



## Mapping of health services to urinary catheter users: challenges for the advanced nursing practice

Mapeamento dos serviços de saúde aos usuários de cateterismo urinário: desafios para a prática avançada de enfermagem

Mapeo de servicios de salud a usuarios de cateterismo urinario: desafíos para la enfermería de práctica avanzada

### How to cite this article:

Castilho SS, Blanco J, Luvizutto J, Savassi DG, Sousa LA, Fumincelli L. Mapping of health services to urinary catheter users: challenges for the advanced nursing practice. *Rev Esc Enferm USP*. 2022;56(spe):e20210437. <https://doi.org/10.1590/1980-220X-REEUSP-2021-0437en>

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### ABSTRACT

**Objective:** To map and to identify the material distributed in the health care network to urinary catheter users in a municipality in the state of São Paulo, Brazil. **Method:** Quantitative, descriptive-exploratory study, carried out with supervisors and/or managers of health services and a unit of distribution of materials used by urinary catheter users. Data were collected using a questionnaire and an interview via electronic form and analyzed by descriptive statistics. **Results:** Health services to urinary catheter users were mapped in five health regions: health centers, family health units, outpatient clinics, specialized centers, hospitals, and emergency care units. Intermittent catheter and indwelling catheter were the distributed materials, along with other essential materials. **Conclusion:** The study shows the high number of distributed urinary catheters; primary health care was the service that directed the care from the materials distribution. It is concluded that mapping the provided care allows for understanding the provided care as well as fostering future studies addressing healthcare network strategies for users of urinary catheter.

### DESCRIPTORS

Health Services; Nursing; Urinary Catheterization; Unified Health System; Delivery of Health Care.

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Received: 11/04/2021  
Approved: 03/08/2022

## INTRODUCTION

According to the National Primary Health Care Policy (NPHCP/*PNAB*), Primary Health Care (PHC) is characterized by a set of individual and collective health actions, including promotion, protection, prevention, diagnosis, treatment, rehabilitation, and maintenance of health based on the territory<sup>(1)</sup>. The territory consists of a living, vibrating space, formed by social, economic, and political interrelations existing there<sup>(1-3)</sup>.

Territorialization includes the demarcation of boundaries of the operating areas of services, as well as the recognition of the environment, population, social dynamics, and local and horizontal relations with other services. This process transcends the political-administrative dimension and is relevant for managers, health agents, and the entire community, as territorialization assists in the planning of actions and decision-making of the health team in an ascending way, comprising sociocultural and economic aspects present in the territory and the people who live in it<sup>(2-3)</sup>. Health care should be directed to the user, caregiver, and the community, considering the required levels of care, needs, and possibilities of each territory<sup>(4)</sup>.

Considering the specificities of users with lower urinary tract symptoms and bladder dysfunctions, it is observed that among the most prevalent juvenile causes are dysfunctions of neurological or behavioral origin, while the main adult causes are urinary incontinence, cervical spine trauma, multiple sclerosis, Parkinson's disease, and cerebrovascular accident<sup>(5-8)</sup>. When taking these specificities into account, based on the NPHCP perspective, it is expected that the nursing team, from the multidisciplinary and interdisciplinary work, develops actions aimed at these users, their family members, and caregivers, who are at the center of care. These actions include knowing families with the specificities in their territories to develop and implement strategies for coordination of health care in the Health Care Network (HCN/*RAS*) and in the health education network<sup>(6)</sup>.

In this sense, specific care is related to the management and training for procedures, training of clean intermittent catheterization, home care, evaluation of the urinary system, identification of possible urinary complications, and adaptations in activities of daily living<sup>(5,7-8)</sup>. The importance of Advanced Practice Nursing (APN) in the care process of individuals with urinary alterations is highlighted, considering that APN comprises specialized knowledge on Nursing, skills for complex decision-making, and clinical competencies for a problem-solving, safe, and effective practice<sup>(7)</sup>.

Among the main treatments for bladder and urinary dysfunctions is urinary catheterization, a procedure that can be performed continuously or periodically (intermittently). The indwelling catheter, one of many process, consists of the continuous bladder drainage procedure, based on an aseptic technique and a closed system between the indwelling catheter and the urine collection bag. Conversely, the intermittent catheter is the main treatment for these dysfunctions and consists of the technique of periodic bladder emptying through the introduction of an intermittent catheter via the urethra, removing it after drainage<sup>(8-10)</sup>.

Thus, the coordination of care in the HCN aimed at people with bladder dysfunctions essentially requires the recognition of the territory, in which mapping emerges as an alternative

for the greater involvement of the team and the population in the territorialization process; for the characterization of the population and its health problems; for the evaluation of health services regarding this population; and for understanding the association between economic, social, and cultural conditions<sup>(11)</sup>.

For the healthcare team, mapping assists in an increasingly efficient management, based on the knowledge of local characteristics and the magnitude and distribution of a certain health condition in the HCN. Moreover, to understand and to know the health services utilized by urinary catheter users and how the APN is adequate for these users, it is necessary, for example, to identify gaps in the network, seeking to develop future interventions and ensure greater autonomy and self-care. In addition, the location in which these individuals live and the needs created by the treatment directly interfere in health promotion<sup>(1)</sup>. Hence, this study aims to map the health services of the health care network to urinary catheter users in a municipality of the state of São Paulo, Brazil, and to identify the materials distributed by the health care network to these users in the Brazilian Unified Health System (SUS).

## METHOD

### TYPE OF STUDY

Descriptive-exploratory study with a quantitative approach<sup>(12)</sup>.

### STUDY POPULATION

This study was carried out with all supervisors and managers of the HCN of the municipality, whose contact was provided by the Municipal Department of Health (MDH/*SMS*).

### STUDY LOCATION

The research was carried out in a HCN, which is divided into five health areas or regions, in a municipality of the state of São Paulo.

### DATA COLLECTION

Data collection was performed via a questionnaire and an interview, using an electronic form created by the researchers. Emails with invitations to participate in the study and the informed consent form were sent to the participants. This study objectives, instrument, participant's participation, and the entire research were explained in this document. The adopted instrument included items about the health care provided to these users in the municipal health system, the materials available for urinary catheterization, the health services associated with this procedure, and the health actions developed with these users both in the periodic treatment and in the daily use of urinary catheter. The average time to answer the form was 30 minutes. Data were collected from December 2020 to March 2021.

### DATA ANALYSIS AND PROCESSING

The collected data were previously coded and entered in a formatted database in the Excel spreadsheet editor, by double typing. Subsequently, database validation was performed by comparing the variables of the two spreadsheets, through the subtraction operation. From this operation, the cells that presented values other than zero were considered indicative of

inconsistent data, and it was necessary to consult the original collection instrument and make the appropriate corrections. Descriptive statistical analysis of categorical variables was presented as absolute frequency (AF) and relative frequency (RF), whereas for the description of numerical variables, measures of central tendency, variability, and position were used.

### ETHICAL ASPECTS

This study was approved by the Research Ethics Committee of the Universidade Federal de São Carlos, CAAE No. 27238819.9.0000.5504.

### RESULTS

To better understand the obtained results, they are presented by the mapping of health services of the HCN aimed at users of urinary catheter and devices distributed in the SUS by the HCN to these users.

### MAPPING OF HEALTH SERVICES OF THE HCN AIMED AT URINARY CATHETER USERS

Table 1 presents the 11 different health services identified for urinary catheter users in the HCN.

The HCN of the studied municipality is divided into five health regions (HR), which are responsible for coordinating the Health Units and providing comprehensive care to individuals. In this study, the HR were named by colors, and the services aimed at urinary catheter users for each HR are distributed as follows: Yellow HR: three Health Centers (HCs/UBSs), seven Family Health Units (FHUs/USFs), one *Unidade Saúde Escolar* (HSU/USE), one University Hospital, and two areas; Green HR: one HC, one Emergency Care Unit (ECU/UPA), and six FHUs; Purple HR: three HCs, one ECU, five FHUs, one Oncology Outpatient Clinic, and one Almshouse; Orange HR: three HCs, three FHUs, and one Specialization Center (SC/CE); and Brown HR: two HCs, one ECU, and one FHU.

**Table 1** – Health services of the HCN to urinary catheter users. January to March 2021 – São Carlos, SP, Brazil.

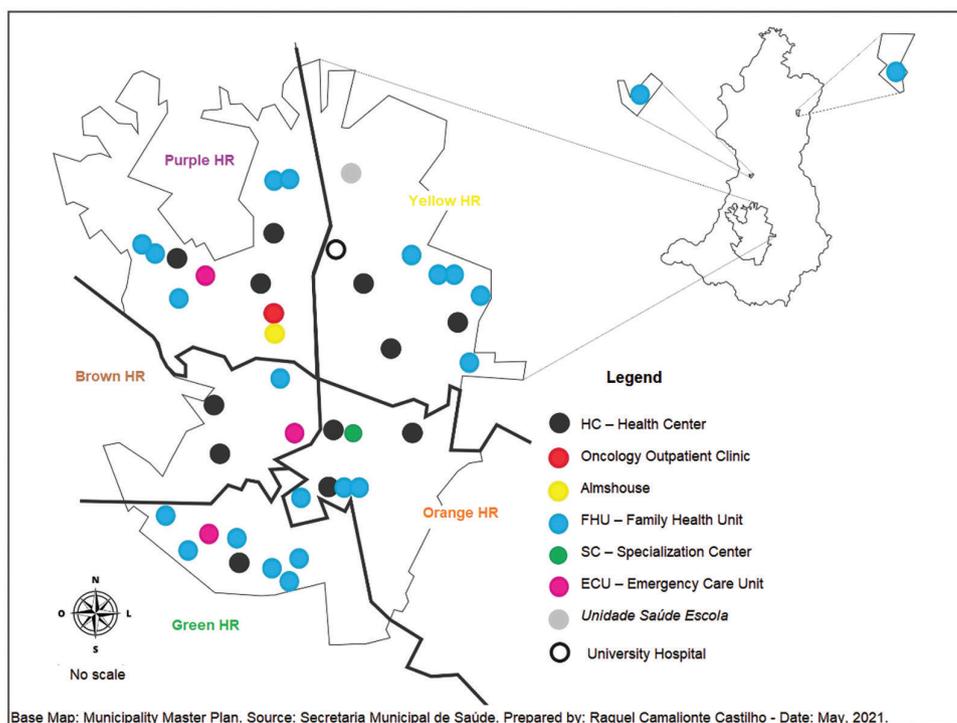
Location	AF	RF (%)
Health center	17	25.00
Specialization center	9	13.23
Emergency care unit	8	11.77
Almshouse	8	11.77
Health school unit	7	10.30
Hospital	6	8.82
Mobile emergency care service	5	7.35
Family health unit	4	5.88
Oncology outpatient clinic	2	2.94
Psychosocial care center	1	1.47
Specialized rehabilitation center	1	1.47
Total	68	100

HR: one HC, one Emergency Care Unit (ECU/UPA), and six FHUs; Purple HR: three HCs, one ECU, five FHUs, one Oncology Outpatient Clinic, and one Almshouse; Orange HR: three HCs, three FHUs, and one Specialization Center (SC/CE); and Brown HR: two HCs, one ECU, and one FHU.

Figure 1 shows the location and distribution of health services per HR in the studied municipality.

### MATERIALS DISTRIBUTED IN THE SUS BY HCN TO URINARY CATHETER USERS

In a material distribution center, the supply of urinary catheters to the Health Units of the municipality was identified. The urinary devices distributed in the SUS are predominantly the

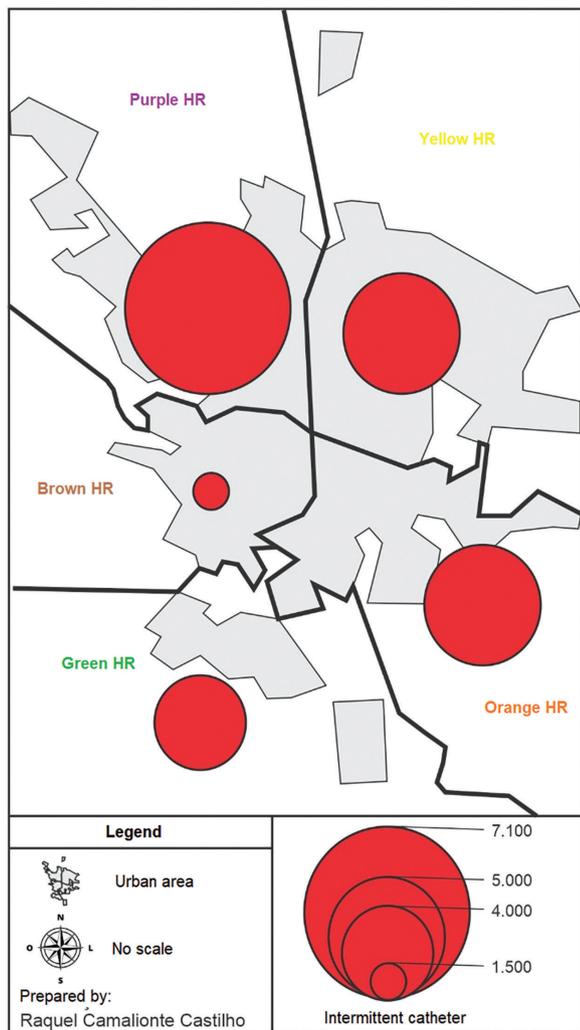


**Figure 1** – Location and distribution of health services per HR in the municipality of the state of São Paulo, Brazil, 2021.

Source: Secretaria Municipal de Saúde.

**Table 2** – Materials collected by urinary catheters users in the SUS health service from January to March 2021 – São Carlos, SP, Brazil, 2021.

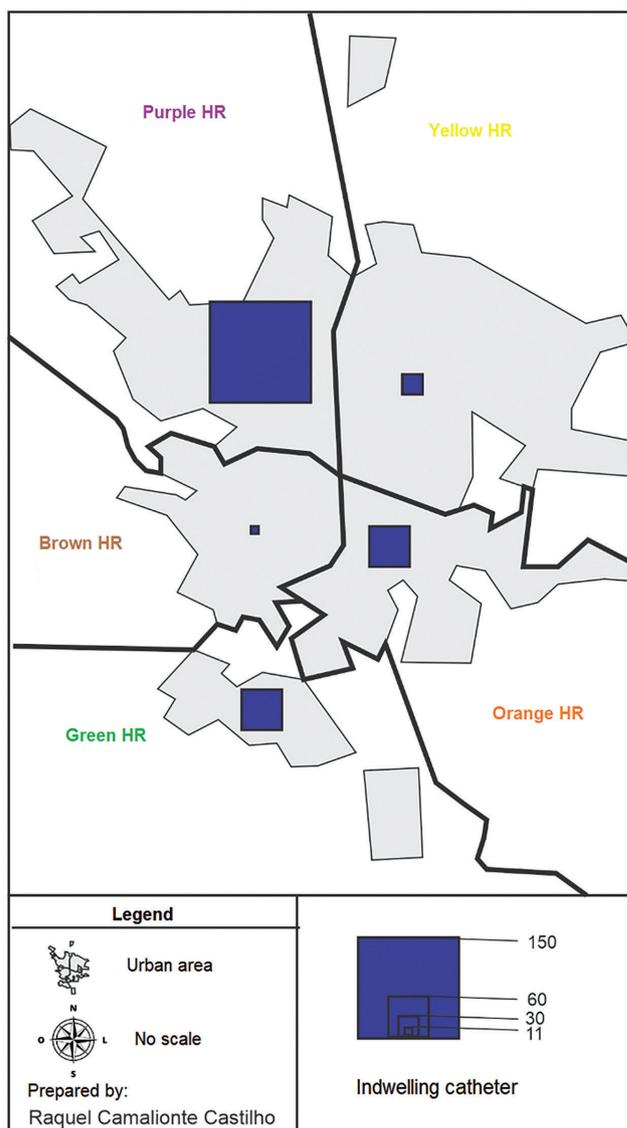
Material	AF	RF (%)
Intermittent catheter	13	33.34
Indwelling catheter	11	28.20
Procedure gloves	7	17.95
Lidocaine	3	7.70
Diaper	2	05.13
Saline solution	1	02.56
Gauze	1	02.56
Dressing material	1	02.56
Total	39	100



**Figure 2** – Distribution of intermittent urinary catheters per HR in the studied municipality, state of São Paulo, Brazil, 2021.

intermittent catheter and the indwelling catheter, along with other materials necessary for performing the catheterization. Table 2 shows the materials collected by users of urinary catheters in the SUS.

Figures 2 and 3 show the mapping regarding the distribution of intermittent and indwelling urinary catheters per health region of the HCN, respectively.



**Figure 3** – Distribution of urinary indwelling catheters per HR in the municipality of the state of São Paulo, Brazil, 2021.

According to the mapping of the HCN and considering that a total of 12 HCs and 22 FHUs were identified in the studied municipality, 31.8% (n=7) of the FHUs and 66.7% (n=8) of the HCs provided indwelling catheters, and all HCs were identified as providers of intermittent urinary catheters, totaling 22,458 intermittent catheters and 283 indwelling catheters available in the municipality. In the study period, six FHUs were not identified in the distribution of urinary devices by this distribution unit.

A total of 23 urinary catheter users in the municipality's Health Units were identified by the supervisors. In this study, it was evidenced that half of the evaluations for urinary catheter use are performed by the medical team. Regarding received medications, 52.17% (n=12) receive medications from the public health system. Among the procedure materials, the collection sites are predominantly the HCs (73.9%), and urinary catheters are the most prevalent materials in health units, accounting for approximately 61%; the frequency of this collection is mostly maintained at 50% monthly and 31.9% daily.

## DISCUSSION

Throughout the life cycle, individuals with chronic health conditions, including bladder and urinary dysfunctions, go through different healthcare levels and services of the HCN. In this study, the distribution of materials for urinary catheterization predominantly occurs in the HCs and FHUs (Table 1 and Figure 1), which are in direct contact with urinary catheter users, thus evidencing PHC as the “gateway to the SUS”.

According to the NPHCP, as the individual's first contact with the health system, PHC is the users' preferred means for entry and communicating with the HCN<sup>(13)</sup>. Hence, this study highlights the HC as the main service used by urinary catheter users. Furthermore, PHC also plays an essential role in the process of coordination of comprehensive care, in which the HCN acts as an articulated set of health services linked to PHC and interdependent, whose objective is to promote comprehensive and continuous care, with quality and in a humanized way, of the needs of each citizen<sup>(13-14)</sup>.

In the HCN of the present study, the different services that operate in the care of urinary catheter users (Table 1) are evidenced through the connection of the services, enabling the multiprofessional management to comprise the needs of the individual in a comprehensive way. Therefore, practices through the HCN favor a comprehensive performance at all levels of health care, as they enable a broad visualization of the relationships of services with the user and a real mapping and problematization of the required care, as an important strategy for planning and managing health services<sup>(15)</sup>.

Considering technological advances and the increasing survival of children and adolescents with chronic and/or disabling diseases, as well as chronic comorbidities in adults and older people<sup>(16-18)</sup>, it is paramount to organize actions and services for the promotion, prevention, and rehabilitation of people at all levels of health care. The coordination of health services by the HCN considers the territory and connection of different professional knowledge and technologies, in such a way that the citizen can access them according to their health needs<sup>(15;6)</sup>.

Within this context, studies have demonstrated the importance of territorial, family recognition, and that related to all physical human interactions through the HCN, as they allow better planning of health care in the recovery of chronic diseases and continuity in the proposed therapies<sup>(4;19-23)</sup>. For the healthcare team, mapping assists in an increasingly efficient management, based on the knowledge of local characteristics and the magnitude and distribution of a certain health condition in the HCN.

As for the use of urinary catheter by the 23 users identified, nurses are responsible for the evaluation and performance of intermittent or indwelling urinary catheterization, as provided in the COFEN (Brazilian Federal Council of Nursing) Resolution No. 450/2013, because it is an invasive procedure that involves risks to individuals such as greater vulnerability to urinary tract infections and traumatic injury of the urethra or bladder<sup>(24)</sup>. Thus, urinary catheterization involves technical-scientific knowledge and decision-making ability on the part of the nursing team<sup>(25)</sup>. However, physicians are responsible for prescribing the procedure<sup>(26)</sup>. About 70% of the healthcare professionals in

Brazil work in the nursing field<sup>(27)</sup>, and these professionals are at the forefront of PHC; it is understood that the prescription restricted to professionals in the medical field becomes an obstacle in the management of this clinical condition.

The use of the catheter modifies the users' independence, being necessary, for the treatment to be effective, continuous planning and the involvement of psychosocial, economic, and cultural aspects. Health training is also an important competence of nurses and, for urinary catheterization, whether intermittent or indwelling, their training involves the users and their caregivers beyond the procedure itself, in such a way that they also deal with noninvasive techniques such as micturition diary, urotherapy, feeding, bowel frequency, among others<sup>(7)</sup>. The increasing need for urological care makes advanced practice nurses achieve better clinical results, better efficiency of services and cost-effectiveness, reduction of waiting times for medical appointments and, finally, the performance of procedures with high levels of patient satisfaction<sup>(28)</sup>.

APN professionals in urology are qualified to perform functions that transcend traditional ones – such as management of symptoms, complications, and interventions in direct care; procedures, such as ultrasound, urodynamics, cystoscopy, ureteral stent removal, biopsy and management of prostate cancer, among others. These functions require professionals to have in-depth knowledge in a specific area; in addition, the team is responsible for providing information, promoting health education, and supporting individuals and their families<sup>(7;17;28-30)</sup>. Even with the certification and denomination already regulated in North America, Europe, and Australia, APN is not yet recognized in Latin America; nevertheless, it is possible to identify these actions in Brazil<sup>(30)</sup>.

The high distribution of materials in the municipality (Figures 2 and 3) demonstrates the prevalence of this clinical condition. In this way, the existence of the APN increases the autonomy of nurses and contributes to the improvement of the health care, aiming at a satisfactory quality of life from the recovery or maintenance of their condition and prevention of the emergence of new comorbidities, based on biopsychosocial understanding of the individual<sup>(18)</sup>.

In this context, it is emphasized that individuals with voiding alterations, submitted to a complex treatment process, especially in primary health care, need access to the different health services and social equipment of the HCN, trained professionals, and technological resources of different natures such as empathy, welcoming, urinary catheter management, appropriate catheterization technique, among others.

## CONCLUSION

The study shows the high number of intermittent and indwelling urinary catheters distributed in all health regions of the HCN of the municipality and, consequently, the prevalence of users with these clinical conditions. Moreover, PHC organizes health services based on the distribution of materials and medicines and constitutes a gateway to other services in the HCN, which can favor and enhance the coordination of the care network in the SUS.

Mapping the HCN enables researchers to know the therapeutic course in the different health services and social equipment used by these patients and their families, as well as to

analyze the care provided to users of urinary catheters, caregivers, and the community. Therefore, this mapping is fundamental to support the coordination of the care provided by health services to these individuals in the HCN, besides enabling the

development of future studies and strategies of care network, considering the different services, the territory, and the residence that favor access and comprehensive care of people using urinary catheters.

## RESUMO

**Objetivo:** Mapear e identificar os dispositivos dispensados na rede de atenção à saúde aos usuários de cateterismo urinário de um município do interior do Estado de São Paulo. **Método:** Estudo quantitativo, descritivo-exploratório, realizado com os supervisores e/ou gestores de serviços de saúde e uma unidade de distribuição de materiais utilizados por usuários de cateterismo. Os dados foram coletados utilizando-se questionário e entrevista via formulário eletrônico e analisados por estatística descritiva. **Resultados:** Foram mapeados os serviços aos usuários de cateterismo urinário em cinco regiões de saúde: unidades básicas, unidades de saúde da família, ambulatorios, centros especializados, hospitais e unidades de pronto atendimento. Os dispositivos urinários dispensados foram o cateter intermitente e o de demora, junto a outros materiais necessários para o procedimento. **Conclusão:** O estudo revela a alta quantidade de cateteres urinários distribuídos; a atenção primária à saúde foi o serviço que direcionou o cuidado a partir da distribuição de materiais. Conclui-se que a construção de um mapa do cuidado oferecido possibilita a compreensão do cuidado ofertado e o desenvolvimento de demais estudos com estratégias de cuidado em rede aos usuários de cateterismo urinário.

## DESCRITORES

Serviços de Saúde; Enfermagem; Cateterismo urinário; Sistema Único de Saúde; Atenção à Saúde.

## RESUMEN

**Objetivo:** Mapear e identificar los dispositivos que disponen en la red de atención a usuarios de cateterismo urinario en una ciudad del estado de São Paulo. **Método:** Estudio cuantitativo, descriptivo exploratorio, realizado con supervisores y/o gestores de los servicios de salud y una unidad de distribución de materiales utilizados por los usuarios de cateterismo. Para la recolección de datos se utilizaron el cuestionario y la entrevista a través de un formulario electrónico; y para el análisis, la estadística descriptiva. **Resultados:** Se mapearon los servicios para usuarios de cateterismo urinario en cinco regiones de salud: unidades básicas, unidades de salud familiar, ambulatorios, clínicas especializadas, hospitales y unidades de urgencias. Los dispositivos urinarios que disponen fueron el catéter intermitente y el catéter permanente, además de otros materiales necesarios para el procedimiento. **Conclusión:** El estudio apunta al elevado número de catéteres urinarios distribuidos; la atención primaria de salud fue el servicio que más brindó cuidados a partir de la distribución de los materiales. Se concluye que la construcción de un mapa del cuidado possibilita identificar el cuidado ofrecido y el desarrollo de otros estudios con estrategias de cuidado en red para los usuarios de cateterismo urinario.

## DESCRIPTORES

Servicios de Salud; Enfermería; Cateterismo Urinario; Sistema Único de Salud; Atención a la Salud.

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