






## Perceptions of nurses about the competences developed in postoperative care after a liver transplant

Percepções de enfermeiros sobre competências desenvolvidas nos cuidados pós-operatórios de transplante de fígado

### How to cite this article:

Negreiros FDS, Pequeno AMC, Alencar CS, Carvalho GSO, Moreira TR. Perceptions of nurses about the competences developed in postoperative care after a liver transplant. Rev Rene. 2020;21:e41876. DOI: <https://doi.org/10.15253/2175-6783.20202141876>

-  Francisca Diana da Silva Negreiros<sup>1</sup>
-  Alice Maria Correia Pequeno<sup>2</sup>
-  Carla Siebra de Alencar<sup>1</sup>
-  Gemiliana Sombra de Oliveira Carvalho<sup>1</sup>
-  Tatiana Rebouças Moreira<sup>1</sup>

<sup>1</sup>Universidade Federal do Ceará.  
Fortaleza, CE, Brazil.

<sup>2</sup>Universidade Estadual do Ceará.  
Fortaleza, CE, Brazil.

### Corresponding author:

Francisca Diana da Silva Negreiros  
Rua Capitão Francisco Pedro, 1290, Rodolfo Teófilo  
Hospital Universitário Walter Cantídio, Universidade  
Federal do Ceará. CEP: 60430-370. Fortaleza, CE, Brazil.  
E-mail: [negreiros.diana@gmail.com](mailto:negreiros.diana@gmail.com)

### ABSTRACT

**Objective:** discovering the perceptions of nurses concerning the competences developed in liver transplant postoperative care. **Methods:** qualitative research. Data were collected through a semi-structured interview and systematic non-participative observation, with eight nurses from the unit that received patients immediately after liver transplants. To explain the results, the Content Analysis technique was used. **Results:** the content found in the interviews was systematized in three thematic axes: preparing the postoperative Intensive Care Unit to receive the liver transplant receptor; actions of nurses concerning the liver transplant receptor in the postoperative Intensive Care Unit; activities related to administration, teaching, and research. **Conclusion:** the competences developed by the nurses are directed and individualized, involving, in an integrated whole, the administrative, organizational, managerial, healthcare-related, and teaching-research dimensions. **Descriptors:** Nursing Care; Professional Competence; Post-operative Care; Liver Transplantation.

### RESUMO

**Objetivo:** desvelar percepções de enfermeiros acerca das competências desenvolvidas no pós-operatório imediato do transplante de fígado. **Métodos:** pesquisa qualitativa. Dados coletados por meio de entrevista semiestruturada e observação sistemática não participante, com oito enfermeiros da unidade de pós-operatório imediato de transplante de fígado de um hospital de referência. Para explanação dos resultados, utilizou-se a técnica de Análise de Conteúdo. **Resultados:** o conteúdo obtido a partir das entrevistas foi sistematizado em três eixos temáticos: preparo da Unidade de Terapia Intensiva pós-operatória para admissão do receptor de fígado; atuação de enfermeiros na internação do receptor de fígado em Unidade de Terapia Intensiva pós-operatória; atividades exercidas no âmbito gerencial, ensino e pesquisa. **Conclusão:** aponta-se que as competências desenvolvidas pelos enfermeiros ocorrem de forma direcionada e individualizada, envolvendo, de modo integrado, as dimensões administrativas, organizacionais, gerenciais, assistenciais e de ensino-pesquisa. **Descritores:** Cuidados de Enfermagem; Competência Profissional; Cuidados Pós-Operatórios; Transplante de Fígado.

## Introduction

Concerning terminal stage liver failure, a serious clinical condition that, generally, affects people with acute or chronic liver disease, the liver transplant is the method recommended to deal with the situation. It requires the development of specific competences on the part of the healthcare team, which results in a consistent therapeutic advance with a positive impact in the changes in quality of life<sup>(1)</sup>. Brazil has been standing out in the field of transplants in the global setting, being the second country in absolute liver transplant numbers in the world. In 2018, 2,182 liver transplants were carried out in the country<sup>(2)</sup>.

Liver transplants require professionals to develop qualified competences to safely perform the activities related to the practice, since organ transplant, especially that of livers, is a complex and specific procedure that requires great infrastructure and a health team specialized in the performance of assistance to seriously ill patients<sup>(3)</sup>. It should be highlighted that “competence” is the ability of the nurse to carry out actions based on acquired knowledge, including general and specific contents related to abilities and attitudes that incorporate professional and social values to the activities, carrying them out differently according to the circumstances in which they are working<sup>(4)</sup>.

In this setting, nurses, as participants of the multidisciplinary team, act throughout the process, from the inpatient unit to the pre-surgery, trans-surgery, and postoperative stages of the liver transplant, all of which are essential to offer a safe and unique nursing care. The immediate postoperative care, especially, demands intensive activity from the professionals, mainly from the nurse and their own abilities and attitudes. In this moment, the receptor is the most susceptible to hemodynamic instabilities, which may require clinical and/or surgical interventions to be carried out in a fast and efficient manner<sup>(5)</sup>.

Therefore, nursing healthcare planning for patients who are receptors of liver transplants aims to evaluate, detect, anticipate, and intervene in the

potential postoperative complications, as well as in technical complications resulting from the surgery, from the immune response of the receptor, and from the immunosuppression regime<sup>(3)</sup>. Considering the above, and in order to contribute for the assistance of nurses and to a better quality of care, this research has a question: how do nurses perceive their skills developed in the immediate postoperative period of liver transplantation?

Therefore, the aim of this work is discovering the perceptions of nurses concerning the competences developed in liver transplant postoperative care.

## Methods

This is a qualitative research using Content Analysis as its theoretical-methodological framework<sup>(6)</sup>. The investigation was carried out in a postoperative Intensive Care Unit in the Walter Cantídio Teaching Hospital, at the Universidade Federal do Ceará. The institution is a regional and national reference for liver transplants.

There were eight nurses working in the service. The inclusion criterion was working in the service for at least two years, since the competences necessary to offer assistance to the transplant process are thought to reach an adequate point within this period. Professionals who were temporarily substituted were excluded, including nurses absent due to vacations, personal reasons, and those who were on leave. No nurse was excluded, since, after the eligibility criteria were applied, all nurses were in accordance to the inclusion criteria. Therefore, they were invited to participate in the research and all accepted, that is: all eight nurses participated in the study.

Data collection was carried out in August 2015. Semi-structured interviews and a non-participant systematic observation were carried out. Participants were informed about the data collection process, and its day, time, and place were scheduled according to the convenience of each professional. It stands out that the subsidies concerning data collection were in-

cluded in the Free and Informed Consent Form.

The interviews used a script and a digital voice recording device. Recordings were only carried out after participants authorized it, in a reserved room in the Intensive Care Unit. They lasted for a mean of 40 minutes and were later entirely transcribed by the researcher.

The script that guided the interview was elaborated by the researcher, including, in addition to the guiding question, data about: sex, color, religion, marital status, age, educational level, year of graduation, years practicing this profession, for how long had the participant been working in the field of liver transplant, employment bonds, and family income. It stands out that a pilot test of the script was carried out with three nurses that were experienced in the field of liver transplants, in order to observe the potential difficulties in its applicability, and the suggestions of these professionals were taken into account. These professionals were not among the research participants.

A field journal was used during observations, which were carried out by the researcher in different days of the week, from Monday to Sunday, in the morning, afternoon, and/or evening, according to the requirements of the participants. Therefore, all nurses were observed during their work activities, adding to a total of 132 hours of observation.

Data were treated and submitted to Content Analysis<sup>(6)</sup> after the interviews were transcribed in their entirety. The transcribed material was organized in the pre-analysis category, to define the categories and classify the statements of participants. Later, the statements of the nurses were interpreted, and three categories emerged, which are presented in the results of this article.

This research was approved by the Research Ethics Committee of the Hospital Universitário Walter Cantídio, at the Universidade Federal do Ceará, under protocol 646.428, and followed the recommendations from Resolution nº 466/12, which regulates the direc-

tives and norms for researches with human beings. The names of participants were replaced by a number, according to the order of the interview, followed by the letter N, for Nurse (1N, 2N..., 8N), to guarantee the secrecy and anonymity of the participants during the research.

## Results

The research included eight nurses, most of whom were female 7 (87.5%), brown 7 (87.5%), catholic 8 (100%), and married 5 (62.5%). Their mean age was 41, varying from 31 to 60. Concerning educational levels, 5 (62.5%) had master's degrees and 3 (37.5%) were specialists, among whom 2 were specialized in intensive care, and 1 (12.5%) in hospital management. The mean time since graduation was 20 years. The nurses had worked in the field of transplant and exercised the profession for a mean of seven years. Concerning employment bonds, 5 (62.5%) declared having two employment bonds and the other 3 (37.5%), to have 1; the family income went from 6 to 20 minimum wages.

Three thematic axes emerged from the statements of participants: preparing the postoperative Intensive Care Unit to receive the liver transplant receptor; actions of nurses concerning the liver transplant receptor in the postoperative Intensive Care Unit; activities related to administration, teaching, and research.

### Preparing the postoperative Intensive Care Unit to receive the liver transplant receptor

After the transplant process, the receptor is transferred from the surgical room to the postoperative Intensive Care Unit, in which they stay until hemodynamic patterns are reestablished.

The confirmation of the transplant triggers actions from the nurse aimed at organizing the environment to guarantee safety for the receptor as they

are admitted in the unit. The statements of the nurses show preoccupation concerning human resources, medical and hospital materials, equipment availability, and actions in tandem with the doctor that examines the patient and prescribes medication: *After the transplant is confirmed, the first step is preparing the bed with all necessary resources, such as breathing tube, infusion pump, glucometer, serum, syringes, needles, probes, among other materials they will need, and we also test all equipment so there are no mistakes* (7N). *After we prepare the bed with all materials, we see the team, we select the nurse and the nursing technician that will be responsible for receiving the patient* (5N). *In addition to preparing the unit, the nurse fetches the data on the receptor from the surgical center. So, we give all the information to the physician and he creates the clinical protocol of the transplant, so that when the receptor arrives their prescriptions are already there, and also the lab and image exams they require. All that is to make admission faster* (8N).

To reduce post-transplant complications, the medical and nursing team promptly offered effective and safe care in the admission of the receptor in the postoperative Intensive Care Unit, as indicated by the statements: *The nurse, together with the nursing technician, receives the patient who is coming from the surgical center. At that time, the breathing tube is positioned, and the heart, the mean arterial blood pressure, and the central venous blood pressure are monitored. We observe the infusion of the serum and the drainage of the probes* (3N). *In the first 24 hours of admission [postoperative Intensive Care Unit], the vital signs and water balance are registered every hour. Prescribed medication is administered, such as vitamin K and antibiotics...* (6N).

The participants showed apprehension concerning the choice of the bed for the patient, since they needed to avoid cross-infections with other people hospitalized, since immunosuppressed individuals are more susceptible to parasite infections, and require more care for infections to be controlled and prevented: *We always put the new receptor in an isolated bed, far from contamination, since they are immunosuppressed* (2N). *One of the healthcare measures carried out by nurses is infection control, since the patient will start on the immunosuppressor that is the tacrolimus, hydrocortisone, and will have a drop in their immunity. So, they already go into reverse isolation* (1N).

### **Actions of nurses concerning the liver transplant receptor in the postoperative Intensive Care Unit**

During the postoperative stage, assessment, intensive monitoring, and constant clinical monitoring of the patient are paramount, due to their hemodynamic instability after the transplant. The nursing team is responsible for this type of care, since they are with the patients the longest, as the following statement indicates: *Throughout the hospitalization period, the receptor receives intensive care. We constantly observe vital parameters, the functioning of the graft and the level of consciousness. After 24 hours from the transplant, if the receptor presents metabolic parameter stability, we start measuring vital signs every 2 hours and also the infused and drained volumes, but if any instability arises, we go back to every hour. We have clinical protocols to follow* (3N).

Concerning direct assistance to the patient, nurses carry out actions specific to them, as shown: *Only the nurses do some activities, such as wound dressing exchange, drain and catheter removal, orotracheal aspiration, among other tasks. The nurse usually overviews the procedures carried out on the patient. They are always close by* (1N).

According to the perception of interviewees, it became clear that the receptors, after evolving to hemodynamically stable, are sent to the nursing ward. Later, the nurse asks for information about the bed in the nursing ward, communicates the clinical situation of the patient and gives information to the relatives. Later, the nurse organizes medical records and exams, as well as the personal effects of the patient, to be sent with them when they are transferred: *When the patient is discharged from the Intensive Care Unit, we inform the nursing ward nurse, ask for a bed, and inform everything about the general state of the patient. This helps the other service to organize the nursing ward to receive the receptor with more safety* (1N). *I call the family, so they can come at the time of the transfer. We send the records with the patient, the liver transplant folder, the medical prescription, the medications prescribed for the day, and all their personal effects, such as hygiene materials* (4E).

The field observation confirmed that the nurse promoted health education actions, through the guidance and clarification of doubts for the receptor and

their relatives, to stimulate and involve them in the process of caring: *Our assistance not only includes the patient, but also the caretakers or family, because we know that we occupy the role of educators. Here, the entire team offers the clearest information possible, enabling the best possible rapport between them and the team (5N). Due to the diminution in consciousness caused by encephalopathy we have to talk to relatives, guiding them about the care to be offered the patient, concerning the immunosuppressors, risks of infection and graft rejection, among other issues (2E).*

### Activities related to administration, teaching, and research

The statements of the nurses who participated also point to complementary activities carried out by them, which involve management, teaching, and research. Concerning management, the nurse has to carry out administrative actions and promote the integration of the patient within the health assistance body, which includes categories such as physicians, psychologists, social workers, physical therapists, among other professionals. Therefore, the effective care of the patient is guarantee, as to answer to the demands of patients and their respective families, promoting interfaces between individual and holistic care: *Our work is intensive, we are in direct contact with the patient and/or managing the service. The managing part has a lot of bureaucracy, worker schedule, spreadsheets, reports, and other documents we have to fill in. We are also the link between the multi-professional team and the patient and their relatives (5N). When we notice that the patient is depressed, we ask for the psychologist. We also ask the social worker to solve any issues with the family. When there are any clinical complications, we call the physician and, if a surgery is necessary, we call the surgeons. The service is highly integrated and efficient (7N).*

The nurses also exercised the function of research and teaching, since they were facilitators of the learning of students and or people who were interested in the process of transplant, and still, participated in scientific events, promoted training sessions, and were undergoing constant professional capacitation: *Since we work in a teaching hospital, we also receive students and/or professionals from other institutions who want to learn about li-*

*ver transplants. And, to receive this university public, we also have to seek training (8N). The entire team tries to participate in congresses and develop researches together with the students, since this helps us grow as professionals and carry out our work with more safety. Teaching and researching are part of our functions, and not only of the nurse, but also of the other colleagues at work (6N).*

Considering the statements of the nurses, it became clear that they are key elements in the multi-professional team. Their actions make interdisciplinary work possible, promotes the establishment of bonds, the co-responsibility of the team, the receptors, and the relatives, aiming to preserve health in a broad way. In addition, this professional takes part in permanent education processes, as they seek self-knowledge, participate in training sessions, offer training during service, and accompany residents, to increment evidence-based teaching.

### Discussion

The small number of participants and the fact that data were collected in a single hospital service were limitations of this study, meaning data generalization is not possible. Future investigations with broader samples and more robust methodological designs will potentially be able to further the findings of this investigation, making it possible to divulge new and different competences by nurses in the field of liver transplant.

This study contributes to the notoriety and valorization of nurses, since they exercise many functions to offer quality holistic assistance to the patient. In addition, this research was innovative in the fact it emphasized the perception of nurses about their own actions in the liver transplant field.

The findings of this investigation showed that nurses are responsible for tasks that are essential for the success of transplants, which involve the dimensions of assistance, managing, teaching, and research. Considering the functions of the nurse, a quantitative research in the Nursing School at the Universidade de São Paulo, with 505 alumni, found that most were

working in the healthcare (66.0%), administrative (15.0%), and educational fields (12.0%)<sup>(7)</sup>. Concerning management, the integrative review showed that the administrative actions of nurses, targeted at bureaucratic-administrative activities, were not well articulated to the ones involving health assistance<sup>(8)</sup>. This contradicts the results of this research, which signaled there was conciliation between the bureaucratic and health assistance activities carried out by nurses.

A qualitative research carried out in Ceará showed that nurses are responsible for admitting patients to the Intensive Care Units during the immediate postoperative period after transplants, in addition to organizing the human, physical, and material resources required. Also, they must be autonomous and effective in the planning and performance of the plan of assistance of the receptor<sup>(9)</sup>.

Health professionals who offer assistance to patients, especially nurses, are essential to prevent mistakes and wrong decisions, and must take on leadership roles and promote strategies to secure quality care<sup>(10)</sup>. In addition, the nursing team, in the postoperative stage, must evaluate cardiopulmonary functions, oxygen saturation, level of awareness, presence of pain, and situation of the wound dressings. It is important to keep, at this stage, nutritional care, antibiotic therapy, and assess the exams, that is, offer intensive monitoring for the patient<sup>(3)</sup>.

The retrospective analysis of the documentation after the liver transplant showed that nurses recorded the aspects focused on the condition of the receptor as a patient who uses immunosuppressors, and that the susceptibility to an infection was found in 60.3% of the nurses who were in contact with these patients. Therefore, interventions concerning the prevention of complications and infection control must be implemented. In addition, infection was found to be one of the main causes of morbidity and mortality after liver transplants<sup>(11)</sup>.

The active participation of professionals in the prevention and control of infections is a key-strategy

in the programs of patient safety within health organizations<sup>(9)</sup>. Considering this, the participants mentioned that the care for preventing infections should be doubled, due to the use of immunosuppressors, which lead to risks of infection.

Still, concerning nursing assistance post liver surgeries, the investigation showed that neurological events, hemorrhages, cardiopulmonary, hematological, vascular and biliary changes, in addition to infections and acute graft rejection, were the most common complications in the period, emphasizing the importance of offering intensive nursing care and systematically monitoring the patient, as to prevent these complications<sup>(12)</sup>.

Participants were observed to exert their activities with empathy, dialogue, and listening. Therefore, the bond between professional and patients, usually called living work, needs be remarked upon, as it collaborates for the development of a critical and questioning perception, that is transformative for the patient<sup>(13)</sup>. Dialogue and listening are comparable to the treatment with medications<sup>(14)</sup>.

Speaking and listening were health education activities from the part of the participants, as they offered guidance to receptors and their relatives. This investigation showed that for the family of the person receiving critical treatment in an Intensive Care Unit, the interaction with the health team had significance since there was a possibility that they would transmit fear and preoccupation but, simultaneously, share knowledge<sup>(15)</sup>.

The nurse has an essential role in accompanying the patients of liver transplants, and can aid them as they face changes, to offer individualized care and offer support to the needs of the family and the patient. Nurses can also contribute for the health education of the donors, offering support for their self-care and adequate information for their families to collaborate for their recovery and help reintegrate them to society<sup>(16)</sup>.

In addition, the investigation showed that the

practice of health education on the part of the nurse in the immediate postoperative stage, concerning lifestyle changes, such as the regular performance of physical activity, is essential to promote the implementation of habits by the patient, positively impacting in the outcome of the transplant. Nursing management must use its planning to schedule and implement educational activities<sup>(17)</sup>.

In the context of shared education between receptors and relatives, nurses plan interventions focused on specific guidance, such as managing regimens of therapy and medication, habits of exercising and resting, diet, complication prevention, treatment, signs of infection, and sexual activity<sup>(11)</sup>, as to generate a higher adhesion to the treatment, and empower patients for their self-care.

Additionally, health education is important to promote safe care and motivate patients and relatives concerning their new conditions, offering subsidies to empower individuals and their relatives, aiming to effectively change their behavior and generate adherence to the treatment, helping to control comorbidities and risk factors in addition to guaranteeing adequate immunosuppression, making long-term graft permanence viable, and preventing complications<sup>(17)</sup>. Still, education practices in health offer knowledge, from the clarification of doubts related to clinical features of the disease to the care to be taken with nutrition, hygiene, and the importance of continuing the treatment<sup>(18)</sup>.

The learning of the client of a transplant is a continuous process, and both users and their relatives must receive assistance. A study in Iran found that the relatives of transplant patients may suffer psychological trauma. Concerning that, the members of the health team, especially nurses, are recommended to offer families the necessary information related to the disease and its treatment process, in order to diminish the anxiety in the family. To do so, the nurses must have acceptable levels of knowledge about the needs

of patients of transplants and their families, in order to take the best measures and attend their needs<sup>(19)</sup>.

Concerning safe receptor assistance practices, this study highlighted the inter-professional collaboration, meaning that the actions of professionals are integrated, sharing objectives and putting the users in the center of the process<sup>(17)</sup>. Concerning this, an integrated work with the interdisciplinary teams is essential for the development of processes focused on quality, increasing efficiency and helping solve problems<sup>(10)</sup>. This statement reiterates those of the participants of this study, who expressed that the multidisciplinary teamwork is paramount for the receptors in the immediate postoperative stage.

Concerning teaching and research, it stands out that the interviewees highly value the promotion and participation in scientific events and research development, to the betterment of evidence-based clinical practice. A study carried out in the United States of America has pointed out that most professionals graduated in nursing or medicine had little clinical exposure to patients with chronic liver disease or postoperative patients. Therefore, post-graduation programs are necessary to further train these professionals in the practice of specialized fields such as transplants<sup>(20)</sup>. A research with a qualitative approach corroborated these findings according to which a liver transplant demands the professionals to be aware of new technologies and scientific progress. To do so, they must continuously seek training and updating their knowledge, in addition to teaching undergraduates and professionals, and even, anyone who is interested on issues concerning transplant<sup>(9)</sup>.

## Conclusion

The competences developed by the nurses are directed and individualized, involving, in an integrated whole, the administrative, organizational, managerial, healthcare-related, and teaching-research dimensions.

## Collaborations

Negreiros FDS, Pequeno AMC, Alencar CS, Carvalho GSO e Moreira TR contributed for the conception and for the project, data analysis and interpretation, article writing, in the relevant critical review of the intellectual content and the final approval of the version to be published.

## References

1. Eiras FRC, Barbosa AP, Leão ER, Biancolino CA. Use of a severity indicator as a predictor of the use of hepatic transplantation resources. *Rev Esc Enferm USP*. 2016; 50(4):579-86. doi: <http://dx.doi.org/10.1590/S0080-623420160000500006>
2. Associação Brasileira de Transplantes de Órgãos. Dimensionamento dos transplantes no Brasil e em cada estado (2011-2018). *Registros Bras Transpl* [Internet]. 2018 [citado 2019 Mar 12]; XXIV(4):1-88. Disponível em: [http://www.abto.org.br/abtov03/Upload/file/RBT/2018/Lv\\_RBT-2018.pdf](http://www.abto.org.br/abtov03/Upload/file/RBT/2018/Lv_RBT-2018.pdf)
3. Pereira WA. Manual de transplantes de órgãos e tecidos. Belo Horizonte: Coopmed; 2012.
4. Holanda FL, Marra CC, Cunha ICKO. Professional competency profile of nurses working in emergency services. *Acta Paul Enferm*. 2015; 28(4):308-14. doi: [dx.doi.org/10.1590/1982-0194201500053](http://dx.doi.org/10.1590/1982-0194201500053)
5. Negreiros FDS, Pequeno AMC, Alencar CS, Carvalho GSO, Chagas RR, Pinheiro YN, et al. Competências de enfermeiros no pós-operatório imediato de transplante hepático: concepção profissional. *Investig Qual Saúde* [Internet]. 2018 [citado 2019 ago 10];2:392-400. Disponível em: <https://proceedings.ciaiq.org/index.php/ciaiq2018/article/view/1800/1753>
6. Minayo MCS. O desafio do conhecimento: pesquisa qualitativa em saúde. São Paulo: Hucitec; 2013.
7. Püschel VAA, Costa D, Reis PP, Oliveira LB, Carbogim FC. Nurses in the labor market: professional insertion, competencies and skills. *Rev Bras Enferm*. 2017; 70(6):1220-6. doi: <http://dx.doi.org/10.1590/0034-7167-2016-0061>
8. Mororó DDS, Enders BC, Lira ALBC, Silva CMB, Menezes RMP. Concept analysis of nursing care management in the hospital context. *Acta Paul Enferm*. 2017; 30(3):323-32. Disponível em: <http://dx.doi.org/10.1590/1982-0194201700043>
9. Negreiros FDS, Pequeno AMC, Garcia JHP, Aguiar MIF, Moreira TR, Flor MJN. Multi-professional team's perception of nurses' competences in liver transplantations. *Rev Bras Enferm*. 2017; 70(2):242-8. doi: <http://dx.doi.org/10.1590/0034-7167-2016-0223>
10. Agência Nacional de Vigilância Sanitária. Assistência segura: uma reflexão teórica aplicada à prática [Internet]. 2017 [citado 2019 ago 10]. Disponível em: <http://portal.anvisa.gov.br/documents/33852/3507912/Caderno+1+-+Assist%C3%A0ncia+Segura+-+Uma+Reflex%C3%A3o+Te%C3%B3rica+Aplicada+%C3%A0+Pr%C3%A1tica/97881798-cea-0-4974-9d9b-077528ea1573>
11. Mota L, Bastos FS, Brito MAC. A pessoa submetida a transplante de fígado: terapêuticas de enfermagem no follow-up. *Rev Enf Ref*. 2018; serIV(16):19-28. doi: <http://dx.doi.org/10.12707/RIV17086>
12. Morais EN, Conrad D, Machado GC, Abreu MO, Matos EM, Cruz SAC. Postoperative complications of liver transplant: evidence for the optimization of nursing care. *Rev Pesq Cuid Fundam Online*. 2017; 9(4):999-1007. doi: <http://dx.doi.org/10.9789/2175-5361.2017.v9i4.999-1007>
13. Oliveira JSB, Suto CSS, Silva RS. Tecnologias leves como práticas de enfermagem na atenção básica. *Rev Saúde Com* [Internet]. 2016 [citado 2019 ago 10];12(3):613-21. Disponível em: <http://periodicos2.uesb.br/index.php/rsc/article/view/425/344>
14. Michelin VCA, Spiri WC. Perception of nursing workers humanization under intensive therapy. *Rev Bras Enferm*. 2018; 71(2):372-8. doi: <http://dx.doi.org/10.1590/0034-7167-2016-0485>
15. Mendes A. A interação enfermeiro-família na experiência vivida doença crítica: o cuidado centrado na família. *Investig Qual Saúde* [Internet]. 2018 [citado 2019 ago 10];2:203-12. Disponível em: <https://proceedings.ciaiq.org/index.php/ciaiq2018/article/view/1780/1733>



16. Aguiar MIF, Alves NP, Braga VAB, Souza ÂMA, Araújo MÂM, Almeida PC. Psychosocial aspects of quality of life of hepatic transplant receivers. *Texto Contexto Enferm.* 2018; 27(2):e3730016. doi: dx.doi.org/10.1590/0104-070720180003730016
17. Pearson JA, Mangold K, Kosiorek HE, Montez M, Smith DM, Tyler BJ. Registered nurse intent to promote physical activity for hospitalised liver transplant recipients. *J Nurs Manag.* 2018; 26(4):442-8. doi: <http://dx.doi.org/10.1111/jonm.12561>
18. Azevedo IC, Cassiano AN, Carvalho JBL, Ferreira Júnior MA. Nursing care for hematopoietic stem cell transplant recipients and their families. *Rev Rene.* 2017; 18(4):559-66. doi: <https://dx.doi.org/10.15253/2175-6783.2017000400019>
19. Divdar Z, Foroughameri G, Farokhzadian J, Sheikhbardsir H. Psychosocial needs of the families with hospitalized organ transplant patients in an educational hospital in Iran. *Ther Apher Dial.* 2019. doi: <http://dx.doi.org/10.1111/1744-9987.13425>
20. Chaney AJ, Yataco ML. The emerging role of nurse practitioners and physician assistants in liver transplantation. *Liver Transpl.* 2019; 25(7):1105-9. doi: <http://dx.doi.org/10.1002/lt.25474>



This is an Open Access article distributed under the terms of the Creative Commons