

# PERCEPTION OF PATIENTS AND NURSES ABOUT PERIPHERALLY INSERTED CENTRAL CATHETERS IN OUTPATIENT CARE

## PERCEPÇÃO DE PACIENTES E ENFERMEIRAS SOBRE O CATETER CENTRAL DE INSERÇÃO PERIFÉRICA NA ASSISTÊNCIA AMBULATORIAL

## LA PERCEPCIÓN DE PACIENTES Y ENFERMERAS SOBRE EL CATÉTER CENTRAL DE INSERCIÓN PERIFÉRICA EN LA ASISTENCIA AMBULATORIA

Aline Nair Biaggio Mota<sup>1</sup>  
Evellyn Kaiane Moura Mesquita<sup>2</sup>  
Ruth Natalia Teresa Turrini<sup>3</sup>

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**Objective:** To analyze the perception of patients and nurses regarding the use of Peripherally Inserted Central Catheters (PICCs) in outpatient care. **Method:** An exploratory study with a qualitative approach and grounded on Callista Roy's adaptation model, based on interviews conducted with patients using PICCs and nurses at a public teaching hospital specialized in Cardiology located in São Paulo, SP, Brazil. **Results:** After transcribing the interviews, content analysis was carried out and the following thematic categories were constructed: daily care; risks to catheter functionality and permanence; care longitudinality for nurses; patient pain relief; and repercussions of prolonged catheter use. **Final considerations:** Durability of a catheter depends on the importance attributed of care and guidelines provided to patients and nurses working in counter-referral services. The reports obtained regarding the adaptation to the out-of-hospital use of PICCs will allow reviewing joint monitoring and management strategies. **Descriptors:** Catheter. Home-based Nursing; Patient-centered Care. Self-care. Outpatient Assistance.

*Objetivo:* analisar a percepção de pacientes e enfermeiras quanto ao uso do Cateter Central de Inserção Periférica (Peripherally Inserted Central Catheter, PICC) na assistência ambulatorial. *Método:* estudo exploratório de abordagem qualitativa, baseado no modelo de adaptação de Callista Roy, a partir de entrevistas realizadas em hospital público de ensino em cardiologia localizado em São Paulo, Brasil, com pacientes em uso de PICC e enfermeiras. *Resultados:* após transcrição das entrevistas, realizou-se a análise de conteúdo e construíram-se as categorias temáticas de cuidado no cotidiano; riscos a funcionalidade e permanência do cateter; longitudinalidade do cuidado para enfermeiras; alívio de dor do paciente; repercussões do uso prolongado do cateter. *Considerações finais:* a durabilidade do cateter depende da valorização do cuidado e orientações fornecidas aos pacientes e enfermeiros dos serviços de contra referência. Os relatos obtidos quanto à adaptação ao uso extra-hospitalar do PICC permitirão rever estratégias conjuntas de monitoramento e manejo.

*Descritores:* Cateter. Enfermagem Domiciliar. Assistência Centrada no Paciente. Autocuidado. Assistência Ambulatorial.

Corresponding Author: Aline Nair Biaggio Mota, aline.mota@alumni.usp.br

<sup>1</sup> Universidade de São Paulo. São Paulo, SP, Brazil. <https://orcid.org/0000-0002-0003-381X>

<sup>2</sup> Universidade de São Paulo. São Paulo, SP, Brazil. <https://orcid.org/0000-0002-9390-8637>

<sup>3</sup> Universidade de São Paulo. São Paulo, SP, Brazil. <https://orcid.org/0000-0002-4910-7672>

*Objetivo: analizar la percepción de pacientes y enfermeras en relación al uso del Catéter Central de Inserción Periférica (Peripherally Inserted Central Catheter, PICC) en la asistencia ambulatoria. Método: estudio exploratorio de enfoque cualitativo, basado no modelo de adaptación de Callista Roy, a partir de entrevistas realizadas en un hospital escuela público especializado en Cardiología de San Pablo, Brasil, con pacientes en uso de PICC y enfermeras. Resultados: después de transcribir las entrevistas, se realizó un análisis de contenido y se generaron las categorías temáticas de la atención de rutina; riesgos para la funcionalidad y permanencia del catéter; longitudinalidad de la atención para las enfermeras; alivio del dolor del paciente; y repercusiones por el uso prolongado del catéter. Consideraciones finales: la durabilidad del catéter depende de la valoración de la atención y de las pautas provistas a los pacientes y enfermeros de los servicios de contraderivación. Los reportes obtenidos en relación a la adaptación al uso extra-hospitalario de los PICC permitieron rever estrategias conjuntas de monitoreo y manejo.*

*Descriptor: Catéter. Enfermería Domiciliaria. Asistencia Centrada en el Paciente. Autocuidado. Asistencia Ambulatoria.*

## Introduction

Peripherally Inserted Central Catheters (PICCs) are vascular access devices inserted through peripheral veins used in medium to long term therapies indicated for the administration of prolonged therapies and irritating or vesicant solutions<sup>(1)</sup>.

With the advancement of technology, more resistant and simple-to-maintain catheters have been developed, as well as medications with longer administration intervals and improvements in professional training. These advances have generated greater acceptance by patients and family members and, consequently, contributed to the growth in PICC use in outpatient care. Treatments with antimicrobials, chemotherapy drugs, hydration, parenteral nutrition and analgesics are the main indications<sup>(2)</sup>.

PICC use through outpatient care makes it possible to reduce the hospitalization time and, consequently, reduce the risk of associated infections, optimizing hospital beds and associated costs, as well as promoting greater comfort for patients and their families<sup>(3)</sup>.

In Brazil, with the exceptions of long-stay institutions and home-based therapies, outpatient intravenous therapy generally requires patients to commute to the health unit, such as a Day Hospital (DH), Primary Health Care (PHC) services or Emergency Services (ER), until the end of the therapy. In these situations, patients with PICCs receive instructions on care to

maintain integrity of the catheter at their homes and on possible signs of complications and alerts.

However, the transition from in-hospital care to home-based care can generate anguish and insecurity in patients. As for this adaptation process, Callista Roy argues that, as multidimensional adaptive systems, people are in continuous interaction with a changing environment, which must be understood as all circumstances, conditions and influences around individuals influencing their behavior<sup>(4,5)</sup>.

Roy argues that the nurses' objective is to promote adaptive responses in individuals, which can be divided into four modes: physical-physiological – associated with the way in which the individual responds as a physical being to the environment; self-concept identity – involving the spiritual, self-image and self-awareness aspects of the human system; role performance – related to the individual's roles in society; and the interdependence mode – associated with interpersonal relationships<sup>(4,5)</sup>.

For this, it is essential that nurses recognize the subject's coping and adaptation mechanisms during hospitalization, with PICC use, in order to understand the factors that may compromise the return to routine activities at home, interfere with their autonomy or cause complications. Therefore, this study aimed at analyzing the perception of patients and nurses regarding PICC use in outpatient care.

## Method

An exploratory study with a qualitative approach that took as reference the reality experienced by patients and nurses based on semi-structured interviews. The qualitative research study makes it possible to discover and understand the meaning of events, social practices, beliefs, values, perceptions and actions of the individuals under study, phenomena that cannot always be adequately quantified<sup>(6)</sup>.

Data collection took place between September 2018 and February 2019 in the DH unit of a tertiary health care public teaching hospital specializing in Cardiology in the municipality of São Paulo (SP, Brazil), which assists patients with PICCs for subsequent administration of intravenous drugs and solutions in the DH.

Sample size was defined by theoretical saturation, when the data obtained began to present, in the researchers' opinion, redundancy or repetition, filling all aspects of the research object<sup>(7)</sup>. The convenience sample consisted of six patients (three hospitalized patients and another three from the DH) aged over 18 years old, using PICCs, and five nurses from the DH. Patients who had to return every day to the DH and with cognitive and temporo-spatial alterations or psychiatric diseases without a caregiver were excluded, according to data available in the patient's Electronic Health Record (*Registro Eletrônico em Saúde*, RES).

Regarding the collection procedure, sociodemographic data and information related to the type of therapy prescribed were collected, through consultation with the patients' RES. Subsequently, interviews were carried out with audio-recording in m4a via a recorder by a researcher who works at the institution where collection was carried out. The non-directive interviews were guided by the following semi-structured questions according to the group of participants: "How do you feel about going home with the PICC?", and "How do you think your day-to-day using the PICC will be?" (hospitalized patients); "How do you feel about being home with the PICC?", and "What is your day-to-day

using the PICC like?" (DH patients); "How do patients describe using the PICC at home?", and "How do patients report their day-to-day using the PICC?" (DH nurses).

As a way of guaranteeing privacy and secrecy of the information, the interviews with hospitalized patients were carried out in a meeting room of the inpatient unit or at the bedside, according to the patient's clinical condition for mobilization and availability; the outpatients were interviewed in the respective private DH care boxes during drug therapy, whereas the nurses were interviewed in the unit's private meeting room. The interviews, which lasted a mean of 10 to 15 minutes, were carried out with the participants in pairs when possible, with a nurse and two patients separately.

The recorded interviews were transcribed and analyzed in three phases: pre-analysis by floating reading; exploration of the material to choose units of analysis, categories and groupings; and interpretation the results<sup>(8)</sup>. Data validation was performed by triangulating the researchers and the environment<sup>(9)</sup>, that is, three researchers carried out both initial phases of analysis individually and the third was carried out in group. The participants were from different loci (inpatient and outpatient), in addition testimonies were separated for patients and nurses.

The patients' testimonies were identified with the letter "P" as in "Patient" and numbered successively according to the order of the interviews from "P1" to "P6", and the nurses with the "N" as in "Nurse, from "N1" to "N5" to preserve anonymity .

This study used the *Consolidated Criteria for Reporting Qualitative Research* (COREQ) International Guide and was approved by the Research Ethics Committee of the proposing institution under opinion No. 2,874,173 (CAAE No. 96093518.1.0000.0068). All study participants signed the Informed Consent Form in two copies.

## Results

According to the perception of patients with PICCs and the DH nurses, the following categories

identified: daily care for the patient, risks to catheter functionality and permanence both for patients and for nurses; care longitudinality for nurses; patient pain relief; and repercussions of prolonged use for patients.

### *Daily care for the patient*

The perceptions of patients and nurses about the impact of PICC care on the patients' daily lives at home brings about both advantages and disadvantages. In this category, aspects related to basic human needs were identified, such as body hygiene, sleep, self-image, social and leisure activities, and insecurity.

The catheter cover is important both for maintaining its stability and for reducing the risk of PICC infection. Thus, care must be taken not to wet the catheter or leave the cover wet, which can be done with plastic film or a piece of plastic fixed with adhesive tape and removed after the end of the bath. The patients reported how they perform this procedure, which is also retrieved by the DH nurses:

*When I go to take a bath, I take PVC plastic wrap and roll it up, well rolled up, right from here down to here to prevent water from getting in. So I pull a little piece of thread, I hold it under my arm, I come with the roller, I go, I keep squeezing it so as for water not to get in and, finally, I pull and stick [...]. (P1).*

*[...] I don't know how he manages to take a shower with his hand on the wall. (N2).*

In addition, there was concern to carry out cleaning, also in areas that could not be cleaned due to the protection used:

*[...] lastly, I take off the plastic and dry my arm. Then I take alcohol and spread it here where it doesn't get wet, because, otherwise, how can you stop bathing your arm for the rest of your life? (P1).*

In home-based care, the presence of the PICCs becomes trivial in the patients' everyday life, in such a way that they may forget the presence of the device in their upper limb, as observed in the DH nurses' testimonies:

*[...] it has already happened that a patient forgot, to get in, and say 'hey, I went in the shower and forgot it', so he comes back. (N2).*

*[...] he forgot to remove the film, it was not for nothing, it was because he really forgot, because the thing was left there and went unnoticed. (N2).*

Although the plastic protection is capable of reducing the risk of wetting the catheter, some hygiene activities may be compromised by limiting upper limb movement if the patient has to perform them alone, such as washing the hair, with the patient creating strategies which are not always effective:

*I always try to wash (hair) with the left side, because once I tried with the right side, then it bothers more, where the PICC is located [...]. Even though I have the paper [plastic film] and everything, sometimes I put some... it's like a tissue like that, before putting the paper on, but even so, it gets wet. (P6).*

*There was a patient who told me that she was going to the hairdresser once a week to wash her hair. (N2).*

It was possible to observe that there are cases of certain dependence on informal caregivers to help with this aspect of the bath and that the patients' autonomy to carry out this self-care is compromised:

*[...] my wife [plastic film placement]. It gets easier, I tried it once, but it didn't work out very well, no. (P5).*

*At first, my mother helped me cover it up to take a bath, but then I got the hang of it and managed to cover it myself, so I didn't need her help. (P2).*

The guidelines on sleeping with PICCs are provided after installing the devices, and repeated at hospital discharge and on the return visits to the DH:

*[...] we instruct them to avoid sleeping on the catheter side, so they don't complain about sleeping. (N2).*

Afraid to move the catheter during sleep, a patient fixes the catheter hub with adhesive tape to feel safer during sleep, as he says that the tubular mesh that protects the catheter from movement reaches the wrist region:

*And at night, to sleep, I take a sticking plaster that doesn't stick, what's the name of it? Micropore? And I fasten it so I don't keep jumping back and forth, but I take the net off because it will end up on my wrist at night. (P4).*

However, due to good adaptation to the presence of the catheter, some patients observed that the PICC cover does not come off easily and that the device does not cause discomfort:

*You can sleep anyway. It doesn't hurt at all.* (P1).

*You can roll over your arm three hundred thousand times [at bedtime] and nothing happens.* (P2).

The presence of a device that is publicly exposed can generate curiosity and attract attention, which can be a reason for discomfort for some patients, an effect that was reduced when the bandage was replaced by tubular mesh:

*When I used only a bandage, there were patients who complained about the discomfort of putting on clothes, because other people were looking at them. But with the fabric it is more disguised.* (N1).

*[...] I like to wear a lot of big clothes, so the sleeve always covered it, but there were times when people kept looking too and I didn't care. It's really good, it was like a bandage, people might even think it was a wound or a... I don't know, a covered scar [...].* (P2).

It was also observed that patients adapt themselves to the presence of the PICC, customizing cover meshes by incorporating their individuality to such a simple item, which is part of their care and makes a difference in the patients' self-image:

*There was a patient who was selecting the meshes according to his clothes.* (N1).

*She took her panty hose and cut the foot and it worked out super well. So much so that when the mesh came [available at the hospital] he didn't want ours, she preferred her own.* (N2).

*[...] I just put on the little net, or else, a sock that I bought and put on to make it look better, because the net doesn't cover it all, right?* (P2).

Nurses also try to offer suggestions to the patients:

*[...] I already had a patient who wanted to go to a graduation party, but didn't want to do so wearing a bandage with a party dress. So I tried to use a sock, but the sock fell and it didn't work.* (N2).

Social or leisure practices are common among patients who use PICCs at their homes, and are not discouraged by nurses as long as they are safe for PICC maintenance and functionality:

*[...] I went out everywhere, it didn't stop me from going anywhere [...] for me it was very easy to use [...] And playing soccer too, I think it'll be okay to play soccer. I only have to avoid touching here, I think I can manage it.* (P2).

*[...] but when children use PICCs, it's complicated when it comes to summer. Because they want to get into the water [swimming pool or beach] and they can't.* (N2).

Some patients are refractory to the guidelines, and they are the most susceptible to catheter loss due to displacement or infection:

*He got here with his catheter only at the tip. When we looked at it [...] He even went to the pool.* (N1).

*This patient who went to the beach said that she sealed it, but she arrived here with the film dressing all loose. I don't know how it didn't get infected.* (N2).

Upon being discharged from the hospital, even after receiving the guidelines from the health professionals, patients with PICCs may feel anxious and insecure in relation to everyday actions due to having the medical device far from the health service and the team:

*[...] if it could get wet, if I could lift weight...* (N5).

*[...] and what if it gets wet? What should I do? Should I come here?* (N3).

According to the DH nurses' reports, patients who have their PICCs inserted in the DH are more apprehensive than those who were already hospitalized with PICCs:

*[...] those who were already hospitalized, who went home with a PICC, didn't have this problem [of being anxious], because they [...] were already guided during hospitalization [...] The patient who ... went to the outpatient clinic for dressings and had antibiotic therapy indicated [...] he returned to the HD to undergo the PICC, then he was even more afraid.* (N4).

In relation to adolescents, health professionals tend to be approached more by the patients' guardians to clarify doubts or fears about the catheter:

*[...] teenagers are a little more introspective, so there's certain difficulty [...] to ask this to us [questions], because the parents are the ones who pass it on a little more, who try to minimize the situation the way they can.* (N3).

### *Risks to catheter functionality and permanence*

In this category, situations of adherence to care, dressing exchange, catheter protection, clinical evaluation and complications stood out.

The feedback given by the patients to the guidelines portrays the degree of understanding and adherence to the guidelines provided by the nurses:

*Ab, you have to be careful when taking a bath, always not letting it get wet, I keep changing the gauze, due to the infection risk [...] I put this little net that doesn't let it get exposed [...] it's a way of not getting dirt from the street,*



*and I always sterilize the little net too [...] With alcohol and soap, neutral soap. (P6).*

*I get some little nets here, so I have 2, while I use one I wash the other and I wash this net during the bath itself with soap and then I throw in some alcohol and hang it there to dry. So I change my little net every day. (P4).*

*[...] until today we only had one patient who had a loss due to misuse, because he really did not follow the guidelines". (N2).*

The patient returns to the DH to continue treatment or to dressing change. The statements show the attendance and commitment to the outpatient visits:

*Because it was never a problem, right? It never left the place, it never got red, everything was okay, I just come here to change the patch [...] I come every Wednesday to change it. (P4).*

*When they are monitored by the DH, these patients are better followed-up, monitoring is closer, they come back every 2 days, so it allows us to notice more things. (N1).*

*In the protocol, you have to change [the stat lock] every 7 [days], but for example, cystic fibrosis patients release salt through the skin, so we end up changing it at a shorter interval. [...] they do the transplant, they accumulate more moisture, so they have to change it a little more frequently, and they have to change the film dressing sometimes too (N2).*

In addition to the need to keep the site dry, the type of material used to protect the catheter and its cover can also compromise skin integrity and patients' adherence to using it:

*[...] and depending on the bandage brand, it was very itchy, and we asked them to remove the bandage at home and change it and sometimes they didn't. (N2).*

*[...] some time ago we didn't have that net, so we protected it with bandages, then they complained that it got too hot, that it was bothering them, they wanted to take it off a little. (N5).*

*Also the preference for surgical mesh, [...] the skin breathes better, they didn't have so many complaints. (N3).*

When a patient returns to the DH, the nurse assesses the clinical conditions related to PICC use to detect complications:

*They receive the medication at the primary health care service and come here once a week. Then I do the test again, I assess permeability, I apply the dressing, check [arm] circumference, if there is edema, reorient everything again [...]. (N2).*

*We've already seen other DVT [Deep Vein Thrombosis] cases that I don't notice an increase in AC [Arm Circumference], what I usually see is edema in the hand. So even measuring the circumference, I also compare*

*the bands [...]. Even if the patient doesn't complain, I evaluate and observe. (N2).*

Patients also need to assume responsibility for their self-care and be attentive in detecting injuries and complications, which is not always the case, sometimes due to little appreciation of the signs and symptoms presented:

*Skin lesion, when you remove the Stat [lock] he says 'it was hurting, it was itching, but I thought it was normal[...]. Apart from those who are allergic to the film dressing. Now there are patients who arrive here only to remove it [the PICC] a month and a half later, with the same Stat Lock, with skin damage, all hurt. (N2).*

*[...] sometimes they come in a state [dressing and PICC insertion site] that makes us cry. Unkempt (N1).*

*[...]only swelling of the vessel. We did the ultrasound and it wasn't in the catheter vessel, it was in the lateral vessel. Even so, he started anticoagulation and the vascular team said that the catheter should be kept [...] But a super disciplined patient, it was related to his clinical condition, you know, he ended up having thrombosis. He watched himself, said that the vein was hard. (N2)*

Sometimes there may be complications related to maintaining the system closed, such as clamps, caps and needleless connectors:

*[...] a patient who came to receive antibiotics and when he got here the cap had come off and he didn't notice and blood started to come out, because the catheter was not valved[...]. His shirt was red and with a cold blouse, when I saw it, a considerable amount had already leaked [...] and he said "well I noticed it was kind of warm" [...] So today we recommend seeing the cap and also the clamp, right? (N2)*

### Care longitudinality for nurses

Care longitudinality is an expression used in PHC, but which also represents well the importance of shared care with the hospital staff, in addition to comprehensive care in the referral and counter-referral structure. Interpersonal communication, care continuity and knowledge transfer were included in this category.

There should be good communication between all professionals involved in care for patient safety and quality of the care provided. PICCs may require certain restrictions, while on-site healing does not occur:

*When you just insert the catheter, it bleeds a little. [...] So the physio [physiotherapist] did the exercise and it was even more difficult to heal. We had a conversation, catheters that are bleeding, we ask him not to lift weight,*

*because he has to lift the weight to be able to expand the lung. Then he got better. (N2).*

There are patients who finish the intravenous treatment in PHC services. Although the course of action is part of what health care referral and counter-referral recommends, it was observed in the reports that nurses at the PHC service preserve longitudinal continuity of care related to medication treatment; however, they do not provide the necessary assistance for PICC integrity:

*[...] when the patient goes to other services, [...] they weren't caring the dressing, only the medication administration. When she visit the IPCT [Infection Prevention and Control Team], [...] she said she hadn't it changed, and that it had been 20 days ago. But there was also no contact between the service [PHC] and the hospital, saying that they didn't have the resources to do it [...] they were afraid to remove the film dressing and [...] they didn't apply the conventional dressing. (N2).*

*There was a case [from the PHC service] where the catheter didn't present blood return or infuse at all. The IPCT sent the patient here and we get to managed it. A week later the same thing happened. So we don't know if it takes a long time to flush with saline, if you do it with a small volume of saline, if you do it with [flushing] 20 [ml] or 10 [ml]. (N2).*

Primary Health Care professionals do not always master the care of invasive devices or are trained to do so, which makes it indispensable to develop didactic material for care continuity and patient safety:

*Because during the week it was at the PHC service [drug administration] and at the weekend it was at the ER [Emergency service]. So in the ER there were different people assisting the patient, in the PH there were regular people. [...] What improved it was setting up that guidance. There was already a team that came here to understand how the catheter worked and the patient was able to follow through the treatment to the end. They controlled and registred the arm circumference and she brought me the paper. There's a service [...] that after we talked and they started to take better care of the catheter. But you see that the team wants to learn. (N2).*

### *Patient pain relief*

Due to the reduction in the number of venipunctures, PICC insertion for some patients was seen as a good thing:

*I think I liked it, I was afraid before, but after I put it on I thought it was really cool, at least I don't get punctured all the time. (P6).*

*[...] I think everyone, when they entered the hospital, had to put on a PICC. [...] Wow, both to draw blood and to apply medication, right? (P3).*

*[...] I even asked to put it on to go home [...] I was hospitalized every month and then I got puncture after puncture, I had no more veins. When the PICC was placed, it made my life a lot easier, I didn't even have to be hospitalized and being punctured or anything, because it was there, I just had to put the medication in. (P2).*

### *Repercussions of prolonged catheter use*

Despite the advantages of hospital discharge with a PICC, its insertion generally predicts prolonged treatments with frequent return visits to the health service. However, this situation can exert a psychosocial impact on the patient's everyday life, which is reflected in the statement from a patient:

*For me, coming at the beginning too, it wasn't a problem, no. But, then it makes me sick too, coming to the hospital every day, or now like every 8 days, right? To do the maintenance, but it's ok, you can't [pause]. There are times when it gets stressful, you leave a little stressed out, because coming to the hospital is not easy, no, but it's okay. (P5).*

Although the prolonged treatment is tiring, the patient adapts or adopts a conformist stance with the situation.

## **Discussion**

Based on the categories identified, it was possible to understand a little more how the PICC use directly impacts the patients' everyday life and their adaptation responses. It was possible to analyze risks, difficulties, wear out, self-care and benefits that PICCs can bring to patients during their treatment.

Body hygiene is one of the most common routines in people's everyday lives and involves little concern and planning. For patients with PICCs, it becomes a moment of attention, as there is diverse evidence that carelessness with catheters during the bath is a risk factor for complications<sup>(10)</sup>. In the current study, body hygiene was a frequent report both among patients and among nurses. As it is one of the daily activities that most demands attention and skill, for some patients, the bathing time may be linked to a limitation of their autonomy and the need for help from family members and caregivers, which can significantly impact the

adaptive response of the individual's role in the family and the environment.

The Brazilian culture has the habit of a daily aspersion bath. An American cohort study that monitored hospitalized patients or not until PICC removal or death due to complications observed the hygiene practices when possible, and found that 27% of these patients performed aspersion baths with PICC covers on and that 21% cleaned themselves with a sponge; this practice was not associated with the risk of infection or DVT<sup>(11)</sup>. Another qualitative study conducted in Spain with PICC home use in cancer patients showed among its reports that one of the patients changed the daily aspersion bath habit to perform it less frequently<sup>(12)</sup>.

Sleep is a physiological parameter inherent to human beings and an important factor for regulating body homeostasis. According to the nurses' testimonies, the care guidelines during sleep are generally effective, as sleeping was not a factor of concern for the patients. In addition, the statements reflect the patients' strategies to bring about greater comfort and safety, which shows positive adaptation responses.

Body self-image reflects the mental representation that an individual has of their body and this self-perception is influenced by affective, social and physiological experiences<sup>(13)</sup>. The presence of a PICC in social interactions can modify self-concept responses, bringing discomfort to the patient's image due to other people's curiosity or compassion, leading the patient to search for strategies to hide the PICC. Therefore, it was observed that this is a concern and that, both patients and nurses seek alternative catheter protection methods, reinforcing the concept of individual participation in self-care, as well as holistic and individualized assistance. Aspects related to beauty or femininity were not specifically reported by the female patients as was the case in the Spanish study<sup>(12)</sup>.

Leisure activities are also part of everyday life and are not discouraged. In general, the patients reported being satisfied with the freedom provided by out-of-hospital PICC use and, according to the nurses' statements, cases

of negligence and damage to the catheters are rare, which shows effective adaptive responses in maintaining activities that provide pleasure.

In the interviews, it was possible to notice a feeling of insecurity among the patients who receive the intravenous therapy indication during the outpatient medical consultation, with the need to insert a PICC. The nurses reported that the patients without previous experience with PICCs during hospitalization present higher anxiety levels and more questions regarding transitional care to the home environment, showing that adaptation and knowledge construction takes time.

With regard to monitoring the PICC conditions and maintenance procedures, there was much concern on the part of nurses regarding continuity of the care provided in other health services. This issue is contemplated in Ordinance MS/GM No. 3,390/2013<sup>(14)</sup>, which institutes the National Hospital Care Policy, by establishing the guidelines for the organization of the hospital component of the Health Care Network (*Rede de Atenção à Saúde*, RAS), and defining the term "responsible discharge" as "care transfer", which includes "guidance of patients and family members regarding continuity of the treatment" and also the "articulation of care continuity with the other points of care in the RAS, Primary Health Care in particular".

However, in the interviews it was stated that, after discharge, there are situations of alternating the patients' care locus between the PHC service, DH or Emergency (ER) units, due to their different open hours. The practice of referring users to different care levels, known as referral and counter-referral, implies co-responsibility for care, but the professionals involved in this chain of care do not always have sufficient training. For this reason, Permanent Education in Health focused on meaningful learning plays a crucial role, starting from the problematization of daily work and considering these workers' training and development needs based on the population health demands<sup>(15)</sup>. In this sense, the development of a booklet with guidelines for referral services was pointed out by the nurses as a contributing factor in the dissemination of



knowledge, improvement in care quality and mitigation of complications<sup>(16-17)</sup>.

Care longitudinality, a guideline of the Unified Health System (Sistema Único de Saúde – SUS) and a term used in Primary Health Care, also applies between different care levels and even within them, as the main focus is care comprehensiveness according to the referral and counter-referral structure. Its meaning goes beyond care continuity, as it exerts direct impacts on the adaptive interdependence mode, since the presence of a regular primary care source has an important influence on the establishment of a lasting therapeutic bond between patients and health professionals<sup>(18)</sup>. In the nurses' interviews, it was observed that the alternation of nursing professionals in patient care with different levels of knowledge about PICC management can be a complicating factor in maintaining PICC safety and functionality.

Some authors also assert that health teams from hospital institutions could make a greater contribution to the health system achieving comprehensive care if the professionals understood the importance of the referral and counter-referral process as inseparable from their therapeutic practices, and that effective comprehensive care depends on collaborative, articulated and continuous actions, involving hard, light-hard and light technologies<sup>(19)</sup>.

In the in-hospital scope, discussion of cases and knowledge exchange between multiprofessional teams is part of the assistance routine and was highlighted in the interviews. In the out-of-hospital setting there was lack of communication between the nurses, especially regarding the sharing of knowledge and patients' information. Although the training of some PHC professionals by the DH nurses to handle PICCs has shown good results, this practice is not usual, reasserting the finding of other authors about the fact that the link between the different health care levels is still insufficient<sup>(19-20)</sup>.

The importance of patients' autonomy and knowledge about the responses of their bodies

and their health was also observed, being able to recognize non-normality signs. Reports of pain as an expected sign and not a warning by patients show ignorance and undervaluation of its importance, indicating possible gaps in communication and health education. In addition to that, trivialization of pain can translate an erroneous behavior based on previous experiences in which pain was minimized by health professionals<sup>(21)</sup>.

Recurring attendance to health services was identified as an inconvenience factor. However, it is notable from the patients' narratives that PICCs bring about satisfaction and relief, mainly with regard to minimizing the need for punctures, in such a way that the patients themselves recommend their use to each other and actively request their use to the health team. Results similar to this issue were observed in a Norwegian study that evaluated the patients' perception about PICC use in three hospitals<sup>(22)</sup>.

Regarding dehospitalization, it is currently an important beneficial factor both for reasons of hospital costs with reduced hospitalization times and also for the reduction in the risk of infections and complications; as well as a perspective of better patients' adherence to care<sup>(23-24)</sup>. However, due to treatment continuity in the out-of-hospital service, the frequency of return visits that these patients will have to the health service may become a wear out aspect depending on the duration of their treatment, as seen in one of the reports.

As study limitations, it is worth mentioning that some interviews were interrupted, more than once, to carry out activities related to the care routine, which may have influenced the chain of ideas during the interview. In addition, not all interviewees contributed wealth of information.

In general, the results of this analysis generate subsidies for nurses regarding the care demands of patients using PICCs in out-of-hospital environments, allowing the guidelines provided during the discharge process to focus on the real needs of this population group.

## Final considerations

The study made it possible to identify needs, strong and wear out points, adaptive responses and strategies adopted by patients and nurses that intrinsically reflect on care, especially in terms of maintenance and prevention of complications due to the presence of a PICC, as well as the flexibility that this device grants to the patients at their homes.

The impact of using a PICC on activities of daily living can be minimized through joint monitoring and management strategies, with the ability to be leveraged based on better communication and training resources.

## Collaborations:

1 – Conception and planning of the project: Aline Mota and Ruth Turrini;

2 – Data analysis and interpretation: Aline Mota, Evellyn Mesquita and Ruth Turrini;

3 – Writing and/or critical review: Aline Mota, Evellyn Mesquita and Ruth Turrini;

4 – Approval of the final version: Aline Mota, Evellyn Mesquita and Ruth Turrini.

## Conflict of interests

There is no conflict of interests.

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