

TITLE OF THE ARTICLE: KNOWLEDGE OF OPERATING ROOM NURSING STAFF ABOUT THE PROCUREMENT OF ORGANS FOR TRANSPLANTATION IN A SECOND LEVEL HOSPITAL

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Abstract: Goal: To determine the level of knowledge of the Nursing staff about the procurement of organs for transplant purposes in the Operating Room service of a Second Level Hospital. **Methodology:** Descriptive cross-sectional cohort study. The study population was defined, by convenience sampling, 13 nurses who work in the Operating Room Service of the General Hospital of Acapulco, Guerrero, were selected from the morning, afternoon and night shifts. To evaluate the variable under study, the 26-item instrument that is part of the research was used: “*Nursing participation in the coordination of organ transplants*”, of three sections. **Results:** Knowledge in the global standard is medium-low, while in the organ procurement section the most frequent response was almost never based on a Likert scale at 75%. **Conclusion:** To determine the level of knowledge of Nursing staff about the procurement of organs for transplant purposes is relevant since it reflects the importance that they give to the topic in context, the priority that this represents, since there are various problems that a hospital treats, various types of patients and pathologies, leaving aside the procurement of organs exposes the low or no activity that this entails, by not having nursing personnel who are prepared for these circumstances.

Keywords: Organ procurement, organ donation, nursing.

INTRODUCTION

Life is without a doubt the most precious gift of human beings and among the options of those patients who fight to preserve it is organ and tissue transplantation. A donated organ when successfully transplanted constitutes: *A gift of life*, a single donor can donate the heart, both kidneys, the liver, the lungs, the small intestine and the pancreas, thus benefiting at least 8 people. (Núñez Alonso, Ramírez Martínez, Gil Nava, & Abarca Gutiérrez, 2019)

Organ donation for transplant purposes has become a global practice that can prolong life and improve its quality. Advances in ablation, preservation, transplantation, and immunosuppression techniques have improved the effectiveness and acceptability of donation culture. (Pan American Health Organization, 2019)

Luna Rodríguez and López Lucio (2020) report that organ donation is still below the real demand of the population. The lack of consolidated national programs, competent human resources, and the high cost of transplants and maintenance therapies represent barriers to equitable access to these procedures. Núñez S. and others (2019) explain that due to the construction of a donation culture that obeys factors such as people's beliefs, they affect the long-term disposition toward potential donors.

Reyes Montiel C. (2019) also states that the donation can be made during life or once the person has died; The latter being the case where there is no age limit, as long as the organs and tissues are healthy. The donation must be carried out anonymously, voluntarily, with a therapeutic purpose, without receiving any type of compensation.

According to the National Kidney Foundation (2015), living donations take place when a living person donates an organ (or part of an organ) to another person which does not endanger the life of the donor. This type of donor is called a "**living donor**." The living donor can be a family member, friend or spouse, or a person with whom there is no relationship. Kidney transplant is the intervention with the most living donors. However, it is also possible to donate a part of the liver, pancreas, lung, bone marrow, intestine, peripheral blood, eggs

Torras Ambros, Cruzado Garrit and Sánchez Fructuoso (2019) identify the selection of a deceased donor as a complex

and multidisciplinary procedure that involves several medical teams, in addition to the general infrastructure of the hospital, in addition to the forensic and legal aspects related to the certification of death and compliance with current transplant laws and regulations of each country. In general, donors are all those corpses in a situation of brain death or irreversible cardiac arrest.

The Hospital Coordinator's Guide to Organ and Tissue Donation for Transplant Purposes in Mexico (2019) defines the *encephalic death* (ME) or brain death is defined as "the irreversible loss, for a known cause, of the functions of all intracranial neurological structures, both the cerebral hemispheres and the brain stem."

Pérez Villares (2015) explains that the Asystole Donation (DA), also called stopped heart donor, it is an alternative mainly caused by the shortage of organs that has forced different systems to look for ways to increase the number of available donors. It has been carried out internationally since the 60s and 70s, however, it continues not to be a daily practice in our country and the rest of the world, and is carried out mainly in Europe and the United States.

Vázquez and Moreno (2018) mention in the Mexican Journal of Transplantation that organ donation is an altruistic act that can help improve the quality of life of people who have failure of some organ or tissue. Given the lack of interest among the population in relation to transplants, it is necessary to implement strategies that promote the culture of donation. One of these is appropriate education and a positive nursing attitude, who are responsible for educating the population at the first level.

According to the Health Resources & Services Administration in the 2023 global organ donation statistical bulletin, 17 people die while waiting for an organ transplant and a new person joins this list every 9 minutes.

In Mexico, according to the National Transplant Registry (2024), as of today there are 19,962 people only registered on the waiting list who need a donor, of which they are distributed this way:

- 16,370 people are waiting to receive a Kidney transplant
- 3,338 people are waiting to receive a corneal transplant
- 204 people are waiting to receive a Liver transplant
- 24 people are waiting to receive a heart transplant
- 7 people are waiting to receive a Parathyroid transplant
- 6 people are waiting to receive a Liver-Kidney transplant
- 3 people are waiting to receive a pancreas transplant
- 3 people are waiting to receive a Kidney-Pancreas transplant
- 3 people are waiting to receive a Lung-Lung transplant
- 2 people are waiting to receive a lung transplant
- 1 person hopes to receive a Heart-Lung transplant
- 1 person hopes to receive a Kidney-Kidney transplant

Reyes Montiel (2019) points out that the low levels of donation in Mexico are worrying, considering the efforts of the government and social groups to promote a culture of donation since 1963. However, the data show that these efforts have not been sufficient.

The operational protocol for organ procurement is highly complex. To ensure the viability of organs for transplant, each step must be harmoniously coordinated. This requires agile and organized work, as well as flexibility to adapt to each situation.

In Mexico, the donation and procurement of organs and tissues for transplantation is regulated by the General Health Law and

managed by the National Transplant Center. This body defines and conducts national policies, coordinates the National Donation and Transplant Subsystem, operates the National Transplant Registry, plans training programs, and ensures compliance with legal regulations. Therefore, having consent: **tacit and express**.

The National Transplant Center (CENATRA, 2018) refers to the **tacit donation** as a possible donor or donor who has not expressed in a document the refusal for his or her organs to be used for transplant after his death.

CENATRA (2018) states that this consent must be obtained from people who are present with a relationship: the spouse, the common-law partner, the concubine, the descendants, the ascendants, the siblings, the adopted person or the adopter. If more than one of the mentioned persons are present, the corresponding priority will be applied according to the level of relationship.

While the express, as expressed by CENATRA (2018), is the action of expressing, in writing or verbally, the willingness to donate your organs while you are alive or after your death. This will give rise to considering a broad donation when it refers to the total disposition of the body, or a limited one when it is only granted with respect to certain components.

The types of donation expressed in the General Health Law in relation to Organ Donation for Transplant purposes (2019) allow all citizens of Mexico to be potential donors, since when we die we all become candidates to **donate organs and tissues**.

Organ donation has become a crucial issue due to misinformation, culture and religious orientation, which often slow down the process. Currently, organ transplantation is considered a replacement therapy to improve quality of life and is a therapeutic option. The National Transplant Center defines transplant as “the act of giving an organ, tissue, or cells

of oneself to another person who needs it to improve their health.” Therefore, the procurement of organs for transplant purposes requires the collaboration of trained doctors and nurses to maximize the opportunities of each procedure, given the shortage of donors and the large number of candidates.

Regueira, et al (2019) explain that a procurement and transplant operation is a race against the clock and is carried out when a donor (or potential donor) dies. They reiterate that this requires following a series of coordinated steps between different health professionals. Without a doubt, the starting point is the certification of the patient's death, followed by the selection of viable organs and tissues for the transplant and their maintenance while the recipients are searched in the National Transplant Registry, the degree of urgency, biological compatibility and, above all, the time on the Waiting List, then the organs are ablated and transferred to the place where the people who will receive the transplant are located. Ablation is a surgical removal of organs and is performed in the operating room of the healthcare facility where the deceased is. Then, the organs are transferred to the different centers where the transplant is carried out through coordination with the National Donation and Transplant Subsystem (SNT).

Guerra Sáenz and others (2016) mention that the entire duration of an organ procurement operation can be variable since it begins at the time of detection of the potential donor and ends with the transplant surgery. Therefore, this can extend for a period of approximately 18 to 20 hours, even the same process can last up to 50 hours.

It is worth mentioning that the Organ Procurement Protocol has different areas which are those that are involved to achieve its optimal functioning.

According to the Association of Transplant Nurses A.C., nursing staff are essential in the institutions where transplants are performed, since the success of the treatment and the patient's recovery also depends on them. Nurses work together with the multidisciplinary team and are in daily contact with the miracle of life.

Amaro, Moya and Uclés (2018) point out that the nursing professional not only supports the patient, but also communicates with the family and facilitates the possible donation. Nursing care must cover the physiological needs of the potential donor in the Intensive Care Unit, such as respiratory, hemodynamic support, thermoregulation, metabolic and hormonal control.

The management of nursing care for a potential donor cannot completely follow traditional nursing models, since these are oriented towards the patient's recovery. However, it is possible to use the Virginia Henderson Model to address the needs of the donor and her family as a unit (Calvo Ibáñez, 2015). Fonseca (2020) suggests that general care must cover physiological needs, carrying out body, oral and eye hygiene, and specific skin care, with preventive measures such as hydration and protection of support points.

SPECIFIC NURSING CARE

MONITORING

- Exhaustive and scheduled control of vital signs: HR, BP, CVP, O₂ Saturation, SaVO₂, MV parameters, hourly diuresis, core temperature.
- Maintain: HR 60-100 bpm, SBP \geq 100 mmHg, TAM 70-90 mmHg, diuresis $>$ 1 cc/kg/h, T^a $>$ 35°C, Hct $>$ 30%, Hb $>$ 10 g, PO₂ \geq 100 mmHg, PCO₂ 35- 45 mmHg, pH 7.35-7.45.

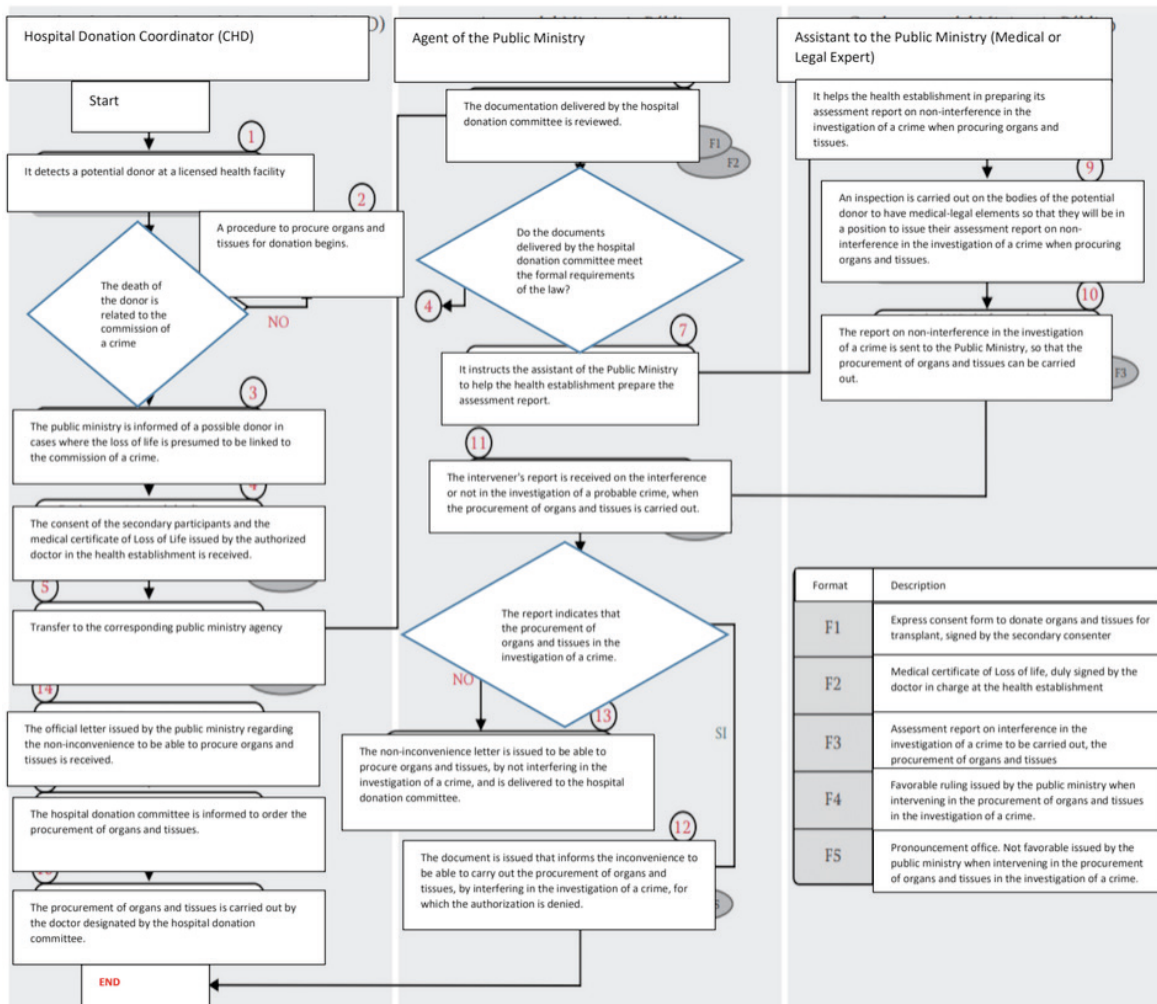


Figure 1. Flow Diagram of the Procedure for the Procurement of Organs and Tissues for Transplant Purposes
 Source: Flow Diagram of the Procedure for the Procurement of Organs and Tissues for Transplant Purposes of the National Transplant Center (CENATRA), 2020. Page 12

CARDIOVASCULAR CARE

- Attention to ECG and BP, management of hypotension and arrhythmias, volume replacement and use of vasoactive drugs if necessary.

RESPIRATORY CARE

- Application of mechanical ventilation, ensuring airway patency, control of MV parameters, aspiration of secretions and postural changes.

CONTROL OF BODY TEMPERATURE

- Maintain body temperature above 35°C, ideally 37°C, through hourly temperature control, thermal blankets and adjustment of the environmental temperature.

ENDOCRINE CARE

- Management of diabetes insipidus and hyperglycemia, with strict control of diuresis and glycemia, and administration of insulin as needed.

PREVENTION OF INFECTIONS

- Daily hygiene, care of catheters, probes and drains, wound care and aspiration of secretions with sterile technique.

CARE FOR THE FAMILY OF THE POTENTIAL DONOR

Seller Pérez et al. (2019) highlight the importance of emotional care for family members, proposing standardized care according to the taxonomies of “NANDA, NIC and NOC” related to grief. Soba Burralló et al. (2016) recommend that nursing provide accurate information, respect family decisions, and facilitate an appropriate farewell to the loved one with empathy and respect. Cantalejo (2016) identifies common nursing diagnoses in family care such as risk of helplessness, decisional conflict, and grief. Gil

Rodríguez et al. (2017) emphasize that, if the family decides not to donate, their decision must be respected and emotional support must continue.

At the Second Level Hospital, there is a specific department that promotes organ donation and procurement. The nursing staff at this hospital is expected to be highly trained, as they play an essential role in the context of organ transplantation within the multidisciplinary team of the Transplant Units. Nursing staff must have knowledge, clinical experience and skills in service management that allow them to lead and organize all activities inherent to transplantation.

METHODOLOGY

This study is framed in a descriptive cross-sectional cohort design, whose objective is to evaluate the knowledge about the procurement of organs for transplant purposes in the nursing staff of the operating room service in a Second Level Hospital.

The independent variable being the level of knowledge, referring to the degree of

understanding and familiarity that the nursing staff has regarding the procurement of organs for transplant purposes, and the dependent variable being the procurement of organs for transplant purposes, referring to the practices and procedures carried out by nursing staff to obtain viable organs for transplant.

A 26-item instrument was applied that is part of the research: *Nursing participation in the coordination of organ transplants* prepared by Aguilar Méndez Claudia, Suárez Vázquez María, Pinson Guerra Ana. The instrument in question consists of three items; The first is useful for collecting general data from the nursing staff who participated in the study, the second frames the general knowledge about organ donation, questions are presented with multiple choice answers, the aim is to determine the level of general knowledge about donation. of organs. The last item addresses organ procurement in its entirety, statements are presented that are answered according to the Linkert scale, the aim is to evaluate whether the level of knowledge about organ donation influences the level of knowledge about organ procurement. for transplant purposes.

Informed consent was provided for each participant in accordance with the provision of the regulations of the General Health Law on Research, specifically the title second chapter first, where it was stated that all information would be for exclusive use of the research, as well as The data provided would also be anonymous.

Due to the population of nurses who work in the operating room area of a Second Level Hospital, a convenience sample consisting of 13 nurses was selected; 5 from the morning shift, 4 from the afternoon shift and 4 from the night shift.

RESULTS

In the first section of the instrument, the general aspects of the study population are highlighted, where female personnel predominate (69%). The majority of staff have a specialty (54%) and tend to have 5 to 10 years of experience working in the operating room area (38%).

The second section of the instrument aims to relate the level of knowledge towards organ donation, which is closely related to organ procurement. Regarding the level of knowledge about organ donation and its procurement for transplant purposes, in the question **“A single organ donor can save;”** whose correct answer is **at least 8 people**, 46% of the participants were correct, which indicates that the expected average was not reached in terms of knowledge about how many lives a single donor can save.

In the question: **“There are two types of informed consent that authorize organ donation.”**, whose correct answer is **express tacit consent**, only 31% of the staff obtained correct answers, reflecting that the average was not reached in terms of understanding the types of informed consent established in Mexico.

For the definition of **“brain death”**, **“the irreversible loss, for a known cause, of the functions of all intracranial neurological structures, both the cerebral hemispheres and the brain stem”**, 54% of staff responded correctly, almost reaching the global average in recognition of this term.

In the question: **“an alternative caused mainly by the shortage of organs that has forced systems to look for ways to increase the number of available donors”**, whose correct answer is **irreversible cardiac arrest (in asystole)**, only 15% of staff responded correctly, indicating low recognition of death from cardiac arrest or asystole.

Regarding **“The brain death donor can make a donation”**, whose correct answer is **multi-organ and tissue**, only 31% responded correctly, showing a low recognition of the brain death donation process. Similarly, in the question about **“The donor due to irreversible cardiac arrest can make a donation”**, whose correct answer is **multiorganic**, 38% were correct, indicating a low level of staff recognition of donation due to irreversible cardiac arrest. Questions related to non-asystole donation were confusing for staff, demonstrating little familiarity with these definitions.

Regarding **legislation on the disposal of organs, tissues and cells for transplant purposes in Mexico, regulated by the Regulations of the General Health Law on Transplants**, only 62% answered correctly, reaching a medium-low level of legislative knowledge.

In relation to the evaluation and selection that questions **“Basic points for an evaluation and selection of the potential donor”**, where the correct answer, **it is a clinical history, physical examination, laboratory tests, serologies and complementary studies.**, only 46% of the study population obtained correct answers, expressing in a global standard that a low level is reached based on the recognition of the staff when selecting a potential donor. This suggests that the staff does not adequately carry out the investigations to evaluate and select a potential donor.

The third section of the instrument includes general knowledge about *the procurement of organs, which includes the identification of a potential donor, types of informed consent, follow-up of the family of the donor and the recipient, as well as the legal bases and guidelines of the process*, it was evaluated using a Likert scale that ranges **from never to forever**. In the notification **of donation cases to the coordinator of the**

organ procurement protocol, 62% admitted that **they almost never do it**, demonstrating a lack of knowledge of the procedure and the coordinator in charge.

Regarding the **rerecognition of ablation as surgical organ removal**, 77% of staff indicated that they **never** recognize this process, suggesting a lack of experience in operations that require it. In the **request for informed consent for organ donation**, 69% admitted that they almost never request it, which could be interpreted as a lack of activity in organ donation and transplantation in the institution.

Regarding **donor maintenance and viability of organs for transplant**, 49% **never** perform this care and 54% almost never do it, which reflects little movement in this field. In the **care for relatives of donors due to brain death or asystole**, 85% admit that they **almost never** do it, indicating poor handling in these situations.

Finally, about **knowledge of the organ procurement protocol in the institution**, only 31% recognize it. Responses from staff on different shifts suggest that this protocol is coordinated by the hospital's transplant department, which has not performed transplants in years. This exposes poor functioning of the department and a lack of staff training.

In the question, if **there is a boom in organ transplantation in the institution**, 54% of the nursing staff responded that **almost never**, which explains the low average level of knowledge and the lack of close relationship with these procedures, due to their little or no performance.

CONCLUSIONS

1. Determining the level of knowledge of nursing staff about the procurement of organs for transplant purposes is crucial, since it reflects the priority assigned to this topic within the hospital context. Low activity or even lack of preparation of nursing staff in this regard can expose a lack of attention to a significant area of public health.

2. Thanks to the instrument applied, we were able to identify the level of knowledge of the nursing staff, evaluating their general understanding of organ donation and its relationship with their procurement. The results revealed a medium-low overall level of knowledge, with a medium-high level observed in the night shift compared to other shifts.

3. When analyzing the responses of the nursing staff, a tendency towards the response "almost never" is evident in several aspects, such as the identification of potential donors, the request for informed consent and the recognition of ablation as a surgical technique. These responses suggest limited or no participation of nursing staff in organ procurement procedures, or little activity in this area in the institution studied.

4. The analysis was complemented with tables and graphs that represent the general knowledge of the nursing staff, highlighting a medium-low level and a frequency of response "almost never" in relation to organ procurement. This study serves as a basis for future research that addresses this problem and promotes the training of nursing staff and the multidisciplinary team in the management of surgical rooms during organ procurement procedures.

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