

# Quality and safety of nursing care for patients using intermittent urinary catheterization

*Qualidade e segurança do cuidado de enfermagem ao paciente usuário de cateterismo urinário intermitente*

*Calidad y seguridad de la atención de enfermería al usuario de la cateterización urinaria intermitente*

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## ABSTRACT

**Objective:** To describe risks and vulnerabilities of patients and interventions by nurses for patients with neurogenic bladder using intermittent urinary catheterization. **Methods:** Study carried out in the rehabilitation center of a university hospital in a city in the state of São Paulo in two phases. Phase 1: descriptive study carried out from November 2011 to February 2013 with patients using intermittent urinary catheterization. Phase 2: case studies of implementation of nursing interventions with these patients. **Results:** Phase 1 consisted of data collection on 168 patients. In phase 2, the following healthcare and educational practices were carried out: staff qualification, educational groups with patients, distribution of bladder diaries, assistance in obtaining materials, simulated practice, and telenursing. **Conclusion:** The interventions implemented are promising for achieving a positive impact on the treatment of these patients, providing quality and safe nursing care.

**Keywords:** Intermittent Urethral Catheterization; Health Education; Quality of Health Care; Rehabilitation; Self-Care.

## RESUMO

**Objetivo:** Descrever os riscos e a vulnerabilidade dos pacientes e as intervenções oriundas do trabalho do enfermeiro junto ao paciente com bexiga neurogênica usuário do cateterismo urinário intermitente. **Métodos:** Estudo realizado no Centro de Reabilitação de um hospital universitário do interior do estado de São Paulo em duas fases. Fase 1: estudo descritivo com pacientes usuários de cateterismo urinário intermitente, entre novembro de 2011 a fevereiro de 2013. Fase 2, estudo de caso, com implementações de intervenções de enfermagem com estes pacientes. **Resultados:** A fase 1 consistiu na coleta de dados de 168 pacientes. Na fase 2, foram inseridas no serviço as seguintes práticas: capacitação de equipe, grupos educativos com pacientes, distribuição de diários miccionais, auxílio na obtenção de materiais, treino simulado e telenfermagem. **Conclusão:** As intervenções implementadas são atividades promissoras para alcançar um impacto positivo no tratamento desses pacientes, oferecendo qualidade e segurança aos cuidados de enfermagem.

**Palavras-chave:** Cateterismo Uretral Intermitente; Educação em saúde; Qualidade da Assistência à Saúde; Reabilitação; Auto cuidado.

## RESUMEN

**Objetivo:** Describir los riesgos y la vulnerabilidad de pacientes y intervenciones procedentes de trabajos de la enfermera con los pacientes con vejiga neurógena usuario cateterización urinaria intermitente. **Métodos:** Estudio realizado en dos fases en el Centro de Rehabilitación de un hospital universitario en el estado de São Paulo. Fase 1: estudio descriptivo con pacientes usuarios de cateterismo urinario, entre noviembre de 2011 a febrero de 2013. Fase 2, estudio de caso, con las intervenciones de enfermería implementaciones con estos pacientes. **Resultados:** La fase 1 consistió en la recopilación de datos de 168 pacientes. En la fase 2, las siguientes prácticas se incluyeron en el servicio: formación del personal, grupos educativos con los usuarios, la distribución de diarios miccionales, ayuda en la obtención de materiales, entrenamiento simulado y telenfermagem. **Conclusión:** Las intervenciones implementadas son actividades prometedoras para lograr un impacto positivo en el tratamiento de estos pacientes, ofreciendo calidad y seguridad para cuidados de enfermería.

**Palabras clave:** Cateterismo Uretral Intermitente; Educación en Salud; Calidad de la Atención de Salud; Rehabilitación; Autocuidado.

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## INTRODUCTION

Quality is continuous improvement of the conditions of services, trying to meet the needs, desires, and expectations of individuals and populations.<sup>1</sup> Therefore, to provide better quality and safety in patient care, healthcare services must adopt policies to prevent unintended outcomes of treatment.<sup>2</sup>

In 2004, the World Health Organization launched the World Alliance for Patient Safety with the purpose of fighting inappropriate practices and gathering strategies for safe health care, through actions that aim to prevent and decrease the adverse outcomes of behaviors in the health care of individuals.<sup>1,3,4</sup> In health care, patient safety may be understood as the reduction of risks and adverse events to an acceptable minimum. Adverse events are understood as harm caused by care, not associated with the main disease of patients, that adversely interferes in their treatment.<sup>1</sup>

In the healthcare area, a nursing practice in which quality and patient safety are of special relevance is urinary elimination, specifically for patients with neurogenic bladder, using intermittent urinary catheterization. The treatment of these patients involves different levels of complexity and is carried out in specialized healthcare services. However, although the right to health care is a civil right established by the Federal Constitution, the number of services, human resources, and material available to provide care for all patients using urinary catheterization appropriately are limited, causing delays in their rehabilitation process. The resulting pressures have a direct influence in the work environment, especially when the patient/nurse relationship makes it difficult for nurses to achieve job satisfaction and patient safety, causing risks and negatively affecting the safety and quality of care.<sup>5</sup>

Neurogenic bladder is a term used to describe vesical-sphincter dysfunctions of neurological origin, characterized by alterations in bladder patterns in the filling, storing, and emptying phases. The medical diagnosis of neurogenic bladder is based on anamnesis, clinical examination, and laboratory and image examinations. The prognosis and treatment of patients with neurogenic bladder can only be defined after assessment through urodynamic, radiological, and ultrasound examinations, and clinical behavior of patients.<sup>6</sup>

In the care of patients with neurogenic bladder, the main focus of the work of nurses must be the social rehabilitation of patients and their caregivers. The rehabilitation process is difficult, distant, and involves psychosocial, cultural, economic, and political elements, which makes it a challenge for both patients and nurses.<sup>7-9</sup>

The utilization of clean intermittent urinary catheterization stands out among the main methods used for the treatment of patients with neurogenic bladder. It is a safe procedure that improves the self-esteem of patients, leads to bladder re-education, and promotes encouragement of spontaneous urination. In intermittent urinary catheterization, the catheter is removed immediately after the emptying of the bladder, which results in low rates of urinary tract infection.<sup>10</sup>

The role of nurses is to provide patients and caregivers with the necessary guidance and training for carrying out intermittent urinary catheterization, in order to prevent urinary infection and enable the management of the material resources required. In addition, professionals must search for ways to improve the procedure, making it more accurate and safer, with fewer risks of urethral trauma and urinary tract infection.<sup>11-15</sup>

In the rehabilitation center where the present study was conducted, there was no standardization in the guidance provided to patients using intermittent urinary catheterization. In this context, the aim of the present study was to describe risks and vulnerabilities of patients and interventions by nurses for patients with neurogenic bladder using intermittent urinary catheterization.

## METHOD

A descriptive study was carried out in the rehabilitation center of a university hospital in the city of São Paulo, with authorization by the service and the research ethics committee of the Ribeirão Preto School of Nursing at the University of São Paulo, a collaborating center for nursing research development, under protocol no. 146/2012.

The present study was carried out in two phases for the achievement of its objective. Phase 1: Descriptive study carried out by means of interviews. The data were collected from November 2011 to February 2013 during nursing consultations carried out by the researchers. All patients aged 18 years or older admitted to the center who were using intermittent urinary catheterization were included in the study. During nursing consultations, the patients were invited to participate in the study, and those who agreed to participate signed informed consent forms.

A semi-structured instrument with appearance and content validity was used for the interviews.<sup>15</sup> This instrument was made up of 37 open and closed questions that characterized the participants and collected data associated with socioeconomic status and family support, medical diagnosis, clinical tests, use of medication, use of urinary catheterization, and intestinal care. The average duration of the interviews was 20 minutes.

The data was grouped and analyzed using descriptive statistics. Statements of the participants provided through discursive responses were highlighted. The discussion of the results was based on a literature review pertinent to the proposed objectives and data presented in the form of a discursive report.

Phase 2: Encouraged by improvements in the care process, in a joint effort by the professionals of the service and the researchers, a multidisciplinary healthcare service for patients with neurogenic bladder using intermittent urinary catheterization was implemented in the rehabilitation center.

Case studies were carried out for analysis of the actions implemented. Case studies are applied in situations in which exploratory questions are raised. In this method, researchers have little control of events, and contemporary phenomena are focused on real-life contexts.<sup>16</sup>

For the development of the case studies (implementation of outpatient urinary catheterization), reports of productivity and activities carried out, protocols established, studies proposed and in progress and those already released were used, in addition to the professionals involved. A script was developed and followed to record activities, their trajectory, and the main results and conclusions, which guided the search and organization of the information collected.

The data were grouped and presented in the form of a chart and a discursive report.

## RESULTS

Phase 1 included interviews of 168 patients with neurogenic bladder using intermittent urinary catheterization who received care during the development of the study. Regarding sociodemographic characteristics, 109 (64.9%) were men and 59 (35.1%) were women. Regarding marital status, 90 (53.6%) were single, 57 (34.0%) were married or in stable unions, 12 (7.1%) were divorced, and 9 (5.3%) were widowers. With regard to education level, 13 (7.7%) were illiterate, 83 (49.4%) had incomplete or complete elementary school education, 54 (32.1%) had incomplete or complete high school education, and 18 (10.8%) had incomplete or complete higher education.

With regard to length of time using clean intermittent urinary catheterization, 1 (0.6%) patient had been using the procedure for 32 years, 2 (1.2%) for 30 years, 6 (3.6%) for 25 years, 11 (6.6%) for 20 years, 10 (6.0%) for 15 years, 24 (14.3%) for 10 years, 74 (43.7%) for 5 years, and 34 (20.1%) for 1 year; 6 (3.6%) were not able to provide that information.

The primary diagnoses that led to neurogenic bladder were spinal cord injury, myelomeningocele, spinal cord compression caused by intervertebral disc displacement or neoplasm, multiple sclerosis, cerebral palsy, prostate cancer, and tropical spastic paraparesis. Many patients reported that delays in primary diagnosis and length of time of treatment were factors that caused neurogenic bladder:

*[...] After they discovered the herniated disc, I waited for medical referral for a long time and when I was able to undergo the surgery, the doctor told me that the urine leakage problem could not be treated anymore [...] (P1); [...] I was receiving treatment for another problem, but I developed complications and almost lost my kidney, bladder, everything [...] (P2); [...] My bladder was injured when I fell down. There was not a doctor in my city to take care of this problem. I only received appropriate care when I was referred to this hospital, but then, the problem could not be treated anymore. Now, I have urine leakage in the diaper even with the probe [...] (P3).*

Most patients (102 - 60.7%), were not working and received pensions from the government. Among these patients, 56 (33.4%) had a household income of 1 Brazilian minimum wage or less, 111

(66.0%), 2 to 4 Brazilian minimum wages, and 1 (0.6%), higher than 10 Brazilian minimum wages.

Regarding the number of family members, 81 (48.1%) lived with 3 or 4 people, 52 (31.0%) with 1 or 2, and 35 (20.9%) with 6 to 9; 54 (32.1%) had children living at home.

Among the patients interviewed, 152 (90.5%) reported current and daily use of medication. Seventy-five (49.4%) reported the use of urinary antispasmodics, 61 (40.1%) the use of other medications (antihypertensive and/or antidiabetic), and 16 (10.5%) the use of antibiotics. Some patients reported continuous use of antibiotics (for more than three years) and 59 (35.1%) reported the use of antibiotics in a recent period.

Regarding the procedure, most patients had received training at the hospital where the primary diagnosis was identified. One hundred (59.5%) carried out the procedure themselves, 59 (35.1%) needed caregivers to do it, and 9 (5.4%) carried out the procedure themselves with the help of caregivers. With regard to the materials used, 142 (84.5%) received some from Brazilian public healthcare institutions.

For carrying out the procedure, 146 (86.9%) used polyethylene urinary catheters and 22 (13.1%) used glass urinary catheters. Among those who used polyethylene urinary catheters, 11 (7.5%) reused the disposable catheters and only 1 (0.7%) used lubricated catheters. Among those who reused the disposable catheters, 6 (3.6%) replaced the catheter once a week, 1 (0.6%) replaced it once a quarter, and 4 (2.4%) replaced it once a month. The patients (all women) who used glass urinary catheters only replaced them when they broke.

Among the patients interviewed, 6 (3.6%) had already made use of bladder diaries. In the intervals during the catheterization, 108 (64.3%) reported urine leakage. To contain urine leakage, 39 (36.1%) made use of disposable diapers, 5 (4.6%) made use of pads, and 97 (89.8%) reported urine leakage through their underwear (there was more than one response per participant). During the interviews, when questioned about the relevant aspects of the procedure, inappropriate practices were identified, 77 (45.7%) about hand hygiene and 30 (1.9) about intimate hygiene.

Phase 2 involved description of outpatient care that began to be implemented on November 28, 2011, after six months of planning. The activities occurred once a week and consisted of: individual and group patient care; meetings of the team, which included undergraduate and graduate students, nursing professors, and nurses. In addition, professors and physicians from the adult urology and infant nephrology specialties were part of the multidisciplinary team. All actions and integration activities of the team were coordinated by nursing professors.

The interventions carried out were based on previously presented patient diagnoses, as described in Table 1.

## DISCUSSION

The use of intermittent urinary catheterization leads to changes in independence, health, and sense of normality. It hampers social habits and work and leisure activities of patients, creating barriers to adjustment to the new reality.<sup>8,9,17</sup>

**Table 1.** Description of the interventions carried out by nurses based on previous diagnoses. Ribeirão Preto, São Paulo, Brazil, 2013.

| Actions developed  | Descriptions  |
|--|---|
| Study  | - Characteristics of the study population: The profile of the patients who received care in the service was checked with the aim of developing nursing interventions.- Proposals and protocols: A protocol for clean intermittent urinary catheterization was developed, as well as a patient care protocol to be used during nursing consultations.- Implementation of new materials: Search for resources to improve the quality of the materials provided to the patients who use the service. |
| Bladder diary  | - Development and validation: The urination characteristics of patients presented low adherence to the use of bladder diaries. In this context, a bladder diary was developed and validated. It was delivered during nursing consultations, guidance was provided for the patients, and its use was monitored.  |
| Teamwork   | - Classroom care activities and studies.  |
| Training in Human Resources  | - Training activities for the nursing team were carried out by means of workshops, lectures, and study groups.- Scientific research was carried out with the nursing and healthcare professionals, consisting of studies to support patient care strategies and publication of results in scientific articles and at events.  |
| Nursing consultations  | - Carried out by researchers: Utilizing a semi-structured instrument, patients and caregivers were trained in the practice of clean intermittent urinary catheterization during nursing consultations; patients and caregivers were assessed and trained in the acquisition, use, and management of resources; patients and caregivers were assessed and trained for social adjustment and adaptation to treatment; clinical and laboratory guidance.   |
| Group work with patients and caregivers                                  | - Group activities with patients and caregivers for the exchange of experiences, guidance, and training.  |
| Simulated practice   | - Training in low-fidelity simulators characterized by anatomical silicone items, anatomical items, and static infant manikins that allowed patients and caregivers to insert and visualize the urinary catheter, and to undertake the urinary catheterization procedure.   |
| Telenursing  | - Assistance by phone, chat, e-mail, and video call to patients (implementation phase) for guidance on clean intermittent urinary catheterization and clinical treatment in the rehabilitation process.   |
| Guidance and support for the use of resources ensured by public policies | - Guidance for patients and caregivers on receiving materials for treatment and carrying out clean intermittent urinary catheterization. Continuous contact with programs in the for follow-up and update of the proposed protocols that indicated the material distributed.  |

Continuing planning involving psychosocial, cultural, political, and economic elements is required for the effectiveness of treatment, which is a challenge for patients and caregivers, and especially for healthcare professionals. The intermittent urinary catheterization procedure must be effective and should not interfere with the daily activities of patients, especially work and leisure. For this purpose, the adjustment of the procedure with the individual routines of patients is required, which leads to a need for a planning jointly with skilled nurses.

In the present study, most patients in the sample presented a high level of vulnerability, because they had a low level of education, unstable or nonexistent marital status, and absence of an occupation, and lived in populous environments. In addition,

most were affected by spinal cord injuries, had late diagnoses, and some reported that they were victims of negligence and lack of commitment from services and professionals.

When receiving training in carrying out intermittent urinary catheterization, most professionals were trained with unsafe techniques and currently used inappropriate materials that did not consider patient characteristics and did not focus on currently recommended antisepsis procedures. There was some reuse of disposable materials and inappropriate resources, such as proscribed glass urinary catheters, which had been introduced in the institution in the nineties without evidence in the literature,<sup>18</sup> and were still distributed to patients unable to adapt to the use of disposable catheters.

Among the participants, the techniques presented for the procedure were routinely described in inaccurate and unsafe ways, without updates, putting patients and their immunological systems at risk.<sup>19-21</sup> The participants reported treatment processes without a scientific basis (three consecutive years using antibiotics), or that did not consider their daily activities (urine leakage in their underwear). Consequently, these processes might become stressful factors in their routines, affecting or diminishing their quality of life, and minimizing understanding of their rehabilitation process and political rights as citizens.<sup>22,23</sup>

In this universe, as part of an intrinsic process of achieving goals for quality and safety of care practices based on autonomy, development of team relationships, and professional valuation<sup>24</sup> of ensuring quality and safety of care, the planning of effective strategies valuing identified problems and available resources is of the utmost importance. For this purpose, simple training actions for professionals and patients were carried out, resources and documentation were sought to provide patients with comfort and well-being, as well as the best possible treatment for each individual, always aiming at quality and safety of care, as described in Table 1.

With regard to the training of patients, nursing consultations, work in groups, and use of simulation and telenursing are highlighted. Nursing consultations provide a single moment for the establishment of mutual trust and teamwork between professionals and patients.<sup>15</sup> They promote the visibility of the work of nurses, provide data collection, and allow for the development of clinical and educational interventions.<sup>5,7,10</sup>

Work with groups is a resource with great potential that involves the best adaptation of patients to the health-illness process. The purpose of groups is to help patients understand the daily problems and complications of the disease to improve their lives, adapt to the environment, and interact with people. In the sample studied, group meetings occurred once a week in the waiting room and had a positive effect, since the participants shared their anxieties and experiences.<sup>15</sup> In the reality described, the group activities emerged from the need for meeting problems identified in individual interviews, such as lack of information regarding the use of intermittent urinary catheterization, difficulty in acquiring materials for the procedure, carrying out the procedure in inappropriate ways, and recurrent urinary infections. Development of groups allows patients and caregivers to learn by exchanging positive experiences. Groups can also optimize resources and allow promotion of healthcare actions and training for professionals involved with quality and safety of treatment.

Regarding the use of technologies, telenursing and the use of simulation are highlighted. Telenursing can be implemented through the use of telephones, chat, e-mail, and video calls. It expands nursing possibilities, including guidance and follow-up with patients, families, and communities, enabling more efficient use of time, space, and resources, and encouraging care and self-care.<sup>25</sup> In addition, simulation is a cognitive and behavioral educational process that leads to high levels of self-esteem and

self-confidence, increasing internalization of information and satisfaction with the learning process.<sup>26</sup> In intermittent urinary catheterization, the use of simulators in the binomials of patients/professionals and caregivers/professionals fulfils the verbalized teaching and brings the access to procedures and the reality experienced to patients/caregivers, which enables the correction of errors and provision of self-care.<sup>27</sup>

Bladder diaries are low-cost instruments that are of utmost importance in the identification of the urinary habits of patients with neurogenic bladder.<sup>28</sup> They are considered to be a non-invasive urodynamic method of study that supports correct diagnosis of urinary problems, enables assessment of the gravity of symptoms, and provides assessment of therapeutic methods used in the treatment of urinary incontinence.<sup>29</sup> They were introduced in this population for the planning of patient care, since they were not used by the sample studied.

Regarding activities of the healthcare team, guidance and support for the use of resources ensured by public policies, the use of protocols, teamwork, professional training, and searching for resources are worth mentioning. From this perspective, activities were proposed and developed in the controlled, safe environments of internal and external training. This facilitated judgement and clinical reasoning, scientific development based on teaching and assistance, preserving patients and promoting better results of care.<sup>5,30</sup> These activities encouraged healthcare teamwork and the work of the nursing team, with a focus on undergraduate and graduate students, professors of nursing, and assistance nurses, disseminating and deepening knowledge and interventions for higher-quality and safer practice.<sup>31</sup>

Standardization of procedures is an essential tool for modeling management and qualitative systems, contributing to implementation of new technologies, job satisfaction of teams, improvement of care, and guaranteeing patient rights.<sup>32</sup> In this context, the present study carried out and expanded external actions that involved nurses in discussion and government protocols, so that nurses can support proposed activities, ensuring excellence of care for patients with neurogenic bladder using intermittent urinary catheterization.

## CONCLUSION

In Brazil, although healthcare is a right of citizens and responsibility of the government, a high level of vulnerability of patients with neurogenic bladder using intermittent urinary catheterization was found in the sample studied, associated with scarce resources, lack of experience and attitudes of some professionals, delay in medical diagnoses, lack of structure and follow-up of treatments, which puts the safety and quality of care at risk.

Therefore, in the institution studied, the main nursing actions proposed and implemented to reduce risks and vulnerabilities of patients are under development, with the purpose of improving nursing care for patients using intermittent urinary

catheters. Further studies are in development and are required to corroborate the results of this study. Although no scientific evidence is available on its effectiveness, the satisfaction of patients and adherence to these strategies show that these are promising activities to achieve a positive impact on the reality of these patients' treatment.

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