears to be lacking is an examination of the difficulties related to the procurement of suitable organs for transplantation. If transplantable organs are to be available in numbers sufficient to meet the needs of patients, it is necessary to identify and examine some of the factors that may constrain the ability of teaching hospitals to obtain donor organs. This is essential if transplant programs are to secure sufficient numbers of donor organs for their transplantation programs.

It has been suggested that institutional policies aimed at facilitating organ donations are the most important factor in the procurement of transplantable organs. Kutner (1987) states that institutional policies provide assistance to professionals in their efforts toward the development of an effective procurement system. An effective procurement system in hospitals requires the acquisition of specific knowledge by professionals about the steps in the donation process. These include identifying donor eligibility criteria, requesting consent for the removal of organs and "maintenance" of the donor prior to organ retrieval. It has also been suggested that in order to procure a sufficient number of transplantable organs, professionals in hospitals should not only be aware of hospital policies which facilitate organ donation but also possess the necessary knowledge about the transplantation program. (Gilmore, 1986). Therefore, this study focuses on institutional policies and knowledge of selected hospital professionals about the organ procurement process in a teaching hospital.
Background

In 1987, the province of British Columbia experienced a severe shortage of kidneys for transplantation. During that year, 140 transplants were performed and only 68 kidneys were procured from within the province. (PORT, 1987) Thus, 72 kidneys had to be imported from out-of-province for provincial transplant programs.

St. Paul’s Hospital, in Vancouver, British Columbia is one of three hospitals offering transplant programs in the province. It is a 580 bed tertiary, referral and teaching hospital which offers both dialysis and transplantation programs. Its renal transplant program began late in 1986. In 1987, it performed more kidney transplants than either of the other two teaching hospitals. In the province, 91 or 65% of all kidney transplantations were undertaken at the hospital. Of the kidneys procured, 86 came from cadavers and 5 came from living relatives of patients. However, during that same year, only 3 cadaveric donations were obtained from within St. Paul’s Hospital. (PORT, 1987)

During 1987, there were 753 deaths at the hospital. According to Robinette et al. (1985), it is estimated that about 3.7% of all hospital deaths should be eligible for kidney donation. Therefore, approximately 28 deaths would have resulted in kidney donations. However, since only 3 deaths at the hospital resulted in cadaveric donated kidneys, this represents a net loss of 89% of potentially available cadaveric kidneys for transplantation.
It has been shown that hospitals which offer both dialysis and transplant programs, such as St. Paul’s, are generally more successful at procuring and retrieving organs from within their organization. (Cardella et al, 1985) At issue, therefore, is the inability of the hospital to obtain a greater number of transplantable kidneys as expected.

The purpose of this study is to determine what barriers exist to the procurement of transplantable kidneys at St. Paul’s hospital. Barriers are defined as impediments to the procurement of usable, cadaveric, donor kidneys for transplantation into patients with end stage renal disease (ESRD). ESRD is a form of permanent, irreversible kidney impairment which makes normal, life sustaining functioning impossible. (Canadian Renal Failure Registry, 1986)

Scope of the Study

It is recognized that a number of barriers may exist to the procurement of kidneys. These include barriers such as limited resources (financial and manpower), perceived legal or ethical constraints and organizational problems. However, for the purpose of this study, the examination of barriers is limited to two types; namely, knowledge and institutional barriers which have been identified in the literature as key barriers to organ procurement. (Gilmore, 1986; Robinette et al., 1985)

Van Der Vliet (1984), Robinette et al. (1985), Oh and Uniewski (1986) and the Medical Royal College of Great Britain (1987) have found that
"insufficient knowledge" among professional staff in hospitals contributed to the lack of procurement of organs for transplantation. Oh and Uniewski (1986) and Robinette et al. (1985), have stated that the absence of defined policy was a major barrier to the procurement of transplantable organs. Health and Welfare, Canada concurred with these findings by recommending that acute care hospitals develop policies which facilitate donations. (Health and Welfare, Canada, 1984; Gilmore, 1986)

For the purposes of this study, knowledge and institutional barriers are defined as follows:

Knowledge Barriers

1. Lack of knowledge on the part of key hospital professional staff, such as doctors, nurses and administrators about:
   a. Eligibility criteria for donorship of suitable cadaveric kidneys
   b. The kidney donation process, for example, who to call or to consult in the event that they believed they had a potential donor
2. Lack of information in the hospital about:
   
a. The need for donated kidneys for the transplantation program

b. How to ask relatives of terminally ill patients for consent to the donation of cadaveric kidneys for transplantation

Institutional Barriers

These are:

1. Incomplete, unclear or non-formalized hospital policy regarding kidney donation

2. No formalized policy or procedure which encourages staff to initiate the donation process

3. Lack of clarity of procedures regarding the donation process

4. Lack of support from administration or supervisory staff in hospital areas which have patients suitable for kidney donorship

5. Absence of centralized coordination of the kidney donation or retrieval process
6. Heavy workload burden limiting the capacity of employees to engage in the kidney donation process

Research Questions

The following questions are relevant to this study:

1. Do knowledge and institutional barriers to the procurement of transplantable kidneys exist at Paul's Hospital?

2. If yes, what relationship is there between these barriers?

3. If no, what are the reasons for the inability to procure kidneys for the hospital's transplant program?

This thesis is organized in the following manner.

Chapter II provides a review of the literature relating to organ transplantation and the procurement process. The chapter examines existing hospital strategies for obtaining sufficient numbers of donor organs for transplant programs. The specific barriers to procurement found in the literature and other possible obstacles or issues are discussed.

Chapter III describes the method of the study and data analysis. It discusses the design and development of the questionnaire as well as interview instruments. In particular, the limitations of the study and efforts aimed at minimizing the influence of these limitations are presented.
In chapter IV, the results of the study are presented followed by a discussion of the findings in chapter V with respect to the study questions and suggestions for further research.
CHAPTER II

LITERATURE REVIEW

The review of the literature provides some background information regarding end stage renal disease (ESRD), kidney procurement and transplantation in hospitals. The review then focuses on the difficulties which hospitals experience with the procurement of suitable kidneys for transplantation.

Treatment for End Stage Renal Disease

The ability of each human being to eliminate toxins from the body through the kidneys is something that most people take for granted. However, for every 66.5 people out of 1,000,000 population in Canada, permanent kidney impairment makes normal, life sustaining functioning impossible. The condition which is chronic and irreversible, is known as end stage renal failure (ESRF) or end stage renal disease (ESRD). (Canadian Renal Failure Register, 1986)

There are two options available for the treatment of ESRD; they are renal dialysis or transplantation. A patient may receive one or both forms of treatment during the course of his illness. In renal dialysis, the highly concentrated toxic materials in the blood are removed through the use of a dialysate solution and a dialyzing membrane. On the other
hand, transplantation requires the replacement of the diseased kidney with a normal, healthy kidney. (Canadian Renal failure Registry, 1986)

Kidney Transplantation: An Overview

Kidney or renal transplantation is a surgical procedure where a kidney is transplanted from a donor to a recipient. Since it is possible for a person to live with just one functioning kidney, during transplant surgery, only one kidney is implanted into the recipient.

Transplantable kidneys for patients with end stage renal disease are available from two sources; cadaveric (CAD) or live donors. Kidneys taken from "brain dead" patients, that is, from donors with an absence of brain stem reflexes (cadavers), are used for 86% of all transplantations in Canada. (Canadian Renal failure Registry, 1986) Alternatively, donations (one kidney per donor) from healthy, living donors may be used. This group of donors are known as "live-related donors" (LRD) and they may be the relatives of the patient such as a son, daughter or spouse.

Need/Demand for Transplantation

The incidence or number of new cases of ESRD in Canada in 1986 has been reported as 66.5 people per 1,000,000 in the population or 1683 new patients per year. (Canadian Renal Failure Register, 1986; also see appendices 1(a) and 1(b)). In the same year, the prevalence or the total number of ESRD cases reported was 341.2 patients per 1,000,000 population or 8636 people. See appendices 2(a) and 2(b). In the province of British
Columbia, 188 new cases and a total of 849 patients reported in 1986. (Canadian Renal failure Registry, 1986)

According to Robinette et al. (1985), approximately two thirds of all patients can benefit from transplantation. About, 4174 patients or 48% of all transplants are alive with a functioning transplanted kidney. If two-thirds or 66.6% of all potential transplant candidates could benefit, therefore, 19% of these suitable candidates are unable to obtain a kidney transplantation. This means that 1640 persons are waiting for transplant in Canada (Grant et al, 1986) of which 160 are in British Columbia. According to the Pacific Organ Retrieval for Transplant agency (PORT), this is accurate in terms of the numbers of people waiting for kidney transplantation in British Columbia.

Supply of Transplantable Kidneys

It has been suggested that the major limiting factor to the number of kidney transplantations performed is the insufficient number of available and usable organs. (Health and Welfare, Canada 1984; Robinette et al., 1985) Since most transplants performed utilize cadaveric kidneys, the greatest need is for the procurement of organs from deceased or "brain dead" patients in hospitals. A number of studies have shown that there are many cadaveric kidneys potentially available but not obtained. (Bart et al., 1981; Robinette et al., 1985)
Bart et al. (1981) conducted a prospective surveillance by reviewing the death records of 555 potential donors and noted that 2.3% of all hospital deaths were potential donors. Studies in Ontario show a higher percentage of possible donors. For example, Robinette et al. (1985) have indicated that 3.7% of all hospital deaths could be eligible kidney donors. They also found that only .03% of eligible potential donations were actually obtained. This means that approximately 90% of all potentially available kidneys for transplantation were not procured.

Similar results were reported elsewhere. A survey of hospital charts in selected Ontario hospitals from 1980 to 1982 was undertaken to determine the number of potential kidneys missed. The result of the study at the eight hospitals indicated that the potentially suitable donors that were missed varied between 45% and 80%. (Robinette et al., 1985)

It seems, therefore, that the numbers of kidneys potentially available to hospitals for transplant are much greater than the number that are actually retrieved. Much of the reason for failure to access all potentially available kidney donations may lie in the procurement process rather than in the absolute number of those kidneys potentially available.

Kidney Procurement Process

Cadaveric donor kidneys used in transplantation are procured in hospitals. The process begins when a patient is admitted to the hospital
and identified by the staff as a potential kidney donor. (Figure 1) The patient is referred for initial review by medical staff and if he or she is believed to be a potentially suitable candidate, consent for donation is sought from relatives of the patient. Only "brain dead" patients are suitable for donation. A diagnosis of "brain death" is pronounced by a physician and is based on the absence of all brain stem reflexes. (Campbell, 1979) If consent is received, a further assessment of the patient is conducted. Usually during this period of time, the donor is maintained on a life support system. Heart beat and respiratory functions as well as an adequate fluid balance are maintained to ensure the viability of the kidneys. The donor is transported to the operating room where the kidneys are surgically removed and preserved so they may be in suitable condition for implantation into the recipient. Further tissue samples are sent to a histocompatibility laboratory for the immunological typing of the donated kidney. A subsequent search for a suitable recipient is conducted. (Prottas, 1983)

Ideally, the kidney procurement process should ensure that all suitable organs are retrievable. However, the experience of many hospitals is that not all available kidneys are retrieved. Therefore, failure to achieve high rates of retrieved kidneys may be due to certain elements within the procurement process. For example, to what degree of consistency is the selection criteria applied to the identified donors? Are there possible differences between individuals with the responsibility to
PROCUREMENT PROCESS
FOR DONOR KIDNEYS

Patient Admission

Brain Death

Identification and Evaluation of Donor Suitability

Not Suitable

Suitable

Consent Requested

Consent Refused

Consent Authorized

Kidney Retrieval
identify suitable donors? What, in fact, are the barriers to successfully accessing high numbers of kidney donors for a hospital transplant program? More importantly, to what extent do hospital policies and knowledge about kidney procurement contribute to these barriers?

Barriers to Procurement of Cadaveric Kidneys in Hospitals

Since the procurement of kidneys occurs in hospitals, much available literature examined the institutional systems of hospitals as well as the knowledge and attitudes of professionals within these organizations. A number of writers have indicated that reluctance on the part of medical and other professional staff to ask for consent for the donation of organs is a major barrier to the procurement process. Prottas (1983, 1985) has commented that persuading health care professionals to cooperate in the process is the key task of organ procurement programs. Van Der Vliet et al. (1984) have found that physicians usually do not know how to approach the relatives of their patients in order to discuss organ donation. They are also reluctant to involve themselves in the donation process because it is often a time consuming business which interferes with their busy hospital routines. Robinette et al. (1985) have observed that 50% of nurses, interns and residents and 45% of Intensive Care physicians have personal feelings which constitute barriers. They often feel they are "bothering" the grieving family by asking for consent. These observations have also been noted by Bart et al. (1981).
Physicians and nurses fear upsetting the grieving relatives of the brain dead patient. They feel that the aggressive procedures in which they must involve themselves in order to procure organs seem inherently disrespectful to the deceased patient and relatives. (Corlett, 1985) This has led to hospital staff not approaching patient's relatives in order to request consent for the donation of organs.

1. Absence of Defined Policy Within the Hospital

Oh and Uniewski (1986) have noted that the lack of having someone assigned responsibility for supportive care of the brain dead patient prior to the removal of organs was a major barrier to the procurement of organs for transplantation. Hospital staff are often not aware of the need for organs or of the donation process.

Robinette et al. (1985) have also found in their survey that 75% of the professional respondents noted a lack of co-ordination of the procurement process as well as no clear lines of responsibility for organ donation. 72% responded that they did not have an individual or team that was responsible for the co-ordination of the donation process. Of the 118 Ontario hospitals surveyed, 55% said they did not have a specific policy on organ donation.

Medical professionals require clear norms about procedures to be followed when organs are retrieved and they themselves need emotional support. (Youngner et al, 1985; Corlett, 1985) Kutner (1987) notes that
without a well developed system of institutional supports, efforts to initiate organ donation may well be avoided.

2. Lack of Knowledge About Donor Suitability

The lack of knowledge about donor eligibility criteria has been shown to be an inhibiting factor to the initiation of the donation process. (Van Der Vliet, 1984; Robinette et al., 1985; Oh et al., 1986)

The Medical Royal College of Great Britain (1987) conducted a survey of all Intensive Care Units for the Department of Health and Social Security in 1987 and found a lack of medical experience with donor selection and limited knowledge about transplantation. These physicians were not aware of the benefits of kidney transplantation.

3. Other Factors Influencing Consent and the Donation Process

The donation of kidneys for transplantation is a voluntary action. Therefore, it is important that public opinion favour donation and transplantation if procurement programs are to be effective.

National surveys in the United States indicate that the degree of public support for organ transplantation exceeds the degree of public support for donation. (Blendon and Altman, 1984; Manninen and Evans, 1985) Although 90% of Americans express support for transplant programs, a
smaller percentage (50-60%) indicate a willingness to donate their own organs or those of a relative. (U.S. News, 1986) Canadian polls reflected similar attitudes. (Robinette et al, 1985)

A recent experience in Canada has demonstrated a more positive response to donation from the public. O'Connor et al. (1988) have reported that when the families of terminally ill patients were approached for consent and given emotional support for their decision to donate, 100% of those asked, gave consent for the donation of a relative's organs.

In a study on public opinions towards organ donation conducted by Corlett in 1985, six major reasons were identified for not donating organs. They included:

a. The fear that the donor would not be dead before organs would be removed. The hastiness with which organs must be removed made respondents fear that organ retrieval would be a distraction from their death and that medical personnel would be concerned about getting their organs and not caring for them as they were dying.

b. Organ removal was perceived as unnatural and respondents believed would appear mutilated or disfigured in the coffin after death.
c. The fatalist fear that if one prepared for death, it would occur. In other words, once you sign the donor card, death would follow soon afterward.

d. The respondents felt their age was an inhibiting factor, they believed they were either too old or too young to donate their organs.

e. Some members of certain orthodox religious faiths (such as Orthodox Jews) assumed that donation was prohibited because of mutilation of the body after death.

f. Many non-donors stated that they had never thought of donation, therefore had not signed their donor cards.

In this same study, public opinion was sought as to why people voluntarily donate their organs. The primary motive for donation, as expressed by the respondents, was to help another person live. Underlying this motivation is the belief that the status of the body after death is irrelevant.

Summary

The general theme discussed in the literature pertains to the possible sources of barriers to obtaining adequate numbers of suitable kidneys for transplantation. In this study, it has been suggested that barriers to achieving this goal may lie in the procurement process used by
hospitals to access kidney donations in-house for transplantation programs. In particular, it is suggested that two of the barriers may manifest in the form of institutional constraint in policy limitations or as knowledge constraints regarding the donation process in what is expected of professional staff. This study, therefore, investigates these barriers and the reasons for their existence.
A combination of methodologies, namely, literature review, survey and interviews were used to gather information regarding the objectives of this study. Figure 2 illustrates the methodology used. In particular, the emphasis in the data collection pertained to the knowledge and institutional barriers to the procurement of cadaveric kidneys at St. Paul's Hospital through the examination of policies and procedures. Furthermore, the methodology allowed for some comparison with the findings of a similar study in Ontario which had included policy and procedure considerations in its study design.

1. Literature Review

A computer database search of the relevant, current literature enabled the establishment of an overview of the kidney procurement process as well as the definitions of the procurement process.

2. Documentary Examination

First, computerized and visual screening of the medical records of all 753 patients who died at St. Paul's Hospital in 1987 was conducted to determine the number of patients that were not identified or selected for kidney donation in the hospital. Second, the reasons for not selecting the patients were determined from the clinical records. Finally, a set of
METHODOLOGY
AND STUDY PROCEDURE

1 - Literature Review

2 - Documentary Examination

3 - Survey of Professional Staff

4 - Interviews

5 - Data Analysis

Figure 2
predetermined criteria (PORT, 1987) were used to screen unidentified kidney donors that were not selected for retrieval. (Appendix 3) Thus, by using the universal criteria it was possible to establish the effect of the donor identification and selection process at the hospital and determine the numeric difference between the selected and potential donors.

3. **Survey of Professional Staff**

The Ontario Ministry of Health Task Force Study questionnaire was used in the survey of Intensive Care nurses, physicians and administrative staff because it focused on the knowledge and institutional barriers to the procurement of kidneys and had been used in another province. The Ontario questionnaire was modified in accordance with the study objectives and the local context. (Appendix 4) For example, questions in the Ontario Study which referred to the Metropolitan Organ Retrieval for Transplant (MORE) were substituted for questions pertaining to the Pacific Organ Retrieval for Transplantation (PORT).

A pre-test of the questionnaire was conducted on a randomly selected sample of nurses, physicians and administrative staff from the study group but not included in the final survey. These individuals were believed to be representative of the population under study and included all of the groups of staff under study. The pre-test result showed consistency in responses in all categories of questions.
Bart (1981) among others has noted that 98% of all organ retrievals occur in the Intensive Care Units (ICU's) of hospitals. In all of the kidney retrievals, donor patients have respiratory and other functions maintained on a life support system. This technological support is possible only in Intensive Care Units. In this study, staff who work in the Intensive Care Unit of St. Paul's Hospital were surveyed as well as those who work in the Emergency Department which is the avenue for admission of critically ill patients for Intensive Care. Staff surveyed also include physicians who provide emergency medical care for critically ill patients. In particular, the focus of the anonymously mailed survey was all nurses, physicians, interns, residents, medical directors and nursing directors with the exception of nurses in the Emergency Department who usually spend little time with the critically ill patients before they are transferred to the Intensive Care Unit. This study population included all staff who provide hospital care for potential kidney donors. In order to improve the validity of survey findings, questionnaires were mailed to the entire population of staff in the relevant departments. However, the preamble to the questionnaire requested agreement to participate in the study. (Appendix 4)

4. Interviews

Structured interviews were conducted with 11 randomly selected key staff members among the study population who were chosen because of their knowledge of the kidney procurement process at the hospital especially
procurement from cadavers. All of the interviewees were also part of the study population. The information gathered from these interviews was used to validate or clarify responses from the questionnaire as well as to provide additional information about the kidney procurement process at St. Paul's Hospital. See appendix 5 for a list of structured interview questions. Prior agreement to participate in the interviews was obtained from each of the participants. (Appendix 5)

5. **Data Analysis**

The data resulting from the questionnaires and interviews were organized and tabulated to provide descriptive information about the knowledge and institutional barriers to procurement of cadaveric kidneys in St. Paul's Hospital. Percentage responses were compared for each sector of questions that was used to examine each of the study objectives. These were also compared with the results of the Ontario Task Force Study. (Robinette et al., 1985) Also, responses from interviews were categorized descriptively for each barrier identified to the procurement process. These responses also provided additional information that further clarified the research questions.
CHAPTER IV
RESULTS OF STUDY

As noted in Chapter I, the primary purpose of this study was to investigate whether or not there were knowledge and institutional barriers to the procurement of transplantable kidneys at a typical hospital involved with a transplantation program. If affirmative, what were the reasons for the failure to secure adequate numbers of transplantable kidneys and what were the relationships between the barriers. Earlier in the study, documentary examination was undertaken to elicit possible gaps in the kidney donor identification process. The results are as follows.

Documentary Examination

Using a set of established criteria (PORT, 1987; also see appendix 3), this review identified 7 patients as potential donors. There were no written reports indicating that these 7 patients had been identified or considered as potential donors prior to this study. All were young (between 18 and 44 years of age) and had been in hospital between one to three days. The causes of death were subarachnoid hemorrhage and multiple trauma due to injury. These causes of death were considered to be acceptable for suitable kidney donation for transplantation.
Survey and Interview

A total of 84 questionnaires were sent via in-hospital mail to the study population and 42 were returned. More nurses (n=32) than physicians (n=10) responded to the questions, representing a response rate of 50% for both nurses (32 of 64 and physicians (10 of 20). Further effort to improve the response rate via notices and reminders did not yield more results. The average response rate that was obtained was later found to be due to the twelve hour shifts and heavy workload.

1. Demographic Information, Position and Experience of Respondents

Table 1 illustrates demographic data such as age, sex, positions held at the hospital and the number of years of experience of all respondents.

a. Ages of Respondents

The average age of all respondents was 32. The age range was between 20 and 50 with the majority (45%) falling between 31 and 40 years of age. Respondents between the ages of 20 and 30 years constituted 41% of all respondents. Nurses tended to be younger with 47% between 20 to 30 years of age while 60% of the physicians were between 31 to 40 years of age. Bedside nurses or nurses who routinely care for patients, represented the largest number of respondents and 68% of them were between the ages of 20 and 30 years.
### Table 1: Age, Sex, Years Experience of Respondents by Positions Held

<table>
<thead>
<tr>
<th>Age</th>
<th>Total all Respondents</th>
<th>NURSES</th>
<th>PHYSICIANS</th>
<th>ALL RESPONDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  F  T</td>
<td>M  F  T</td>
<td>M  F  T</td>
<td>M  F  T</td>
</tr>
<tr>
<td>Head Nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistant Head Nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bedside Nurses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse Supervisor/ Directors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Nurses Residens Interns Emergency Physicians Total Physicians</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-30 *</td>
<td>-  -  -</td>
<td>1  1  2</td>
<td>1  12  13</td>
<td>2  13  15</td>
</tr>
<tr>
<td></td>
<td>-  -  -</td>
<td>6  38 41</td>
<td>6  41  47</td>
<td>20  - 20</td>
</tr>
<tr>
<td>31-40 *</td>
<td>2  2  2</td>
<td>2  2  4</td>
<td>6  6  6</td>
<td>2  2  2</td>
</tr>
<tr>
<td></td>
<td>6  6  6  6</td>
<td>19  19</td>
<td>3  6  40</td>
<td>20  - 20</td>
</tr>
<tr>
<td>41-50 *</td>
<td>-  -  -</td>
<td>3  3  3</td>
<td>10  10  13</td>
<td>10  10</td>
</tr>
<tr>
<td></td>
<td>-  -  -</td>
<td>1  1  2</td>
<td>1  1  2</td>
<td>1  1  2</td>
</tr>
<tr>
<td>Years of Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 *</td>
<td>-  -  -</td>
<td>-  -  -</td>
<td>-  -  -</td>
<td>-  -  -</td>
</tr>
<tr>
<td></td>
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<td>-  -  -</td>
<td>-  -  -</td>
<td>-  -  -</td>
</tr>
<tr>
<td>3-5 *</td>
<td>-  -  -</td>
<td>-  -  -</td>
<td>-  -  -</td>
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<td></td>
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<td>-  -  -</td>
<td>-  -  -</td>
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</tr>
<tr>
<td>&gt; 5 *</td>
<td>-  -  -</td>
<td>-  -  -</td>
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<tr>
<td></td>
<td>-  -  -</td>
<td>-  -  -</td>
<td>-  -  -</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Total all Respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>2  2  3  4  7  1  18  19</td>
<td>4  4  4  28  32</td>
<td>3  1  4  3  3  2  1  3  8  2  10</td>
<td>12  30  42</td>
</tr>
<tr>
<td>%</td>
<td>6  6  10  13  22</td>
<td>3  56 59</td>
<td>13  13  13  87 100</td>
<td>20  10  40 30  30  20  10  30  80 20 100</td>
</tr>
</tbody>
</table>

H = Male  
F = Female  
T = Total  
# = Number of respondents  
% = Percent of category
b. Sex of Respondents

Of all respondents, 30 or 71% were female and 12 or 29% were male. Nurse respondents were 87% female and 13% male, physician respondents were 20% female and 80% male.

c. Hospital Positions of Respondents

As expected, the largest group of employees in the critical care areas were bedside nurses and this group constituted the largest percentage of respondents (45%). Of all respondents, 76% were nurses and 24% were physicians. There was, therefore, a larger representation of nurses than of physicians in the survey responses.

2. Institutional Barriers

Table 2 shows the data on responses to institutional procedures as barriers. Responses from all staff indicated awareness of the hospital kidney donation policy was very high at 88%. The highest level of policy awareness was among administrative nursing personnel at 92%, followed by bedside nurses at 89%. Contrary to previous studies (Medical Royal College of Great Britain, 1987), many of the physicians in this study (80%) were aware of the policy at St. Paul's Hospital. Of all respondents, 43% believed that the policy encouraged staff to initiate the donation process and 51% believed that the policy provided adequate information. This means that more than half of the number of respondents felt that they were not
### Table 2: Institutional Policies as Barriers

<table>
<thead>
<tr>
<th></th>
<th>Nurse Directors, Supervisors, H.N.'s, A.H.N's</th>
<th>Bedside Nurses</th>
<th>Physicians</th>
<th>All Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y</td>
<td>N</td>
<td>DK</td>
<td>Y</td>
</tr>
<tr>
<td>Aware of Policy</td>
<td>12</td>
<td>1</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Policy</td>
<td>92</td>
<td>8</td>
<td></td>
<td>89</td>
</tr>
<tr>
<td>Encourages</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Policy</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Initiative</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>of Donation</td>
<td>50</td>
<td>42</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Information</td>
<td>11</td>
<td>1</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Adequate</td>
<td>92</td>
<td>8</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

H.N. = Head Nurse  
A.H.N. = Assistant Head Nurse

Y = Yes  
N = No  
DK = Don’t know

# = Number of respondents  
% = Percentage of each category
encouraged (57%) by existing policy requirements to initiate the kidney donation process in their areas of work. Almost half of all respondents (49%) consider existing policy on kidney donation program as inadequate. Except for administrative nursing personnel who view existing policies as adequate at 92%, both the physicians and bedside nurses consider existing policies as limited in their support for the kidney donation program. More importantly, significant percentages of all respondents either do not know about the adequacy of existing policies to meet the needs (41%) or feel that they are limited in encouraging professional self-initiation of the kidney donation process (32%). This also suggests that hospital staff are neither sufficiently familiar with existing policies (lack of knowledge), nor sufficiently encouraged to initiate the kidney donation process (institutional constraint).

Comments of Respondents About Institutional Policy

General comments (see appendix 7) made by respondents indicated that a substantial number of staff had not read the policy. This observation is supported in the results obtained from the questionnaire and the interviews. Some respondents recommended that awareness be increased through staff education about institutional policy regarding the kidney donation process.

Some comments indicated that procedures related to the policy were not clear in the sense that they did not designate responsibility for
specific activities in the donation process. They stated that institutional policy should have procedures attached which outline, in chronological order, how the process should be carried out from the initiation of the donation process to the retrieval of the organs.

Some respondents expressed concern about inconsistency in policy interpretation. Specifically, laboratory procedures were mentioned as a source of inconsistency because they were neither clear nor well documented.

The hospital policy states that staff are to "assist patients who wish to donate either organs or tissues, and to expedite their request upon the death of the patient depending on the agreement of the next of kin". (See appendix 6) Written comments from respondents support the survey finding that institutional policy does not encourage staff to initiate the donation process. The suggestion was also made that a separate policy should be written by the hospital which indicates that it is the intent of the organization to seek the donation of organs and which includes encouragement of staff initiation of the donation process.

The St. Paul's Hospital policy recommends that staff refer to the British Columbia Ministry of Health (PORT) manual for detailed information on the procedure for the donation of kidneys. (See Appendix 8). Respondents indicated that generally they utilized the manual as a supplement to the hospital manual. One comment suggested the
simplification of the PORT manual as part of a new set of hospital procedures for the transplant program.

It was also recommended that the policy include information on how to approach family to discuss the donation of organs.

3. Institutional Procedures

Table 3 shows the data on survey responses to institutional procedures as barriers to the kidney donation process.

Overall, the result is mixed with respect to the major categories probed. There were no conclusive indications regarding the four categories on which questions about institutional procedures were based.

The lack of coordination was seen as an even split between being a major barrier 34%, a minor barrier 37% or not a barrier 29%. However, 70% of the physicians view the absence of coordination of activities as a minor barrier. The fact that over 30% of the study population perceive a lack of coordination as a major procedural barrier is cause for concern and may represent a potential loss of identifiable donor kidneys.

Slightly over half (55%) of all respondents view the absence of firm guidelines as a minor barrier, this is noted especially among physicians (89%). The finding that 22% of bedside nurses view this particular barrier as a major barrier would mean that a substantial number of hospital
Table 3: **Institutional Procedures as Barriers**

<table>
<thead>
<tr>
<th></th>
<th>Nurse Directors, Supervisors, H.N.'s, A.H.N's</th>
<th>Bedside Nurses</th>
<th>Physicians</th>
<th>All Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NB</td>
<td>MN</td>
<td>MJ</td>
<td>NB</td>
</tr>
<tr>
<td>Lack of Coordination</td>
<td>#</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>31</td>
<td>23</td>
<td>46</td>
</tr>
<tr>
<td>No firm Guidelines</td>
<td>#</td>
<td>6</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>46</td>
<td>38</td>
<td>15</td>
</tr>
<tr>
<td>No clear lines of Responsibility</td>
<td>#</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>17</td>
<td>25</td>
<td>58</td>
</tr>
<tr>
<td>Lack of Familiarity</td>
<td>#</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>15</td>
<td>46</td>
<td>38</td>
</tr>
<tr>
<td>Need for Coordinator</td>
<td>#</td>
<td>8</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>62</td>
<td>31</td>
<td>8</td>
</tr>
</tbody>
</table>

H.N. = Head Nurse  
A.H.N. = Assistant Head Nurse  

NB = Not a barrier  
MN = Minor barrier  
MJ = Major barrier  

# = Number of respondents  
% = Percentage of each category
personnel in primary contact with families of sick persons do not have the institutional support for identifying donors.

More than half of nursing supervisors (58%) and slightly more than one third (39%) of bedside nurses do not see clearly defined lines of responsibility in the identification process for kidney donation. Regardless, 88% of physicians view this barrier as a minor barrier, thus contributing to the importance of this particular impediment. Overall, 37% of all respondents consider the lack of clear lines of responsibility as a major barrier to the kidney procurement process.

Finally, about one third or 37% of all respondents are unfamiliar with hospital or institutional procedures (Table 3). This finding is uniform for all categories of respondents. Physicians (30%) seem to be the most familiar with procedures whereas a slightly smaller percentage of bedside nurses (11%) are familiar with procedures as set out by the hospital.

Responses were strong with respect to the need for a staff coordinator and interpreter of institutional procedures when a potential donor is available. 62% of nursing supervisors, 70% of physicians and 84% of staff nurses agree. (Table 3)

Comments of Respondents on Coordination of Procedures

Most of the comments on this survey item are in favor of the role of a staff coordinator or interpreter of hospital procedures to educate staff
when a potential donor is in the hospital. (Appendix 7) Such a role would increase the efficiency of the procurement process, assist in staff education and promote consistency in the management of the donation process.

Respondents stated that when many health care staff members and services are involved with patients in the Critical Care Unit, assumptions are made that someone else is attending to specific details. This results in some tasks being overlooked while others are duplicated. Since tissue viability for transplant deteriorates with the passage of time, ensuring that all tasks are taken care of in a timely fashion is essential. It is further suggested that a coordinator would improve the system by encouraging early identification of potential donors thus increasing the numbers of kidneys and other organs procured. Also early discussions with families would ensure a level of involvement and support for them which is essential.

It was suggested that a coordinator could perform chart reviews of deceased patients who may have been missed as potential donors. In this manner, the hospital could determine if it was missing donors and the circumstances under which this was occurring. Thereby, subsequent efforts to procure organs could be enhanced with a resulting effectiveness in the system.

Respondents envisioned the coordinator as a potential resource person who would provide education about the conditions compatible with
donorship, donor management and kidney retrieval. Overall, the coordinator would increase the visibility of the donor program.

4. Knowledge Barriers

Questions about knowledge barriers pertained to the selection of potential donors, consent for donation and organ procurement and transplantation.

a. Selection of Appropriate Diagnostic Categories

To test the knowledge of staff regarding whom they believed to be suitable potential kidney donors, respondents were asked to select those diagnostic categories of patients which would be suitable for kidney donorship.

Table 4 shows the findings about knowledge of suitable diagnostic categories for the identification of potential donors. The appropriate responses using established criteria (appendix 3) are indicated with an asterisk (*) for each diagnostic category. Nearly 33% of all respondents have the relevant knowledge about the suitability of primary malignancy patients as donors. However, about 90% of all responses and in each category of respondents correctly identified disseminated tumor patients as unsuitable donors. Nevertheless, except for nursing supervisors (54%), the majority of bedside nurses and physicians do not know that primary brain tumor patients are suitable donors for kidneys. The appropriate responses were provided overall for systemic infections (90%), AIDS
Table 4: Knowledge Barriers to the Selection of Potential Kidney Donors

<table>
<thead>
<tr>
<th></th>
<th>Nurse Directors, Supervisors, H.N.'s, A.H.N's</th>
<th>Bedside Nurses</th>
<th>Physicians</th>
<th>All Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y</td>
<td>P</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Primary Malignancy Except in CNS or Kidneys</td>
<td>6 3 3 6 6 7 2 4 3</td>
<td>14 13 13</td>
<td>50 25 25* 32 32 37*</td>
<td>22 44 33* 35 33 33*</td>
</tr>
<tr>
<td>Disseminated Malignancy</td>
<td>- 1 11 - 2 15 1 - 8</td>
<td>1 3 34</td>
<td>- 8 92* - 12 88* 11 - 89*</td>
<td>3 8 89*</td>
</tr>
<tr>
<td>Primary Brain Tumor</td>
<td>7 4 2 9 6 4 3 3 3</td>
<td>19 13 9</td>
<td>54* 31 15 47* 32 21 33* 33 33</td>
<td>46* 32 22</td>
</tr>
<tr>
<td>Systemic Infection</td>
<td>- 1 11 1 - 17 - 2 7 1 3 35</td>
<td>- 8 92* - 6 - 94* - 22 78* 3 8 90*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>- 4 8 - 7 12 1 4 4</td>
<td>1 15 24</td>
<td>- 33* 67 - 37* 63 11 44* 44 3 38* 60</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>- 2 10 - 3 15 - 6 3 - 11 28</td>
<td>- 17* 83 - 17* 85 - 67* 33 - 28* 72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis</td>
<td>- - 12 - 1 17 - 1 8 - 2 37</td>
<td>- 100* - 6 94* - 11 89* - 5 95*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIDS</td>
<td>- - 12 - - 18 - - 9 - - 39</td>
<td>- 100* - - 100* - - 100*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td>2 7 3 2 7 9 3 5 1</td>
<td>7 19 13</td>
<td>17 58* 25 11 39* 50 33 56* 11 18 49* 33</td>
<td></td>
</tr>
<tr>
<td>Hypotension</td>
<td>9 3 2 8 8</td>
<td>3 5 1 5 22 12</td>
<td>75* 25 11 44* 44 33 56* 11 13 56* 31</td>
<td></td>
</tr>
</tbody>
</table>

H.N. = Head Nurse  
A.H.N. = Assistant Head Nurse  

Y = Yes  
P = Possibly  
N = No  

# = Number of respondents  
% = Percentage of each category  

* = The correct response to the question, eg. it indicates if the patient is, is not or may possibly be a suitable donor when an acceptable set of criteria are applied (appendix 3)
(100%), for hypotension (56%) and hepatitis (95%). Incorrect responses were provided for diabetes and hypertension. Only 28% of respondents knew that diabetic patients are possible kidney donors, 38% knew hypertensive patients were suitable donors.

Knowledge deficiency of respondents with respect to the suitability of appropriate diagnostic categories for kidney donation is a major finding in this study especially for physicians and nurses who are in positions to identify potential donors.

b. Consent for Donation

Prior to the removal of cadaveric kidneys which for transplantation, consent is sought from family members of the brain dead patient. The majority of respondents (69%) reported they had experienced family’s refusal to grant consent for the retrieval of kidneys and they considered the process of obtaining consent to be a major barrier to donation. (Table 5) Of all respondents, 61% noted that families were often not available. All nursing supervisors (100%) had experienced family refusal for consent.

c. Experience with Donation Process

Respondents were asked about prior clinical experience with donors. Overall, 76% indicated they had experience and 24% did not have prior experience. The majority of respondents in all categories had prior experience with the donation process. Of all respondents, 90% felt there was a need for more donated kidneys thus indicating considerable knowledge
Table 5: Knowledge Barriers to Obtaining Consent

<table>
<thead>
<tr>
<th></th>
<th>Nurse Directors, Supervisors, H.N.'s, A.H.N's</th>
<th>Bedside Nurses</th>
<th>Physicians</th>
<th>All Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refused</td>
<td># 9</td>
<td>3</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Consent</td>
<td>% 75</td>
<td>25</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>Family</td>
<td>#</td>
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<td>4</td>
</tr>
<tr>
<td>Unavailable</td>
<td>% 100</td>
<td></td>
<td>33</td>
<td>67</td>
</tr>
</tbody>
</table>

H.N. = Head Nurse
A.H.N. = Assistant Head Nurse

Y = Yes
N = No

# = Number of respondents
% = Percentage of each category
about the need for kidney procurement and transplantation. Table 6 illustrates the results of these two questions.

5. Other Barriers to Procurement of Kidneys for Transplantation

a. Attitudes of Staff

A number of other questions pertaining to staff attitudes toward the procurement of kidneys for transplantation were asked.

Respondents generally expressed positive attitudes about the kidney donation process. Their responses revealed a belief in the benefits of kidney transplantation and an expression of positive feelings towards donation. (Table 7)

Many respondents either strongly disagreed (41%) or disagreed (24%) that their overall experience and feelings toward the kidney donation process were negative, or that their workload did not allow them to get involved (63%). Of all respondents, 93% did not consider the cost of kidney transplantation to be excessive, nor that the donors tend to use needed beds (91%). All respondents felt the benefits of kidney transplantation are justified (100%), that transplantation of kidneys return patients to productive lives; and soothes grieving families (95%). The need for a transplant coordinator is seen as essential (74%).

These findings suggest strong support for the kidney donation and transplantation program.
Table 6: **Staff Knowledge About Procurement and Transplant**

<table>
<thead>
<tr>
<th></th>
<th>Nurse Directors, Supervisors, H.N.'s, A.H.N's</th>
<th>Bedside Nurses</th>
<th>Physicians</th>
<th>All Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y</td>
<td>N</td>
<td>DK</td>
<td>Y</td>
</tr>
<tr>
<td>Clinical</td>
<td>12</td>
<td>1</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>Donor Experience</td>
<td>92</td>
<td>8</td>
<td>-</td>
<td>63</td>
</tr>
<tr>
<td>Need for Kidneys</td>
<td>12</td>
<td>1</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>92</td>
<td>8</td>
<td>-</td>
<td>84</td>
</tr>
</tbody>
</table>

H.N. = Head Nurse  
A.H.N. = Assistant Head Nurse

Y = Yes  
N = No  
DK = Don't know

# = Number of respondents  
% = Percentage of each category
### Table 7: Other Barriers: Personal Feelings Towards Donation as Barriers

<table>
<thead>
<tr>
<th>Personal Feelings</th>
<th>All Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional responsibility to initiate</td>
<td>SD D N A SA</td>
</tr>
<tr>
<td>Coordinator would help</td>
<td># %</td>
</tr>
<tr>
<td>Overall experience negative</td>
<td># %</td>
</tr>
<tr>
<td>Workload does not permit</td>
<td># %</td>
</tr>
<tr>
<td>Costs are excessive</td>
<td># %</td>
</tr>
<tr>
<td>Problem is no coordinator</td>
<td># %</td>
</tr>
<tr>
<td>Donors use needed beds</td>
<td># %</td>
</tr>
<tr>
<td>Benefits don’t justify time</td>
<td># %</td>
</tr>
<tr>
<td>Transplants return patient to productive role</td>
<td># %</td>
</tr>
<tr>
<td>Like more involvement</td>
<td># %</td>
</tr>
<tr>
<td>AIDS grieving family</td>
<td># %</td>
</tr>
<tr>
<td>Sense of loss about donor</td>
<td># %</td>
</tr>
<tr>
<td>Personal, ethnic or religious reluctance</td>
<td># %</td>
</tr>
<tr>
<td>Burden on donor family</td>
<td># %</td>
</tr>
<tr>
<td>Don’t want to bother family</td>
<td># %</td>
</tr>
<tr>
<td>Only positive feeling</td>
<td># %</td>
</tr>
</tbody>
</table>

SD = Strongly disagree  
D = Disagree  
N = Neutral,  
A = Agree  
SA = Strongly agree  
# = Number of respondents  
% = Percentage
b. **Staff Initiation of Donation Process**

Respondents were asked if they would personally consider initiating the kidney donation process by consulting with another professional and/or by approaching the family if a suitable donor was under their care. Of all respondents, 88% said they would consult with another professional and 45% said they would approach the family for consent to donation. All of the physicians (100%) indicated they would ask the family for consent to donation while only 21% of the bedside nurses replied that they would initiate the donation process by approaching the family. Table 8 presents the findings.

Respondents were also asked whom they believed to be the appropriate initiating personnel. The response was overwhelmingly in favour of the physician as initiator, (93%). However, since respondents were asked to identify all appropriate personnel, a large number of respondents also chose assistant head nurses, staff nurses and the unit medical director as appropriate initiators of the donation process. (Table 9) The results appear to indicate a belief that most professionals are suitable initiators of the donation process.

c. **Professional Groups as Barriers**

Respondents were asked if they believed that some professional hierarchies such as unit nurses, head nurses or interns/residents were believed to be barriers to the kidney donation process. Although a few
Table 8: **Initiation of Donation Process**

<table>
<thead>
<tr>
<th>Nurse</th>
<th>Directors, Supervisors, H.N.'s, A.H.N.'s</th>
<th>Bedside Nurses</th>
<th>All Physicians Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y</td>
<td>P</td>
<td>N</td>
</tr>
<tr>
<td>Initiate by Consulting Other</td>
<td>#</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Professional</td>
<td>%</td>
<td>92</td>
<td>8</td>
</tr>
<tr>
<td>Initiate by Approaching Family</td>
<td>%</td>
<td>42</td>
<td>33</td>
</tr>
</tbody>
</table>

H.N. = Head Nurse  
A.H.N. = Assistant Head Nurse

Y = Yes  
P = Possibly  
N = No

# = Number of respondents  
% = Percentage of each category
Table 9: **Appropriate Initiators of Donation Process**

<table>
<thead>
<tr>
<th>Role</th>
<th>Total</th>
<th>Bedside Nurses</th>
<th>Bedside Physicians</th>
<th>All Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staff Nurses</strong></td>
<td>5</td>
<td>11</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>%</td>
<td>38</td>
<td>58</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td><strong>Nurse Supervisor</strong></td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>%</td>
<td>31</td>
<td>32</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td><strong>Assistant Head Nurse</strong></td>
<td>6</td>
<td>12</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>%</td>
<td>46</td>
<td>63</td>
<td>40</td>
<td>52</td>
</tr>
<tr>
<td><strong>Head Nurse</strong></td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>%</td>
<td>46</td>
<td>37</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td><strong>Physician</strong></td>
<td>13</td>
<td>18</td>
<td>8</td>
<td>39</td>
</tr>
<tr>
<td>%</td>
<td>100</td>
<td>95</td>
<td>80</td>
<td>93</td>
</tr>
<tr>
<td><strong>Unit Medical Director</strong></td>
<td>8</td>
<td>14</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>%</td>
<td>62</td>
<td>74</td>
<td>80</td>
<td>71</td>
</tr>
</tbody>
</table>

H.N. = Head Nurse
A.H.N. = Assistant Head Nurse

# = Number of respondents
% = Percentage of each category
respondents view different professional hierarchies such as renal unit staff (5%), family physicians (18%), interns and residents (13%) and head nurses (5%), as major barriers to the kidney procurement process, nevertheless, the majority of all respondents view professional hierarchies either as no barrier at all or as minor barriers to the procurement of kidneys for transplantation. (Table 10)

A key finding is the perception by the majority of all respondents (68%) that relatives of patients constitute major barriers or at least minor barriers (24%) to the kidney procurement process.

Comments About Other Barriers to Kidney Procurement

Responses from interviews indicated reluctance to approach families for consent to donation. A number of comments revealed the reasons for this reluctance. Foremost was the lack of knowledge about how to initiate the approach. Respondents felt inadequately trained to carry out this task. They felt it was important to know the family and to have had an opportunity to develop rapport with them prior to the time when it was necessary to ask for the consent. They preferred to "ease into the subject" while the time of death approached. This unfortunately, was not always possible, especially if death occurred quickly.
Table 10: Individuals as Barriers to Procurement

<table>
<thead>
<tr>
<th>Nurse Directors, Supervisors, H.N.'s, A.H.N's</th>
<th>Bedside Nurses</th>
<th>Physicians</th>
<th>All Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatives of Patient</td>
<td># 1 2 10</td>
<td># 1 6 11</td>
<td># 1 2 7</td>
</tr>
<tr>
<td></td>
<td>% 8 15 77</td>
<td>% 6 33 61</td>
<td>% 10 20 70</td>
</tr>
<tr>
<td>Unit Cooks</td>
<td># 9 4</td>
<td># 15 3</td>
<td># 7 3</td>
</tr>
<tr>
<td></td>
<td>% 69 31</td>
<td>% 83 17</td>
<td>% 70 30</td>
</tr>
<tr>
<td>Head Nurses</td>
<td># 9 2 2 2</td>
<td># 16 2</td>
<td># 7 3</td>
</tr>
<tr>
<td></td>
<td>% 69 15 15</td>
<td>% 89 11</td>
<td>% 70 30</td>
</tr>
<tr>
<td>Assistant Head Nurses</td>
<td># 9 4</td>
<td># 15 3</td>
<td># 6 4</td>
</tr>
<tr>
<td></td>
<td>% 69 31</td>
<td>% 83 17</td>
<td>% 60 40</td>
</tr>
<tr>
<td>Interns/ Residents</td>
<td># 7 1 4 10</td>
<td># 7 1 6</td>
<td># 8 2</td>
</tr>
<tr>
<td></td>
<td>% 58 33 33</td>
<td>% 56 39</td>
<td>% 80 20</td>
</tr>
<tr>
<td>Renal Unit Staff</td>
<td># 10 1 2 15</td>
<td># 3 9 12</td>
<td># 8 2</td>
</tr>
<tr>
<td></td>
<td>% 35 23 38</td>
<td>% 47 41 12</td>
<td>% 80 20</td>
</tr>
<tr>
<td>Family Physician</td>
<td># 5 3 5 8</td>
<td># 7 2 8</td>
<td># 2 2</td>
</tr>
<tr>
<td></td>
<td>% 35 23 38</td>
<td>% 47 41 12</td>
<td>% 80 20</td>
</tr>
<tr>
<td>Administrator</td>
<td># 7 4 2 12</td>
<td># 4 6 1</td>
<td># 8 2</td>
</tr>
<tr>
<td></td>
<td>% 54 31 15</td>
<td>% 71 24</td>
<td>% 80 20</td>
</tr>
</tbody>
</table>

H.N. = Head Nurse  
A.H.N. = Assistant Head Nurse  
NB = Not a barrier  
MN = Minor barrier  
MJ = Major barrier  
# = Number of respondents  
% = Percentage of each category
There was an overall concern about staff's inability to deal with the death of the patient. This is seen at times, by the reluctance to have "no resuscitation" orders written on patient's charts even when there is little chance for recovery. Furthermore, some respondents stated "it would be too traumatic for the family to ask them for consent to donation" or "they have suffered enough, I could not put them through any more grief".

Bedside nurses, in particular, who were both young and inexperienced felt they had not come to terms with the issue of their own mortality so could not cope with it in others. It was felt this led to losses of potential donors because families were not asked for the donation.

A strong recommendation emerged from interviews following the discussion about reluctance to ask for donation. It was suggested that professional staff required training to provide them with the skills to comfortably approach families and discuss the issues around the death of the patient and the possible donation of kidneys. The psychological benefits to be gained from donation could be stressed. The importance of the need for emotional support for families was recognized as well. It was recommended that social workers and the pastoral care department personnel become more involved in this aspect of family care.
6. **Data from Current and Previous Studies**

In Tables 11 and 12, comparable data on institutional and knowledge barriers from this study and the Ontario Task Force Study are presented. The comparison of these two studies must be viewed with caution since the Ontario study had a much larger study population spanning several regions and hospitals. Nevertheless, the comparison is made for the purpose of identifying any commonalities that may be generalized to British Columbia in areas where similar information has been sought.

In both studies, the lack of coordination for the kidney donation process is viewed a minor barrier about evenly (St. Paul's Hospital 37%, Ontario Task Force 32%). (Table 11) The importance of this barrier factor appears to increase as the size of a study population increases (53% of respondents in the Ontario Study whereas 34% in the St. Paul's Hospital study consider lack of coordination of activities a major barrier).

On the contrary, the importance of firm guidelines appear to increase as the study population reduces (see Table 11). Both studies appear to place different emphasis on the merit of clear lines of responsibility. Whereas 50% of the respondents in this study view this factor as a minor barrier, 52% of respondents in the Ontario study consider it a major impediment, thus emphasizing the significance of the factor. The findings regarding familiarity with institutional policies, procedures and the donation process are mixed with each study having minor emphasis on the relative importance of this factor.
Table 11: Institutional Procedures as Barriers: A Comparison of St. Paul's Hospital and Ontario Task Force Study

<table>
<thead>
<tr>
<th>No Barrier</th>
<th>Minor Barrier</th>
<th>Major Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPH</td>
<td>OTF</td>
<td>SPH</td>
</tr>
<tr>
<td>Lack of Coordination</td>
<td>12</td>
<td>282</td>
</tr>
<tr>
<td>No firm Guidelines</td>
<td>29</td>
<td>15</td>
</tr>
<tr>
<td>No clear lines of Responsibility</td>
<td>12</td>
<td>352</td>
</tr>
<tr>
<td>Lack of Familiarity</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>SPH = St. Paul's Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTF = Ontario Task Force</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# = Number of respondents
% = Percentage of each category
Table 12: Knowledge Barriers to the Selection of Potential Kidney Donors: A Comparison of St. Paul's Hospital and Ontario Task Force Study

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Possibly</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SPH</td>
<td>OTF</td>
<td>SPH</td>
</tr>
<tr>
<td>Primary Malignancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Except in CNS or Kidneys</td>
<td>14</td>
<td>81</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>4</td>
<td>33</td>
</tr>
<tr>
<td>Disseminated Malignancy</td>
<td>1</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Primary Brain Tumor</td>
<td>19</td>
<td>348</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>46*</td>
<td>18*</td>
<td>32</td>
</tr>
<tr>
<td>Systemic Infection</td>
<td>1</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Hypertension</td>
<td>1</td>
<td>34</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>38*</td>
</tr>
<tr>
<td>Diabetes</td>
<td>-</td>
<td>33</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>2</td>
<td>28*</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>-</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>AIDS</td>
<td>-</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Fever</td>
<td>7</td>
<td>67</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>3</td>
<td>49*</td>
</tr>
<tr>
<td>Hypotensive</td>
<td>5</td>
<td>123</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>6</td>
<td>56*</td>
</tr>
</tbody>
</table>

SPH = St. Paul's Hospital
OTF = Ontario Task Force

# = Number of respondents
% = Percentage of each category

* = The correct response to the question, e.g., it indicates if the patient is, is not or may possibly be a suitable donor when an acceptable set of criteria are applied (appendix 3)
In Table 12, the appropriate responses to diagnostic selection criteria for potential kidney donation are marked by an asterisk. The selection criteria chosen by respondents in both studies are similar in many diagnostic categories, for example in disseminated malignancy (89% and 87%), diabetes (28% and 36%), hepatitis (95% and 92%) and AIDS (100% and 97%). However in both studies respondents were incorrect in their belief that diabetic and hypertensive patients were not possible donors. The results appear to indicate that both groups of respondents had some uncertainty in their knowledge of donor eligibility criteria.
CHAPTER V
DISCUSSION AND SUMMARY

In chapter I, the primary purpose of this study, as stated, was to determine what barriers exist to the procurement of cadaveric kidneys for transplantation and to explore the reasons for the existence of these barriers. Institutional and knowledge barriers were the focus of the investigation using St. Paul’s Hospital as the center for the study.

The findings of the study indicate that (a) sufficient numbers of potential donor kidneys are not identified and procured at the hospital, (b) barriers to the procurement process exist at the institutional and knowledge levels, (c) the attitudes of staff indicate strong support for kidney donation and transplantation and, (d) that all professional groups are seen as suitable initiators of the donation process and that no professional group are barriers to this process.

In the documentary examination, for example, 7 potential kidney donors were identified. All of the potential donors were suitable as donors since they fit within the established criteria for donorship of cadaveric kidneys, (appendix 3) however, they were not procured.

Institutional Barriers

Institutional barriers did not encourage staff initiation of the donation process. Policies were found to be inconsistent, unclear and
non-formalized. Staff lacked awareness of existing hospital policy. The inadequate number of clearly defined, specific, understandable procedures is also seen as a barrier. Respondents felt the procedures did not define clear lines of responsibility and this inhibited the process of kidney donation.

It appeared that although St. Paul's Hospital had a policy on kidney donation, procedures were not well detailed, for example, the delegation of responsibility. Respondents stated that the PORT manual, as a source of reference, was unclear and it would be useful to have the hospital's and the PORT manual combined and re-written to provide detailed procedures. This revised set of procedures should encourage initiation of the donation process and define clear lines of responsibility for all staff involved in the care of brain dead patients who are potential kidney donors.

A coordinator could assist staff to interpret hospital policy and procedure and promote consistency in the management of the donation process. Respondents indicated that since St. Paul's Hospital was a teaching hospital, it had many staff members attending to the patient's needs. However, at times, some of the details in the donation process were overlooked because staff believed someone else was responsible for the task. A coordinator would ensure that all tasks were completed in a timely fashion and therefore, increase the efficiency of the procurement system. Also, a coordinator could perform chart reviews to determine the numbers
of donors whose kidneys were not procured, thereby, providing education to staff about how to identify suitable donors of cadaveric kidneys.

Knowledge Barriers

The deficiency of staff knowledge with respect to the selection of appropriate diagnostic categories of patients as suitable donors was seen as a barrier to the procurement of cadaveric kidneys. Physicians and nurses were uncertain about the selection of certain categories of patients such as diabetics for donorship of kidneys for transplantation. Respondents also experienced family member’s refusal to grant consent for the donation of kidneys. Staff indicated they lacked knowledge regarding how to select donors and how to approach families to ask for consent for removal of the kidneys.

Since procurement of kidneys occurred so infrequently at St. Paul’s Hospital (only 3 were obtained in 1987, see page 3), staff lacked experience with the selection of patients who were suitable for donorship. Continuing education is required by staff to enable them to improve their knowledge about the selection of suitable kidney donors. Also, this program of education could train staff on how to approach families for consent to the donation. Respondents viewed a coordinator as a resource person who could provide education about the conditions compatible with donorship, donor management and kidney retrieval. The coordinator could also improve the visibility of the donor program and this would serve as a
reminder to staff to screen patients for potential donorship of cadaveric kidneys.

Staff Attitudes to Kidney Donation

Staff attitudes to kidney donation and transplantation were positive. They expressed the belief that kidney transplantation provided benefits to the recipient patient and returned them to a productive life. Staff also thought that donation of kidneys provided psychological benefit to the family of the brain dead patient because a patient was benefiting from their loss. Comments from respondents indicated they believed this benefit should be discussed with families when staff approached them to ask for consent to the donation of the kidneys. When staff education is provided, this point would be important to include in the education process with staff.

Staff as Initiators or Barriers to the Donation Process

Respondents were asked whom they thought was the appropriate person to initiate the donation process with a patient and their family. Although all respondents felt the physician was the best person to initiate this process, they also indicated that any professional involved in the care of the patient would be appropriate to initiate the donation process. This appears to suggest that no institutional barriers exist which would prohibit various staff members from initiating the procurement of kidneys for transplantation.
Professional groups were not seen as barriers to the kidney donation process at St. Paul's Hospital. This finding suggests that all professional groups including nurses, physicians and administrators were thought to be supportive of the staff's efforts to procure kidneys for transplantation.

Comparison of St. Paul's Hospital and Ontario Task Force Study

The results from these two studies must be viewed with caution because the two study populations are different. The Ontario Task Force study had a larger population which spanned several regions and hospitals. The St. Paul's Hospital study was smaller and investigated the barriers to procurement of cadaveric kidneys at one typical hospital with a kidney transplantation program. The study questionnaire used in the St. Paul's Hospital was a modified version of the questionnaire used in the Ontario study. A comparison of the two studies is made for the purpose of generalization to British Columbia in areas where similar information was sought.

The results from both studies indicated the existence of institutional and knowledge barriers which presented impediments to the procurement of kidneys for transplantation. St. Paul's Hospital and the Ontario study found procedural barriers such as a lack of coordination, no clear lines of responsibility and unfamiliarity with procedures to be either minor or major barriers. Both studies also found that staff lacked
knowledge about suitable patient selection for donorship of cadaveric kidneys.

Recommendations

Since both institutional and knowledge barriers were found in this study, two major recommendations are suggested.

1. Staff require information about the content of existing policies and clarification of procedures regarding kidney donation. Procedures could be reviewed and re-written to include specific, clear, consistent guidelines for staff to follow in the event of a potential kidney donation. These procedures could include a statement which indicates the hospital encourages the identification of potential donors and allows all staff members to initiate the process of donation. Procedures may also include information about how staff could seek consent for donation from families.

2. Education of staff regarding selection of suitable donors could improve the procurement rate at the hospital. A program of continuing education of staff may be undertaken by a coordinator who could increase knowledge about donor selection, how to seek consent for donation and management of potential donors and their families. The coordinator could also improve the visibility of the procurement program and encourage staff to screen patients for
potential donorship. Chart reviews conducted by this staff member could identify missed donors and assist the hospital to become more efficient in its procurement practices.

Limitations of the Study

The St. Paul's Hospital study was conducted to provide an in-depth examination of the barriers to procurement of cadaveric kidneys for transplantation. There was no concurrent comparison made with similar hospitals although some comparison of findings was done with the Ontario Task Force study. This limits the extent to which one can generalize this study.

Suggestions for Further Study

A study, which examines the influence of this study's results in a situation where a procurement coordinator exists is suggested. The purpose of such an investigation would be to determine if the existence of a coordinator results in a higher procurement rate for the hospital. Another study could examine the utility of the results of this study in situations in which there are clearly defined institutional policies and sufficient procurement knowledge.
BIBLIOGRAPHY


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Corlett, S. Public attitudes toward human organ donation. Transplantation Proceedings, 1985, 17 (6), Supplement 3, 103-111.


Appendix 1(a)

New Patients by Age Group at Registration, Canada and Provinces, 1986
(Age-specific Rate per Million Population)

<table>
<thead>
<tr>
<th>Province</th>
<th>New Patients Total(^1)</th>
<th>Age Group</th>
<th>(0-14)</th>
<th>(15-44)</th>
<th>(45-64)</th>
<th>(65-74)</th>
<th>(75+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>66.5</td>
<td>7.2</td>
<td>39.5</td>
<td>126.8</td>
<td>238.2</td>
<td>138.4</td>
<td></td>
</tr>
<tr>
<td>1985(^2)</td>
<td>60.8</td>
<td>6.6</td>
<td>38.5</td>
<td>123.9</td>
<td>195.3</td>
<td>109.4</td>
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</tr>
<tr>
<td>1984(^2)</td>
<td>57.8</td>
<td>8.8</td>
<td>38.9</td>
<td>115.9</td>
<td>182.2</td>
<td>82.6</td>
<td></td>
</tr>
<tr>
<td>1983(^2)</td>
<td>52.9</td>
<td>4.9</td>
<td>39.0</td>
<td>105.3</td>
<td>156.6</td>
<td>74.2</td>
<td></td>
</tr>
<tr>
<td>1982(^2)</td>
<td>50.7</td>
<td>5.7</td>
<td>33.8</td>
<td>108.1</td>
<td>150.1</td>
<td>81.7</td>
<td></td>
</tr>
<tr>
<td>1981(^2)</td>
<td>49.1</td>
<td>5.5</td>
<td>31.7</td>
<td>106.1</td>
<td>151.1</td>
<td>84.7</td>
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</tr>
<tr>
<td>NFLD</td>
<td>98.5</td>
<td>63.8</td>
<td>179.1</td>
<td>533.2</td>
<td>276.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.E.I.(^3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N.S.</td>
<td>75.0</td>
<td>9.2</td>
<td>72.4</td>
<td>139.0</td>
<td>165.6</td>
<td>21.1</td>
<td></td>
</tr>
<tr>
<td>N.B.</td>
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<td>6.2</td>
<td>23.2</td>
<td>96.4</td>
<td>421.4</td>
<td>159.9</td>
<td></td>
</tr>
<tr>
<td>Q.W.</td>
<td>52.2</td>
<td>5.2</td>
<td>30.2</td>
<td>106.2</td>
<td>191.4</td>
<td>82.3</td>
<td></td>
</tr>
<tr>
<td>O.N.</td>
<td>73.3</td>
<td>7.5</td>
<td>39.1</td>
<td>140.0</td>
<td>268.8</td>
<td>158.9</td>
<td></td>
</tr>
<tr>
<td>M.A.N.</td>
<td>102.5</td>
<td>12.7</td>
<td>70.4</td>
<td>193.7</td>
<td>278.3</td>
<td>200.6</td>
<td></td>
</tr>
<tr>
<td>S.A.S.K.</td>
<td>70.3</td>
<td>8.1</td>
<td>65.8</td>
<td>83.7</td>
<td>185.3</td>
<td>188.5</td>
<td></td>
</tr>
<tr>
<td>A.L.T.A.</td>
<td>55.8</td>
<td>8.9</td>
<td>32.7</td>
<td>122.7</td>
<td>248.9</td>
<td>133.7</td>
<td></td>
</tr>
<tr>
<td>O.C.</td>
<td>64.5</td>
<td>8.5</td>
<td>37.8</td>
<td>121.2</td>
<td>181.0</td>
<td>156.7</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Patients are counted by province of treatment at year end.
\(^2\) Data for 1981 to 1985 are revised.
\(^3\) Statistics for Prince Edward Island are included in Nova Scotia.

Source: Canadian Renal Failure Register, 1986, p.65
## Appendix 1(b)

### NUMBER, RATE AND AGE OF NEW PATIENTS

**New Patients by Age Group at Start of Treatment, Canada and Provinces, December 31, 1986**  
(Number)

<table>
<thead>
<tr>
<th>Province</th>
<th>New Patients Total¹</th>
<th>Age Group</th>
<th>0-14</th>
<th>15-44</th>
<th>45-64</th>
<th>65-74</th>
<th>75+</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>1,683</td>
<td>39</td>
<td>488</td>
<td>618</td>
<td>393</td>
<td>145</td>
<td></td>
</tr>
<tr>
<td>1985²</td>
<td>1,543</td>
<td>36</td>
<td>478</td>
<td>602</td>
<td>314</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>1984²</td>
<td>1,452</td>
<td>48</td>
<td>478</td>
<td>559</td>
<td>285</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>1983²</td>
<td>1,316</td>
<td>27</td>
<td>475</td>
<td>502</td>
<td>241</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>1982²</td>
<td>1,249</td>
<td>31</td>
<td>407</td>
<td>509</td>
<td>227</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>1981²</td>
<td>1,189</td>
<td>30</td>
<td>373</td>
<td>490</td>
<td>221</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>N.L.D.</td>
<td>56</td>
<td></td>
<td>18</td>
<td>16</td>
<td>17</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>P.E.I.³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N.S.</td>
<td>73</td>
<td>3</td>
<td>33</td>
<td>24</td>
<td>12</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>N.B.</td>
<td>48</td>
<td></td>
<td>10</td>
<td>13</td>
<td>20</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>QUE.</td>
<td>341</td>
<td>7</td>
<td>98</td>
<td>138</td>
<td>78</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>ONT.</td>
<td>667</td>
<td>14</td>
<td>172</td>
<td>256</td>
<td>163</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>MAN.</td>
<td>108</td>
<td>3</td>
<td>35</td>
<td>38</td>
<td>21</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>SASK.</td>
<td>70</td>
<td>2</td>
<td>28</td>
<td>16</td>
<td>14</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>ALTA</td>
<td>132</td>
<td>5</td>
<td>41</td>
<td>48</td>
<td>28</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>B.C.</td>
<td>188</td>
<td>5</td>
<td>53</td>
<td>69</td>
<td>40</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

¹ Patients are counted by province of treatment at year end.  
² Data for 1981 to 1985 are revised.  
³ Statistics for Prince Edward Island are included in Nova Scotia.

Source: Canadian Renal Failure Register, 1986, p.63
### Summary of Treatment Parameters for All Patients on December 31, 1986, Canada and Provinces (Rate per Million Population)

<table>
<thead>
<tr>
<th>Province</th>
<th>Total Patients Reported</th>
<th>Alive with Functioning Transplant</th>
<th>On Dialysis</th>
<th>Haemodialysis</th>
<th>Peritoneal Dialysis¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>341.2</td>
<td>164.9</td>
<td>176.3</td>
<td>115.5</td>
<td>60.8</td>
</tr>
<tr>
<td>1985</td>
<td>306.6</td>
<td>138.1</td>
<td>168.5</td>
<td>109.2</td>
<td>59.3</td>
</tr>
<tr>
<td>1984</td>
<td>287.3</td>
<td>126.0</td>
<td>161.3</td>
<td>104.9</td>
<td>56.4</td>
</tr>
<tr>
<td>1983</td>
<td>273.8</td>
<td>118.1</td>
<td>155.7</td>
<td>103.0</td>
<td>52.7</td>
</tr>
<tr>
<td>1982²</td>
<td>242.4</td>
<td>98.3</td>
<td>144.1</td>
<td>94.1</td>
<td>50.0</td>
</tr>
<tr>
<td>1981²</td>
<td>236.4</td>
<td>97.6</td>
<td>138.7</td>
<td>96.3</td>
<td>42.4</td>
</tr>
<tr>
<td>Nfld.³</td>
<td>360.7</td>
<td>140.8</td>
<td>219.9</td>
<td>160.1</td>
<td>59.8</td>
</tr>
<tr>
<td>P.E.I.⁴</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N.S.⁵</td>
<td>309.0</td>
<td>187.0</td>
<td>122.0</td>
<td>71.0</td>
<td>51.0</td>
</tr>
<tr>
<td>N.B.⁵</td>
<td>336.8</td>
<td>183.2</td>
<td>153.6</td>
<td>94.4</td>
<td>59.2</td>
</tr>
<tr>
<td>Que.</td>
<td>326.7</td>
<td>163.3</td>
<td>163.3</td>
<td>122.0</td>
<td>41.3</td>
</tr>
<tr>
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<td>379.4</td>
<td>189.1</td>
<td>190.3</td>
<td>113.4</td>
<td>76.9</td>
</tr>
<tr>
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<td>428.0</td>
<td>218.2</td>
<td>209.8</td>
<td>169.3</td>
<td>40.5</td>
</tr>
<tr>
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<td>278.3</td>
<td>137.7</td>
<td>140.7</td>
<td>85.2</td>
<td>55.5</td>
</tr>
<tr>
<td>ALTA.</td>
<td>300.5</td>
<td>155.1</td>
<td>145.4</td>
<td>105.2</td>
<td>40.2</td>
</tr>
<tr>
<td>B.C.</td>
<td>294.4</td>
<td>87.1</td>
<td>207.4</td>
<td>121.7</td>
<td>85.7</td>
</tr>
</tbody>
</table>

¹ Peritoneal dialysis includes CAPD, IPD, CCPD and peritoneal dialysis used in combination with haemodialysis.
² Data for 1981 and 1982 are revised.
³ The majority of transplants for the Atlantic Provinces (Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick) are performed in Nova Scotia. Excluding Prince Edward Island, transplanted patients are shown by province of residence.
⁴ Statistics for Prince Edward Island are included in Nova Scotia.

Source: Canadian Renal Failure Register, 1986, p.35
### ALL TREATMENTS IN CANADA AND THE PROVINCES

**Summary of Treatment Parameters for All Patients on December 31, 1986, Canada and Provinces**  
*(Number)*

<table>
<thead>
<tr>
<th>Province</th>
<th>Total Patients Reported</th>
<th>Alive with Functioning Transplant</th>
<th>On Dialysis</th>
<th>Haemo-</th>
<th>Peritoneal Dialysis¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>CANADA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>8,636</td>
<td>4,174</td>
<td>4,462</td>
<td>2,924</td>
<td>1,538</td>
</tr>
<tr>
<td>1985</td>
<td>7,774</td>
<td>3,502</td>
<td>4,272</td>
<td>2,768</td>
<td>1,504</td>
</tr>
<tr>
<td>1984</td>
<td>7,219</td>
<td>3,166</td>
<td>4,053</td>
<td>2,635</td>
<td>1,418</td>
</tr>
<tr>
<td>1983</td>
<td>6,816</td>
<td>2,940</td>
<td>3,876</td>
<td>2,564</td>
<td>1,312</td>
</tr>
<tr>
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<td>5,971</td>
<td>2,421</td>
<td>3,550</td>
<td>2,318</td>
<td>1,232</td>
</tr>
<tr>
<td>1981</td>
<td>5,719</td>
<td>2,362</td>
<td>3,357</td>
<td>2,331</td>
<td>1,026</td>
</tr>
<tr>
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<td>80</td>
<td>125</td>
<td>91</td>
<td>34</td>
</tr>
<tr>
<td>P.E.I.²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N.S.²</td>
<td>309</td>
<td>187</td>
<td>122</td>
<td>71</td>
<td>51</td>
</tr>
<tr>
<td>N.B.²</td>
<td>239</td>
<td>130</td>
<td>109</td>
<td>67</td>
<td>42</td>
</tr>
<tr>
<td>QUE</td>
<td>2,134</td>
<td>1,067</td>
<td>1,067</td>
<td>797</td>
<td>270</td>
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<td>1,721</td>
<td>1,732</td>
<td>1,032</td>
<td>700</td>
</tr>
<tr>
<td>MAN.</td>
<td>455</td>
<td>232</td>
<td>223</td>
<td>180</td>
<td>43</td>
</tr>
<tr>
<td>SASK.</td>
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<td>139</td>
<td>142</td>
<td>86</td>
<td>56</td>
</tr>
<tr>
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<td>367</td>
<td>344</td>
<td>249</td>
<td>95</td>
</tr>
<tr>
<td>B.C.</td>
<td>849</td>
<td>251</td>
<td>598</td>
<td>351</td>
<td>247</td>
</tr>
</tbody>
</table>

¹ Peritoneal dialysis includes CAPD, IPD, CCPD and peritoneal dialysis used in combination with haemodialysis.
² The majority of transplants for the Atlantic Provinces (Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick) are performed in Nova Scotia. Excluding Prince Edward Island, transplanted patients are shown by province of residence.
³ Statistics for Prince Edward Island are included in Nova Scotia.

**Source:** Canadian Renal Failure Register, 1986, p.34
CRITERIA FOR KIDNEY DONOR SELECTION

Donors must be free from the following unsatisfactory factors:

- Pre-existing diseases of the kidney
- Malignancies other than primary brain tumors
- Systemic bacterial, fungal, or viral infections (donors with treated infections may be suitable)
- Prolonged ischemia due to prolonged or profound hypotension or asystole
- Positive hepatitis B or HIV virus tests
Appendix 4(b)

BARRIERS TO KIDNEY ORGAN DONATION
AT ST. PAUL'S HOSPITAL

QUESTIONNAIRE

September 1988
BARRIERS TO KIDNEY ORGAN DONATION AT ST. PAUL'S HOSPITAL

QUESTIONNAIRE

This study is being conducted by Bonnie Gabel (telephone 683-1741). The purpose of the study is to investigate the barriers to the donation of cadaveric kidneys for transplant. The potential benefits of the study are the improvement of the mechanisms to procure kidneys for transplant and thereby increase the number of kidneys available. The procedure involves the completion of this questionnaire, placing it in the envelope provided, sealing it and mailing it to the investigator via in-hospital mail. Your participation is voluntary; you may choose not to become involved if you so wish. Completion of the questionnaire will take about 15 minutes. If you participate, it is assumed that your consent is given. All data will be kept confidential, your identity will not be known. Responses will be coded by number only.

Please check the appropriate response.

Demographic Characteristics

1. Please check one of each of the following:

   Age: under 20 ___
   20 - 30 ___
   31 - 40 ___
   41 - 50 ___
   over 51 ___

   Sex: female ___
   male ___

Position and Experience

2. What is your position in this hospital?

   (a) R.N. (ICU staff) ___
   (b) R.N. (assistant head nurse) ___
   (c) R.N. (head nurse) ___
   (d) R.N. other (specify) ___
   (e) Physician (ICU staff) ___
   (f) Physician (resident) ___
   (g) Physician (intern) ___
   (h) Physician (neurologist) ___
   (i) Physician (neurosurgeon) ___
   (j) Physician other (specify ___

   CODE ___
3. How many years of clinical experience have you had? __ years

Institutional Barriers

4(a) Are you aware that St. Paul's Hospital has a policy regarding kidney donation?

yes ___ no ___

4(b) If you are aware of the existing kidney donation policy, do you think it encourages nursing staff or physicians to initiate the donation process?

yes ___ no ___ I don't know ___

Please briefly give your comments ____________________________

4(c) If you are aware of the existing kidney donation policy, does it provide adequate information about the procedures to be followed in the event of a potential kidney donation?

yes ___ no ___ I don't know ___

Do you have any comments about the policy? ____________________________

What, if anything, should be included in the policy or procedures which presently is not included? ____________________________

5. Do you believe there is a need for a staff person to co-ordinate the process of kidney donation in order to insure that all necessary steps are taken?

yes ___ no ___ I don't know ___

Briefly, please explain ____________________________
6. Using the scale shown below, from your point of view, rate the following statements in terms of their being potential barriers to the process of kidney donation. Please circle one of the following numbers for each statement.

1 - not a barrier  2 - minor barrier  3 - major barrier

(a) lack of coordination of donation process  1  2  3
(b) no firm guidelines  1  2  3
(c) no clear lines of responsibility  1  2  3
(d) time demands of the donation process  1  2  3
(e) attitudes of other professionals  1  2  3
(f) questions of legal responsibility  1  2  3
(g) added financial burden for the unit or hospital  1  2  3
(h) lack of familiarity with process  1  2  3
(i) personal feelings towards organ retrieval and donation  1  2  3

Please, briefly list any other barriers which you are aware of

7. If you have had experience with kidney donors, have you encountered any of the following difficulties? Please check yes or no for each response.

yes  no

(a) family refused consent  
(b) family unavailable or unknown  
(c) no one to call for advice  
(d) lack of support from hospital administration  
(e) lack of support from medical personnel  
(f) lack of support from nursing personnel  
(g) problems with the coroner  
(h) other (specify) _______________________________

Please, briefly explain the difficulty you encountered _________
8. Using the scale shown below, rate all of the following individuals in terms of their being potential barriers to the kidney organ donation process. Please circle the appropriate number for each individual or group.

<table>
<thead>
<tr>
<th></th>
<th>1 - not a barrier</th>
<th>2 - minor barrier</th>
<th>3 - major barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) relatives of patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(b) unit nurses</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(c) head nurses</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(d) assistant head nurses</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(e) interns/residents</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(f) renal unit staff</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(g) family physicians</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(h) administrators</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Please list other individuals who are potential barriers to the donation of kidneys

Knowledge Barriers

9(a) Would you personally consider initiating the kidney donation process if a suitable donor was under your care?

yes possibly no

(i) By consulting with another health care professional
(ii) By approaching the family

Please explain your answer

9(b) Who do you think would be the appropriate initiating personnel? Please check any of those whom you think are appropriate.

staff nurses
nurse supervisor
assistant head nurse
head nurse
physician
unit medical director
other (specify)
10. If you believed you had a patient who was a potential kidney donor in your care, and wished to consult with someone, whom would you call? Please check any of those whom you think are appropriate.

(a) assistant head nurse
(b) head nurse
(c) nursing supervisor
(d) physician (ICU Director)
(e) physician (ICU resident)
(f) physician (ICU intern)
(g) physician (director of renal unit)
(h) nephrologist
(i) urologist
(j) PORT (Pacific Organ Retrieval for Transplantation)
(k) other (specify)

11. Who, in St Paul's Hospital, could help you in the management of a potential kidney donor and his/her family? Please check all answers which are appropriate.

(a) nephrologist/nephrology team
(b) urologist
(c) PORT
(d) social worker
(e) chaplain/pastoral care
(f) no one
(g) other (specify)

12. Please indicate which of the following types of patients you personally would define as potential suitable kidney donors, given that all patients were certified brain dead:

(a) with a primary malignancy except in the central nervous system or kidneys
(b) with disseminated malignancy
(c) with primary brain tumour
(d) with systemic infection
(e) with hypertension
(f) with diabetes
(g) with hepatitis
(h) with AIDS
(i) with fever
(j) hypotensive

13. Have you ever had any clinical experience with a potential kidney donor?

yes    no
14. Using the scale below, rate your personal feelings toward the following statements. Circle one of the four numbers for each statement.

1- strongly disagree, 2- disagree, 3- neutral, 4- agree, 5- strongly agree

(a) I feel I have a professional responsibility to initiate kidney donation for those identified as kidney donors

1 2 3 4 5

(b) An organ donation coordinator would help greatly in initiating the kidney donation process into my current duties

1 2 3 4 5

(c) My overall experience with kidney donation has been negative

1 2 3 4 5

(d) My current workload does not permit any active involvement with the kidney donation process

1 2 3 4 5

(e) Kidney donation should not be advocated because of the excessive costs involved in caring for the donor

1 2 3 4 5

(f) I feel a major problem with kidney donation is the absence of an in-hospital person or team to co-ordinate the donation process

1 2 3 4 5

(g) Kidney donors utilize beds that could be used for more needy patients

1 2 3 4 5

(h) The benefits of kidney transplantation do not justify the time involved in initiating and carrying out the donor practice

1 2 3 4 5

(i) Kidney transplant rehabilitates patients to a purposeful and productive role in society

1 2 3 4 5
15. Do you personally believe there is a need for more kidney donors?
   yes ___  no ___  I don't know ___
   Please comment ____________________________________________________________

16. Using the scale below, rate your personal feelings towards the following statements. Please circle one of the four numbers for each statement.

   1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree

   (a) I would like to be more involved in initiating the kidney donation process
       1 2 3 4 5

   (b) I feel that the kidney donation process aids the grieving family by providing a sense of contribution to another person's life
       1 2 3 4 5

   (c) When considering kidney donation, I usually have a sense of loss or defeat about the donor and this inhibits the donation process
       1 2 3 4 5

   (d) I do not feel that I should actively initiate kidney retrieval due to personal, ethical or religious considerations
       1 2 3 4 5

   (e) The donation process is an unwarranted additional burden for the donor's family
       1 2 3 4 5

   (f) I feel the idea of bothering a grieving family with requests for kidney donation may be a major block in initiating the organ donation process
       1 2 3 4 5

   (g) I have nothing but positive feelings toward kidney donation
       1 2 3 4 5

17. Do you have any additional feelings or comments about kidney donation? ____________________________________________________________
Appendix 5(b)

Interview Questions

Title: Barriers to the Donation of Kidneys for Transplant at St. Paul’s Hospital

1. In your opinion, does St. Paul’s Hospital obtain a sufficient number of kidneys for transplantation? Please explain.

2. If not, what do you consider to be the barriers or obstacles to the procurement of a sufficient number of kidneys? Please explain.

3. Do you think some of the problems are due to the way in which the hospital has organized its procurement system? Please explain your answer.

4. What do you think needs to be done to improve the procurement system?
   a. from the hospital institutional viewpoint?
   b. from the point of view of individual staff?

   Please explain.

5. In your opinion, do you think that the need for kidney donation is well known among:
   a. your colleagues
   b. staff in your department
   c. staff in the hospital

6. What do you think needs to be done to improve knowledge level?

   Please explain.

7. How do you think the kidney donation process at St. Paul’s Hospital can be improved? Please explain.

8. What other suggestions can you offer for improving access to usable, donated kidneys at St. Paul’s Hospital?
It is the policy of the hospital to assist patients who wish to donate either organs or tissues, and to expedite their request upon the death of the patient depending upon the agreement of the next of kin.

Effective date: Revised July 28, 1988

Approved by:

Units primarily affected: Nursing Department, Medical Staff, Admitting Department

Source: St. Paul's Hospital Policy Manual, 1988
PROCEDURE

A. PROCEDURE FOR MAINTAINING A MEDICAL RECORD FOR DESIGNATED ORGAN DONORS.

For patients at St. Paul's who have been declared dead, and are designated Organ Donors, the following applies:

1. Two physicians must declare that the patient is brain dead and record on the progress notes:
   1.1 Time of declaration of brain death,
   1.2 Clinical Assessment,
   1.3 Signature.

2. Admitting will be notified of the:
   2.1 Time of declaration of brain death/and
   2.2 That the patient is now to be designated as "Deceased - Organ Donor".

3. Nursing will:
   3.1 Record on the Nurses Notes that the patient has died, and is now an organ donor.
   3.2 Continue to monitor and record as the patient is supported and until the patient is transferred to the Operating Room.
   3.3 Nursing will record the time of transfer to the Operating Room.

4. In the Operating Room all chart forms will continue to be stamped with the original addressograph plate, but Nursing will write above the stamp "Deceased - Organ Donor". This will include the Anaesthetist's Record.

5. All requisitions, such as for blood work, will be stamped with the addressograph plate as outlined in paragraph four (4).

B. PROCEDURE FOR EYE DONOR NOTIFICATION.

The process for eye donations in order to supply human donor tissue for corneal transplants, scleral grafts and medical research is as follows:

1. The hospital supports the Eye Bank of B.C. Eye Donor Program, and will undertake to notify the Eye Bank of B.C. of every death occurring at St. Paul's Hospital that meet the following guidelines:
   1.1 Age between 1 - 70 years.
   1.2 Within six hours of death.
   1.3 Taking into account the list of contraindications.

Source: St. Paul's Hospital Policy Manual, 1988
PROCEDURE

2. The physician is responsible to contact the next of kin and to obtain consent for eye donations by a signed donor card, a consent form called "Eye Bank Consent Form" - NF078 available in the Admitting Department, or a documented telephone call.

3. Consent for eye donation may be given to the physician by:
   3.1 The patient who declares before two (2) witnesses that they wish to donate their eyes after death/or
   3.2 The patient’s spouse/or if not readily available, 
   3.3 Any one of the patient's children/or if not readily available, 
   3.4 Any one of the patient's parents/or if not readily available, 
   3.5 Any one of the patient's sisters or brothers, 
   3.6 Any other next of kin/or an, 
   3.7 Executor/executrix.

4. The Nursing Department staff is responsible to:
   4.1 Notify the Admitting Department and, or the Administrative Supervisor, as with all deaths. 
   4.2 Provide the following information to either the Admitting Department or the Administrative Supervisor if the patient is a potential donor, meeting the guidelines in paragraph one (1).
      4.2.1 Patient name. 
      4.2.2 Date of Birth. 
      4.2.3 Admission Diagnosis/Current Diagnosis. 
      4.2.4 Time of death. 
      4.2.5 Attending Physician. 
      4.2.6 Nursing Unit name.

5. The Admitting Clerk, Monday to Friday, 0800 - 1600 hours, and the Administrative Supervisor on evenings, nights and weekends will notify the Eye Bank of B.C. about a potential donor. The telephone number is 875-4567.

6. The Eye Bank technician is on an answering service and will always return the call. At that time they will also contact the physician for any additional information and request that a consent be obtained.

Source: St. Paul’s Hospital Policy Manual, 1988
PROCEDURE

C. PROCEDURE FOR DONATION OF KIDNEYS FOR TRANSPLANT.

1. When any patient or family member indicates that the patient wishes to donate a kidney at death, the Director of the Renal Unit, or his delegate is notified.

2. If the anticipated donation proves to be acceptable the Director of the Renal Unit, or delegate, will contact the Director of I.C.U., and the established protocol implemented.

3. Detailed information about the donation of kidneys for transplant is found in the PORT Manual (Pacific Organ Retrieval for Transplantation), located on 5 West, I.C.U., Emergency, the O.R., and the Nursing Supervisors Office.

4. The ORGAN OR TISSUE DONATION Consent Form - Form MR-037 located in I.C.U. is to be used.

D. PROCEDURE FOR DONATING BODY TO MEDICAL SCHOOL AT U.B.C.

1. If a patient is interested in donating their body to the Medical School, the Anatomy Department, Faculty of Medicine, University of British Columbia should be contacted.

2. A set of appropriate forms and a letter outlining the procedure to be followed at the time of death are sent to the prospective donor.

Source: St. Paul’s Hospital Policy Manual, 1988
Appendix 7

Comments of Respondents on Institutional and Knowledge Barriers to the Kidney Donation Process

Comments on Institutional Barriers

"I know St. Paul's has a policy but I have never read it." (Stated by 5 bedside nurses)

"I know the policy exists but I do not know the nursing role in the procurement of kidneys."

"Since it comes into effect only when there is the crisis of death, it requires an anchor woman/man to initiate the process. Continuing education for the public and the staff is necessary."

"The present policy states it is up to the hospital to assist the donation process when the family indicates they wish to donate. I wonder if the hospital should have a separate policy which states it is the intent of the organization to seek donations of organs."

"The policy leaves the initiative for donation on the family. Medicine and nursing are passive and have non-specific roles within St. Paul's hospital policy regarding donation."

"The steps are clear and the support for staff involved are outlined fully."

"I think it depends on the individual's interest in the subject. If a person is enthusiastic about donation, they will pursue it, if not, having a donation policy is not likely to make any difference."

"The present policy encourages staff to initiate the donation process only if they are self motivated."

"It is considerably easier to initiate donation now that PORT is operational."

"If you are aware of the possibility of a donor, you can initiate some of the requirements and maybe even suggest it to those family members involved."

"The present policy could refer staff to additional information re: tissue typing, maintenance of organs, etc."
"The procedure relates to the legalities of procurement."

"The procedures need a staff person to coordinate them."

"I think they could be organized and written from a chronological order of the donation process stating who is responsible for what (from initiation to donation)."

"I don’t know what information could make the procedure easier."

"The information is adequate except for lab procedures. They can vary according to lab personnel because there is a change in policy that is not immediately communicated with an update placed in the manuals."

"I found there was too much detail in the PORT manual and this could have been listed better as to what was expected."

"The criteria to establish brain death are very specific."

"An in-house coordinator would increase visibility and raise awareness of the procurement effort and the transplant program."

"Nursing could be encouraged by the coordinator to initiate the procurement process."

"Fewer potential donors would be missed because a regular chart review could be made and potential donors could be identified sooner. Charts could be flagged for review."

"Education of all staff about procurement and the donation process could be the role of the coordinator."

"The coordinator could educate staff about the policy, formulate new policy when needed and ensure that it was followed in the event of a donation."

"The coordinator would provide a consistent approach to procurement. He/she would provide support for family and staff."

"A coordinator could provide continuing education for staff so as to develop a sense of ethics about donation so it isn’t a shock but instead a well thought decision."

"I believe PORT is funded to provide coordination."

"As shifts change, the situation changes and patients get missed. A staff person could liaise with all staff to identify only the potential donors. The supervisors would deal only with the unusual/unexpected cases."
"I don’t think it would help because a coordinator would not be available on all shifts. Nursing supervisors are most helpful because they are always available."

"Because there are so few donations, we have little experience with the necessary steps. Some things get missed so a coordinator would help."

"Kidneys are a valuable harvest and it is important that the procedure run smoothly. There is a need for one person to oversee the whole donation process and to maximize the efficiency of transplant."

**Comments on Knowledge Barriers**

"There is no emphasis on how to go about getting consent from the family."

"There is a lack of education of physicians as to who is a suitable donor and who is available to advise and assist physicians when they think they have a suitable donor but are uncertain. Sometimes, physicians are uncertain about the use of certain drugs eg. dopamine. They do not know how much is allowable before the patient becomes ineligible as a kidney donor."

"Identification of donors is a problem, especially the older patient. Patients up to 70 years of age are suitable as donors.

"I wonder if we are really missing suitable donors. We have many elderly and AIDS patients who die in this hospital. There are few trauma patients seen here. Our patient population may have few suitable donors."

"Not knowing how to ask for consent is a barrier. Lack of experience with asking family members makes it difficult; the comfort level varies from one individual to another."

"Lack of preparedness or knowledge about donation is a barrier."

"Professionals and the public are not comfortable with death and the donation of organs. This is evident when staff have to face the issue of making a patient "no Code" or writing a "do not resuscitate" orders and have difficulty doing so."

"There is reluctance to ask for consent, staff take refuge in the belief that it would be distasteful to ask for donation but this is a 'cop out'. They really do not know how to ask for consent so avoid doing it."

"If the issue of consent is not broached early enough with family, staff feel uneasy about addressing it in the dying phase of the patient. There are guilt feelings around intruding in the family’s grieving."
"The family have suffered enough, I can't put them through more."

"Staff should realize they are depriving families of the opportunity to make some good come out of a loss; there is some benefit to another living human being by donating a relative's kidneys. This is the approach that staff should take when asking for consent for donation."

"Identifying donors and obtaining consent must be done in a timely fashion. This is difficult and requires teamwork. Staff do not want to be criticized for going after organs too fast."
STEPS TO TAKE FOR ORGAN DONATION

These steps outline a simple and effective process for you to follow to smoothly manage an organ donation. The steps are described in detail in this manual.

1. IDENTIFY A POTENTIAL DONOR
   - REFERRAL CALL TO P.O.R.T. (604) 875-4665 1-800-663-6189

2. APPROACH THE FAMILY FOR CONSENT
   - MAINTAIN THE DONOR

3. OBTAIN CONSENT FOR DONOR TRANSFER

4. TRANSFER TO REGIONAL TRANSPLANT CENTRE

5. DECLARE BRAIN DEATH

6. MAINTAIN DONOR

7. MOBILIZE RETRIEVAL TEAM

8. CALL P.O.R.T. RETRIEVAL TEAM

9. MOBILIZE DONOR CENTRE RETRIEVAL TEAM

10. ORGAN REMOVAL

11. ORGAN STORAGE

12. DISTRIBUTION BY P.O.R.T.
**ORGAN DONOR AGE CRITERIA**

*Guidelines are established for organ donors according to the age of the donor.*

Listed below are suggested chronological age limits for donors of the respective organs. Chronological age is less important than the quality of the organ. No one should be discounted as an organ/tissue donor because of age.

<table>
<thead>
<tr>
<th>Perfusable Organs</th>
<th>Suggested age limits.</th>
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</thead>
<tbody>
<tr>
<td>Kidney donors</td>
<td>up to 70 years old</td>
</tr>
<tr>
<td>Heart donors</td>
<td>up to 35 years old in males up to 40 years old in females</td>
</tr>
<tr>
<td>Liver donors</td>
<td>up to 55 years old *</td>
</tr>
<tr>
<td>Lung donors</td>
<td>up to 50 years old *</td>
</tr>
<tr>
<td>Pancreas donors</td>
<td>up to 40 years old</td>
</tr>
<tr>
<td>Heart/lung donors</td>
<td>up to 40 years old</td>
</tr>
<tr>
<td>Heart valves</td>
<td>up to 60 years old</td>
</tr>
</tbody>
</table>

* In these situations size, weight and height of the donor are much more significant than age.

Source: Pacific Organ Retrieval for Transplantation, 1987
ACCEPTABLE ORGAN DONOR REQUIREMENTS

The following pages list the criteria for donation of each type of organ.

Kidney and Pancreas Donors
An acceptable kidney and pancreatic donor demonstrates the following satisfactory factors:
- Blood pressure
- Urine output
- Electrolytes, serum creatinine, urea, amylase
- Blood sugar
- Urinalysis
- Past history

The presence of renal problems does not immediately rule out the donor. Oliguria and elevated serum creatinine may be pre-renal in origin due to the therapeutic dehydration and/or loss of vasalregulatory function associated with brainstem damage which temporarily impairs the renal perfusion. Impaired kidney function due to pre-renal factors does not disqualify a donor if early treatment with aggressive hydration results in a prodube renal perfusion as demonstrated by declining urea and creatinine (see section on the Management of the Multiple Organ Donor).

Source: Pacific Organ Retrieval for Transplantation, 1987
# Checklist of Basic Information for Donor Evaluation

The following pages contain a checklist to evaluate donors.

<table>
<thead>
<tr>
<th>Kidney Donor</th>
<th>Kidney Donor</th>
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<tbody>
<tr>
<td>□ Age</td>
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<td>□ Sex</td>
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<td>□ Race</td>
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<tr>
<td>□ Cause of death</td>
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<tr>
<td>□ Past medical history - surgical procedures, hypertension, etc.</td>
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<tr>
<td>□ Present medical history</td>
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<td>□ Blood type</td>
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<td>□ Creatinine</td>
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<td>□ Urea</td>
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<td>□ Electrolytes</td>
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<td>□ Blood pressure - periods of hypertension/hypotension</td>
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<td>□ Urinalysis</td>
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<tr>
<td>□ Hourly urine</td>
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<td>□ 24-hour urine output</td>
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<td>□ Temperature</td>
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<tr>
<td>□ Medications</td>
<td></td>
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<tr>
<td>□ Blood cultures</td>
<td></td>
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<tr>
<td>□ Urine cultures</td>
<td></td>
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</tbody>
</table>

Source: Pacific Organ Retrieval for Transplantation, 1987
TISSUE TYPING SAMPLES

Tissue typing identifies patients who are compatible for transplantation with the donor.

Begin As Soon As Possible

It is imperative that tissue typing begin as soon as possible, preferably when it is recognized that recovery of the patient is very unlikely and the prognosis of brain death is imminent.

Bloods should be sent prior to removal. The tissue typing lab will ensure that HTLV-III or HIV and hepatitis testing is initiated. Required bloods include:

- 50 cc of clotted blood
- 50 cc of heparinized blood

Send bloods in a container marked as follows:

Tissue Typing Laboratory
Vancouver General Hospital
Emergency Department
855 West 12th Avenue
Vancouver, British Columbia
V5Z 1M9

Notify the P.O.R.T. transplant co-ordinator on call at (604) 875-4665 that bloods are being shipped.

Special Arrangements

The transplant co-ordinator will make arrangements if hypothermic renal perfusion (in situ flushing) is required.

Begin tissue typing as soon as possible.

Send blood samples.

Arrangements for hypothermic renal perfusion.

Source: Pacific Organ Retrieval for Transplantation, 1987
SATISFYING BRAIN DEATH CRITERIA

Potential cadaveric donor organs must satisfy certain criteria before they are deemed suitable for donation.

Brain Death Etiology
Cadaveric organ donors are patients who have suffered irreversible brain death of known etiology such as:

- Head injuries (e.g., motor vehicle accident, gunshot wound)
- Intracerebral hemorrhage (ruptured berry aneurysm)
- Hyposia due to resuscitated cardiac arrest, drug overdose and drowning
- Primary brain tumour (non-metastasizing)
- Homicide or suicide

Parameters of Brain Death
A potential brain dead donor meets the following parameters:

- Performs effective cardiovascular function
- Is apneic and supported by a respirator or ventilator
- Exhibits no brain stem reflexes
- Does not respond to painful stimuli
- Makes no attempt at spontaneous respiration

Source: Pacific Organ Retrieval for Transplantation, 1987
Determination of Brain Death

Determination of brain death should be made according to the individual hospital's policy. See Appendix I for Guidelines for the Diagnosis of Brain Death published by the Canadian Congress of Neurological Sciences, and Appendix II for Criteria for the Determination of Death, a working paper published by the Law Reform Commission of Canada.

Guidelines for Completing the Death Certificate

Guidelines may vary from hospital to hospital according to local definitions and procedures. The clinical diagnosis of brain death according to the Human Tissue Gift Act requires the expressed opinion of two physicians independent of the transplant or recipient team. As a result, this process is normally completed in the Intensive Care Unit at each institution.

Death, as determined, should be recorded when the second physician makes a declaration of brain death in the history section of the patient's medical record. The ICU staff should prepare and complete the death certificate and any internal hospital forms, including the consent for organ donation and autopsy permission forms.

Refer to
Appendix I:
Guidelines for the Diagnosis of Brain Death.

Refer to
Appendix II
Criteria for the Determination of Death.

Guidelines for completing the death certificate may vary.

Source: Pacific Organ Retrieval for Transplantation, 1987
SUGGESTED CRITERIA FOR THE DETERMINATION OF BRAIN DEATH

Brain death is essentially a clinical diagnosis and there are no absolute criteria for its establishment.

The Human Tissue Gift Act requires the expressed opinion of two independent physicians regarding cerebral death (see Appendix III).

Minimum clinical criteria for pronouncing brain death include:
- Pupils dilated and fixed to light
- No corneal reflexes
- Lack of response to upper and lower airways stimulation
- No ocular responses to head movements or cold calories
- Absence of spontaneous respirations

Although brain death can be established reliably by clinical criteria alone, special tests can be used to support and, in some instances, supplement the clinical diagnosis. The electroencephalogram (EEG) assesses cerebral cortical function and is an ancillary test performed when medically warranted.

Source: Pacific Organ Retrieval for Transplantation, 1987
CONSENT FOR ORGAN DONATION

Consent for organ donation is required from the attending physician, next of kin, and the coroner.

Conditions For Consent
Once the attending physician agrees that the patient fulfills the criteria of brain death, consent for organ donation should be obtained from the next of kin. See Appendix V for a sample consent form for organ donation.

The following three conditions should be met when obtaining consent:
1) Agreement of the attending physician
2) Notification and consent of the coroner even if this is not a coroner’s case, as a matter of courtesy
3) Verbal consent from the next of kin, followed by written consent

Attending Physician
Obtain agreement on the pronouncement of brain death from the attending physician.

Coroner
The coroner must be notified immediately and must agree to the donation. Documentation of notification and the coroner’s instructions should be recorded in the patient’s medical record. P.O.R.T. offers the service of notifying the coroner.

Next of Kin
Although a driver’s license or document form when signed is considered a valid and legal document permitting organ donation, the next of kin are ALWAYS approached. If they decline the option of organ donation, no pressures are exerted to convince them otherwise.

Source: Pacific Organ Retrieval for Transplantation, 1987
The next of kin should be approached in the following order of priority:

1) Spouse of any age
2) Child who has attained the age of majority
3) Either parent
4) Brother or sister
5) Any other relative who has attained the age of majority
6) The person lawfully in possession of the body (does not include the administrative head of the hospital, public trustee or those entrusted with the disposal of the body)

If the person first in line is not readily available, the next person in line can be approached.

Restrictions in Consent Authorization

The following limitations are placed on those empowered to give consent:

- Actual knowledge, on the part of the person consenting, that the deceased would have objected invalidates the consent.
- If the person of the same or closer relationship to the deceased in the list of priority would have objected, the consent is invalid.
- No consent is valid if an inquest might be required by the coroner, unless the coroner specifically agrees that organ donation may proceed.

Source: Pacific Organ Retrieval for Transplantation, 1987
## APPROACHING THE FAMILY FOR CONSENT

Provided that the attending physician agrees, the next of kin should be approached regarding organ donation by a person who is convinced of the value of organ donation.

### The Family's Time of Grief

The request for organs is a delicate issue. Because of the emotional strain felt by the family, they are often not responsive to logic and may find the request for organ donation a crude invasion in their time of grief. However, for many families, the thought that their loss could save another life is often enough to influence them to seriously consider or approve of organ donation.

Although in most cases it will be the physician who initiates the discussion of organ donation, other professionals who have developed a rapport with the family may be approached to speak with the next of kin (e.g., hospital or family chaplain or intensive care unit nurses).

### Suggested Guidelines

The following are suggested guidelines for anyone discussing organ donation with the family:

- Be sure that the family understands and accepts the concept of brain death before discussing organ donation
- Meet with the family in a private and quiet setting
- Speak to the family in easy to understand non-medical language
- Offer the family an opportunity to donate, and convey to them the acceptance of any decision
- Avoid manipulation and coercion

Source: Pacific Organ Retrieval for Transplantation, 1987
P.O.R.T. Will Help

A member from P.O.R.T. can be asked to participate in this process regardless of the time or location. A member from P.O.R.T. will be available to approach the next of kin if requested by the attending physician responsible for the patient.

Source: Pacific Organ Retrieval for Transplantation, 1987
GUIDELINES FOR ORGAN DONOR MAINTENANCE STANDING ORDERS

The following lists the guidelines for organ donor maintenance.

Temperature
Temperature must be maintained at 37°C
- Use a warming blanket prn, warmed in solution, humidifier and temperature up to 38°

Fluid Status
Central line for CVP monitoring is essential to predict fluid status

Systolic Blood Pressure
Systolic blood pressure must be maintained above 100 mmHg
- Vasopressors to be administered to maintain blood pressure
- Norepinephrine is used for heart lung and heart transplants
- Dopamine in other cases

Renal Function
Maintain urine output 100 cc/hour

Temperature 37°C.
CVP central line.
Systolic BP above 100 mmHg.
Urine output 100 cc/hr.

Source: Pacific Organ Retrieval for Transplantation, 1987
Replace urinary output cc for cc with 0.9 NaCl with 15 meq KCl/litre until the electrolytes results return to normal. Then adjust as necessary:

- 5% D5W if the sodium is greater than 150
- 0.9 sodium chloride if the sodium is less than 150

If diabetes insipidus occurs and urine output greater than 250 cc/hour, continue to replace urine losses cc per cc, and administer DDAVP 4 micrograms IV or Start Aqueous Pitressin drip (after first checking with the liver team) at 50 units/500 cc D5W at 50 cc/hour. Then titrate drip to maintain urine output at approximately 100 cc/hour.

**Maintenance IV Order:**

**Blood Work**

Blood work to be sent STAT:
- ABGs
- CBC, diff
- Urea, Creatinine
- BS
- HBsAg
- Total and direct Bilirubin
- SGOT, SGPT, CPK, LDH, Alk/Phos
- PT and PTT with controls
- Cross and Type - 4 units
- Ca, Mg, PO\(_4\)
- Amylase
- Drug Screen (1 lavender, 1 red top)

**Specimens**

Specimens to be sent:
- Sputum for CNS and gram stain
- Urine for CNS and gram stain
- Others as requested by M.D.

**Treatment to return electrolytes.**

If diabetes insipidus occurs.

**Prepare and send blood work to P.O.R.T.**

**Prepare and send specimens to P.O.R.T.**

Source: Pacific Organ Retrieval for Transplantation, 1987
### Consults

Arrange the following consultations:
- Neurosurgery
- Urology
- Cardiology (only for heart or heart/lung donors)
- Others as requested by M.D.

### Monitor q1h

Monitor the following q1h:
- CVP
- Vitals
- Ventilation
- Neuro signs
- Intake/Output

### Blood work q2h

Blood work to be sent q2h:
- ABGs
- Lytes
- CBC

### Additional Procedures

- 12 lead EKG
- Stat portable chest
- Weigh patient
- Other procedures requested:

<table>
<thead>
<tr>
<th>Procedure</th>
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Source: Pacific Organ Retrieval for Transplantation, 1987
ORGAN RETRIEVAL

P.O.R.T. provides detailed procedures and instructions as well as surgical, medical, and nursing teams for organ removal.

Facility Arrangements

If organ removal is to be undertaken by the donor hospital staff, the retrieval surgeon should make appropriate arrangements with the operating room. Detailed procedures and instructions for the care, perfusion and preparation of the organs for transport can be obtained from the transplant co-ordinator.

For hospitals without the surgical personnel or facilities available, the transplant co-ordinator can make arrangements for a surgical, medical, and/or nursing team to travel to the donor hospital to perform renal and non-renal organ retrieval.

When a P.O.R.T. team travels for the purpose of organ retrieval, it is necessary to provide the retrieval team with temporary operating room privileges. Such privileges should be made according to individual hospital policy, usually by notifying the hospital administrator in charge, as well as the hospital’s Chief of Surgery.

Participation in Organ Procurement

When a team visits the donor hospital, local surgeons will be given the opportunity to participate in the organ procurement. The British Columbian College has sanctioned the extension of privileges to non-British Columbian registered surgeons, physicians, nurses, and technicians for the purpose of organ donation provided that it is under the auspices of the local institution - its administration, Chief of Surgeon, and Physician-in-Chief.

Source: Pacific Organ Retrieval for Transplantation, 1987