

# Evaluative study of nursing consultation in the basic networks of Curitiba, Brazil

ESTUDO AVALIATIVO DA CONSULTA DE ENFERMAGEM NA REDE BÁSICA DE CURITIBA - PR

ESTUDIO EVALUATIVO DE LA CONSULTA DE ENFERMERÍA EN LA RED BÁSICA DE CURITIBA, PARANÁ, BRASIL

Sandra Honorato da Silva<sup>1</sup>, Marcia Regina Cubas<sup>2</sup>, Maira Aparecida Fedalto<sup>3</sup>, Sandra Regina da Silva<sup>4</sup>, Thaís Cristina da Costa Lima<sup>5</sup>

## ABSTRACT

The implementation of the electronic health record in the basic networks of Curitiba enabled an advance in the implementation of the nursing consultation and the ICNPCH<sup>®</sup>, whose modeling uses the ICNP<sup>®</sup> axes structure and the ICNPCH<sup>®</sup> list of action. The objective of this study was to evaluate the nursing consultation from the productivity and assistance coverage perspective. The studied population was obtained from a secondary database of nursing consultations from April to June of 2005. The analysis was performed using the Datawarehouse and OLAP tool. The productivity per professional was found to be 2.5 consultations per day. Professionals use 16% of their daily work time with this activity and up to 27% of their potential per month. The ICNPCH<sup>®</sup> was used in 21% of the consultations. There is a 0.08 consultation coverage per inhabitant for 6% of the population. The nursing consultation makes it possible to characterize the nurses' role in health care and a new professional position capable of affecting the construction of public politics.

## KEY WORDS

Nursing assessment.  
Nursing care.  
Classification.  
Public health nursing.  
Nursing informatics.

## RESUMO

A implantação do prontuário eletrônico na rede básica de Curitiba propiciou um avanço, com a implantação da consulta de enfermagem e da CIPESC<sup>®</sup>, que utilizou para sua modelagem a estrutura de eixos da CIPE<sup>®</sup> e a lista de ações CIPESC<sup>®</sup>. Este estudo tem como objetivo avaliar a consulta de enfermagem na ótica da produtividade e cobertura assistencial. A população foi constituída da base de dados secundária, de consultas de enfermagem realizadas de abril a julho de 2005. A análise foi realizada com Datawarehouse e a ferramenta OLAP. A produtividade por profissional é de 2,5 consultas/dia, utilizando 16% da jornada diária nesta atividade e 27% do potencial/mês. A CIPESC<sup>®</sup> foi utilizada em 21% das consultas. A cobertura de 0,08 consulta/habitante atinge 6% da população. A consulta de enfermagem possibilita a caracterização do papel do enfermeiro no cuidado à saúde, e um novo posicionamento profissional capaz de influenciar a construção de políticas públicas.

## DESCRIPTORIOS

Avaliação em enfermagem.  
Cuidados de enfermagem.  
Classificação.  
Enfermagem em saúde pública.  
Informática em enfermagem.

## RESUMEN

La implantación de la historia clínica electrónica en la red básica de Curitiba propició un avance en la implantación de la consulta de enfermería y de la CIPESC<sup>®</sup>, que utilizó para su diseño la estructura axial de la CIPE<sup>®</sup> y la lista de acciones CIPESC<sup>®</sup>. Este estudio tiene como objetivo evaluar la consulta de enfermería bajo la óptica de la productividad y la cobertura asistencial. La población fue constituída a partir de la base de datos secundaria de consultas de enfermería realizadas entre abril y julio de 2005. El análisis fue realizado con Datawarehouse y la herramienta OLAP. La productividad por profesional es de 2,5 consultas/día. El enfermero utiliza el 16% de su jornada en esta actividad, y el 27% del potencial/mes. La CIPESC<sup>®</sup> fue utilizada en el 21% de las consultas. La cobertura de 0,08 consultas/habitante alcanza al 6% de la población. La consulta de enfermería posibilita la caracterización del papel del enfermero en el cuidado de la salud y un nuevo posicionamiento profesional capaz de influir en la construcción de políticas públicas.

## DESCRIPTORIOS

Evaluación en enfermería.  
Atención de enfermería.  
Clasificación.  
Enfermería en salud pública.  
Informática aplicada a la enfermería.

<sup>1</sup>RN. Ph.D. in Nursing. Faculty, Graduate Program in Health Technology and Nursing Course at Pontifícia Universidade Católica do Paraná. Curitiba, PR, Brazil. [sandra.honorato@pucpr.br](mailto:sandra.honorato@pucpr.br) <sup>2</sup>RN. Ph.D. in Nursing (Collective Health). Faculty, Graduate Program in Health Technology and Nursing Course at Pontifícia Universidade Católica do Paraná. Curitiba, PR, Brazil. [m.cubas@pucpr.br](mailto:m.cubas@pucpr.br) <sup>3</sup>RN. Specialist in Occupational Health Nursing. Nurse at Curitiba Municipal Health Secretary. Curitiba, PR, Brazil. [ma\\_fedalto@yahoo.com.br](mailto:ma_fedalto@yahoo.com.br) <sup>4</sup>RN. Student in Specialization Course in Intensive Care Unit, Universidade Positivo. RN at Hospital de Clínicas, Universidade Federal do Paraná. Curitiba, PR, Brazil. [aiasilva@yahoo.com.br](mailto:aiasilva@yahoo.com.br) <sup>5</sup>Undergraduate student in Nursing at Pontifícia Universidade Católica do Paraná. Curitiba, PR, Brazil. [thiza\\_lima@yahoo.com.br](mailto:thiza_lima@yahoo.com.br)

## INTRODUCTION

The consolidation of Health Units (HU) as the front door to the Unique Health System (the Brazilian national public health system, *Sistema Único de Saúde*) evidenced the need for using information technology to document the process of nursing care and health action planning and make them operational<sup>(1)</sup>. Implementing the use of technologies is a challenge for health care services, considering that workers and users are affected by the need to adapt to the new ways of performing an activity<sup>(2)</sup>. Technological innovations are implemented according to a relatively predictable standard, referred to as technological life cycle, which begins with recognizing a need and the perception of how to satisfy it, adding that knowledge to technological information. The process is usually slow and susceptible to approvals or complaints from those benefiting from it, until it is possible to prove its feasibility<sup>(3)</sup>.

In 2005, the International Classification of Nursing Practice in Collective Health (CIPESC®, abbreviation in Portuguese) was implemented in the computerized medical records systems of the Municipal Health Department (MHD) of Curitiba (Paraná state) as a tool for nursing consultations. The CIPESC proved to be a health technology system capable of generating a broad database, which helps with performing detailed variable analysis, and provides quick access and transmission of data and information.

Nursing consultation, as conceived and shaped for the Curitiba MHD computerized medical records system, was based on the eight-axes model of Nursing Phenomena Classification, comprised in the International Classification for Nursing Practice (ICNP®-Beta 2). Two axes were used at all times: Focus of Nursing Practice and Judgment; as those comprising the Nursing Diagnosis. The others were used as complementary axes. The CIPESC® list of nursing actions was used as support for creating nursing interventions directed to each of the proposed diagnoses<sup>(1)</sup>.

The CIPESC® nomenclature used by the MHD did not cover all areas of the public health system involving nursing practice. Initially, diagnoses and interventions were created for the areas of Women's Health and Children's Health. Its use during the nursing consultation, however, was optional.

It should be emphasized that creating the nomenclature as well as selecting the benefitted work areas outlines a collective process of MHD nurses. Before the CIPESC® was implemented, 150 nurses attended an update course on Nursing Care Systematization, which prioritized nursing consultations using practice classification systems<sup>(1)</sup>.

Nursing consultations permits nurses: to identify problematic situations and the client's strengths, practice fo-

cuses and respective judgments; use clinical reasoning and make diagnoses and nursing interventions, assigning more scientificity to this group of actions thus conferring credibility among the multiprofessional team and users. Nursing consultation uses a different approach of that used in a medical consultation, involving actions that complement each other to benefit the client, from a holistic view and with the objective to produce care, to achieve cure and health<sup>(4)</sup>.

The structure of the informational system was constructed to permit making detailed reports on diagnosis and intervention frequency, the profile of the clients, the correlation between diagnosis and intervention, the productivity with or without using CIPESC® nomenclature, and the health care service coverage<sup>(1)</sup>.

Talking into consideration there is a need to improve nursing consultation as well as to obtain a more thorough view of nurses' activity in this process, it is essential to evaluate the results, using the databases from the computerized medical records system.

Implementing the use of technologies is a challenge for health care services, considering that workers and users are affected by the need to adapt to the new ways of performing an activity.

Evaluation is understood as a judgment or exposing the value judgment of a certain action, based on previously established criteria, and the outcomes have the capacity to help or support the process of making a decision<sup>(5)</sup>. Evaluations permit to reduce *the distance between concepts and theories and their operational application*, considering that the construction and use of indicators facilitate the identification of specific characteristics<sup>(6)</sup>.

Since the CIPESC® was included in nursing consultations, some evaluative approaches were performed, one of which evidences questions regarding the reorganization of the work process, valuing the systematization of nursing care, the development of a reflexive and monitored practice<sup>(7)</sup> and the consolidation of the attachment between nurse and user.

This study is characterized as a continuity of the evaluative process and has the objective to evaluate the productivity and health care coverage provided by nursing consultations in Curitiba.

## METHOD

This is an evaluative, documental and retrospective study<sup>(8)</sup>, performed in the city of Curitiba-Paraná, which has a population of 1,587,315 inhabitants. Statistical data reveal that 75% of the population, in general, uses the Unique Health System (UHS), and 25% use supplementary or private health systems. Nonetheless, it is estimated that 91% of the population use the UHS in some moment of their lives<sup>(8)</sup>.

To attend this population, in 2005, the MHD comprised 111 Municipal Health Units, 103 of which were basic units and belonged to the Family Health Program (FHP), three specialized units and five 24-hour emergency units, distributed among nine Local Health System (LHS). The basic and FHP Health Units (HU) were benefitted with the implementation of the CIPESC® in the nursing consultations, by means of the computerized medical records system. There were 388 nurses working in this scenario, 230 of which were nurse practitioners and had nursing consultations as part of their daily practice routine. The average number of nurses per unit was 2.1. That number is determined by variables such as unit structure, the covered area population, and the number of FHP teams.

The study population was obtained from the Curitiba MHD secondary database, containing information registered during nursing consultations performed from April to June 2005. The selected variables were: nursing consultations performed with and without using the CIPESC®; number of nursing professionals per SD and users benefited with nursing consultation. The secondary database was made available by the MHD Nursing Coordination, by means of a letter of commitment that the researchers would use it exclusively in the study.

The data was organized and analyzed using information technology, because it permits to cover a large amount and variety of information registered in the database, in an agile, precise and reliable manner. This factor was of crucial, considering that the efficient control and use of the stored information are essential for the decision-making process.

The secondary data was stored in differentiated bases that demanded integration to perform the proposed analysis. This organization was performed using *Datawarehouse*, a database administration system, which permits to orga-

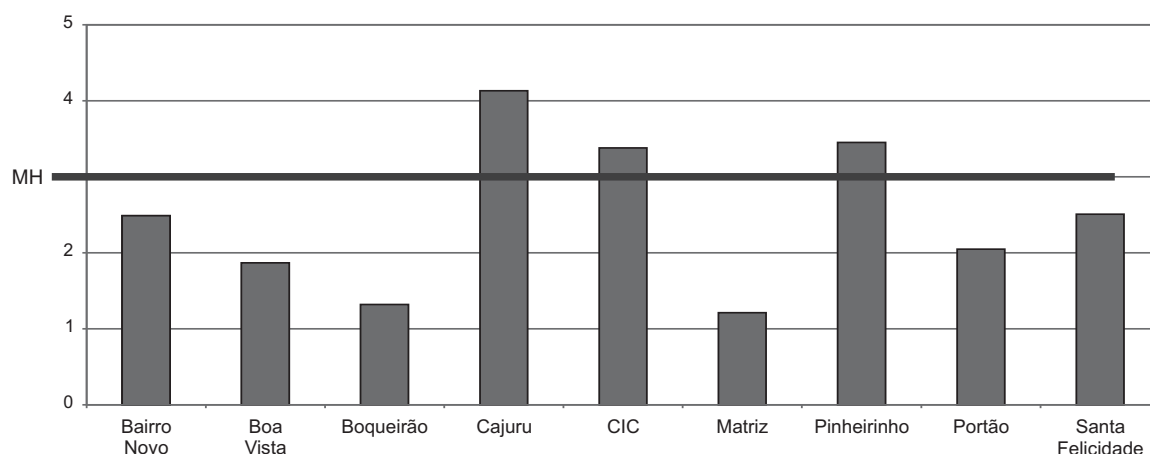
nize different operational bases in one integrated informational base. After this treatment, the base was submitted to Online Analytical Processing (OLAP) which permits to view the data in several dimensions, extracted them from its bases and construct multidimensional reports. All treatments to the bases were performed by an informatics professional, who, to facilitate the management for the researchers, transported the data to Excel®, creating a resource named *dynamic table*. This way, the data were crossed and presented using descriptive statistics.

Results are presented, discussed and analyzed considering the questions regarding productivity and health care service coverage, per SD, according to the ministry of Health (MH) basic parameters for planning primary health actions<sup>(9)</sup>.

## RESULTS AND DISCUSSION

The parameters of productivity *have the purpose to estimate the capacity of producing health care services, either by human or physical resources*<sup>(9)</sup>. The calculation of productivity is directly linked to the production-supply relationship, with supplies referring to every resource used in production<sup>(10)</sup>. The parameter of productivity established by the MH is three nursing consultations/hour<sup>(9)</sup>.

Figure 1 shows that the mean nursing consultation productivity of SD professionals is 2.5 consultations/day. The measuring unit developed for the labor is *worker-minute per production unit*, that is, the minutes that a well prepared worker uses, in average, to perform a certain procedure. Considering the obtained mean, in a 6-hour daily work shift (40 optimized weekly hours), it can be affirmed that the professional uses 16% of the daily shift to perform nursing consultations, or the equivalent to one work hour.



**Figure 1** - Mean daily nursing consultation productivity per nurse at the Sanitary Districts - Curitiba - 2005

Some difficulties were found regarding the optimization of the nurses' consultation schedule, including: shared consultation rooms; estimated time tempo for the consultation; pressure from the demand for general or specialty medical consul-

tation and misunderstandings among team members, who interrupt the nurses' consultation because they do not know this feature of nursing practice<sup>(7)</sup> and do not know who they can turn to for solving doubts when the nurse is in a consultation.

Knowing the complexity and diversity of the activities traditionally performed by nurses in the basic health network determines the resistance, difficulty or impossibility of HU administrators prioritizing health care management, which conflicts with the desired setting<sup>(9)</sup>. The reversion of this scenario is anchored on the legal support assigned to nursing consultation and on the institutional support explicated on the city's goals for covering priority groups (pregnant women, patients with hypertension, patients with diabetes, children, and others) for nursing consultation.

The set of difficulties found and knowledge about the complexity of the activities prove the need for reorganizing the team's work process and the operation dynamic of the HU, whose actions have legal and institutional support. It should be emphasized that reorganization is a process that should be initiated before the implementation of a new activity, aiming at a new view of continuity as the condition for making a planned change effective.

The HM has reported a productivity index of 13.2 activities per nurse, which permits to calculate the professional's potentiality/month:  $Weekly\ Hour\ Load \times Productivity\ Index = Potential/Month$ . This index, applied to Curitiba, considering 18 weekly hours (50% of the work load) for nurses for the consultation activity, results in a potential/month of 237.6 consultations. Results show that the nurse uses five weekly hours for consultations, perform-

ing 66 consultations/month, equivalent to 27% of the potential/month for consultations. This low rate leads to a reflexive analysis of the vulnerability of the nurse professional for performing a privative function, which could, in part, reflect his or her invisibility in the society.

The discussion regarding the non-visibility indicated the social representation of a profession that involves suffering and depreciation. Nevertheless, when the individuals meet with the nurses in person, they discover nurses *can be a professional to refer to in health knowledge areas*. However, that non-socialized capacity make the profession *anonymous and invisible*<sup>(11)</sup>.

In the view of this fact, the role of the nurse is discussed, with an urgency to adopt an effective position in the society and among other health professionals<sup>(11)</sup>, reordering their practice to actions that have a constant and significant presence in health care.

Figure 2 shows the real and projected situations regarding nursing consultation. If the set of nurse activities were considered and 50% of the daily work load (3 hours) were dedicated to performing nursing consultations, there would be nine consultations/day, which would provide a better coverage for the population, and still leave 50% of the nurses' time free to develop other roles, either in health care or concerning administration.

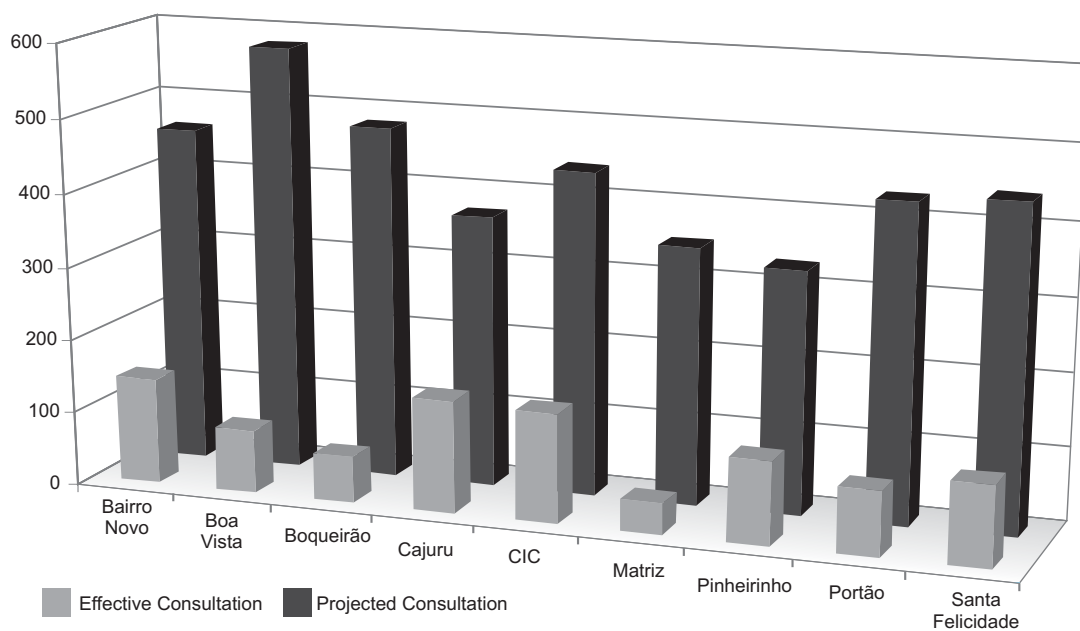


Figure 2 - Comparison between Projected and Effective Daily Nursing Consultations per Local Health System - Curitiba - 2005

Nurses have an extremely important administrative role, but it should never harm any health care activities. It is emphasized that the administration of the Curitiba municipal network estimates a work load of 40 weekly hours for the HU administrator, which is a position filled by a professional

with higher education, and those activities involve exclusively the role of administrating the unit. Therefore, the nurses' managerial role would involve the strategic planning and control of the HU in addition to sharing daily decisions that would directly affect the health care process. It

is considered that redefining roles, and describing work positions, would help nurses to perform predominantly health care activities.

In other spheres of the municipal health network, nurses occupy positions that involve participating in the decision-making process, which could reinforce the reorganization

of practical nurses' work process following the time/activity equation.

Figure 3 shows a significant increase in the number of nursing consultations from 2002 to 2005, with a tendency line that characterized a process maintenance curve, rather than an implementation curve, which would show a continuing and accelerated increase.

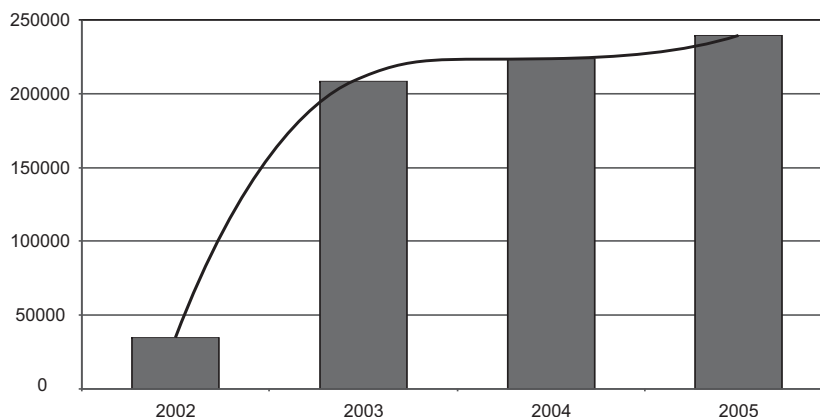
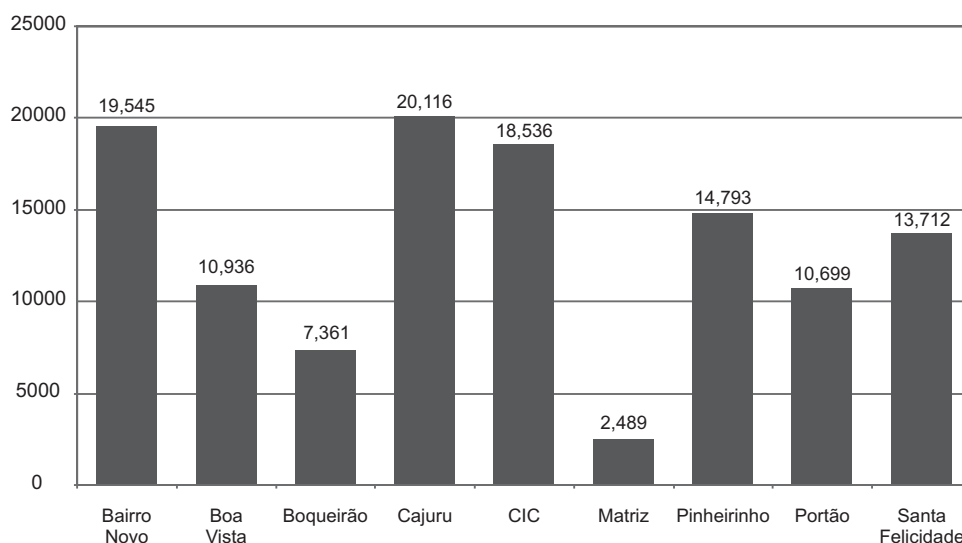


Figure 3 - Effective Nursing Consultations in Curitiba - 2002-2005

It is observed that the curve for years 2002 and 2003 is an implementation curve due to the fact that in 2003 nurses were trained for performing nursing consultations, and they had their first experience with classification systems and the development of the CIPESC® nomenclature that would be used in the municipal network.

Special attention should be given to the maintenance curve found for years 2003 to 2005, which requires a thorough analysis from nursing authorities in the city to achieve the desired productivity and population coverage and guarantee improvements to the population's health and quality of life.

Figure 4 list the total number of consultations performed per SD, showing that the distribution of consultations does not accompany population distribution. It is emphasized that higher indexes occur at the SDs with a more vulnerable social class, which corroborates with the statement that a society divided in social classes presents different exposures to processes of risk and different access to beneficial or potential health processes<sup>(12)</sup>. However, although the nursing consultation indicator presents great variations, the relationship does not range much, varying from 1.27 to 1.41 consultations/user. This shows there is homogeneity in patient care.

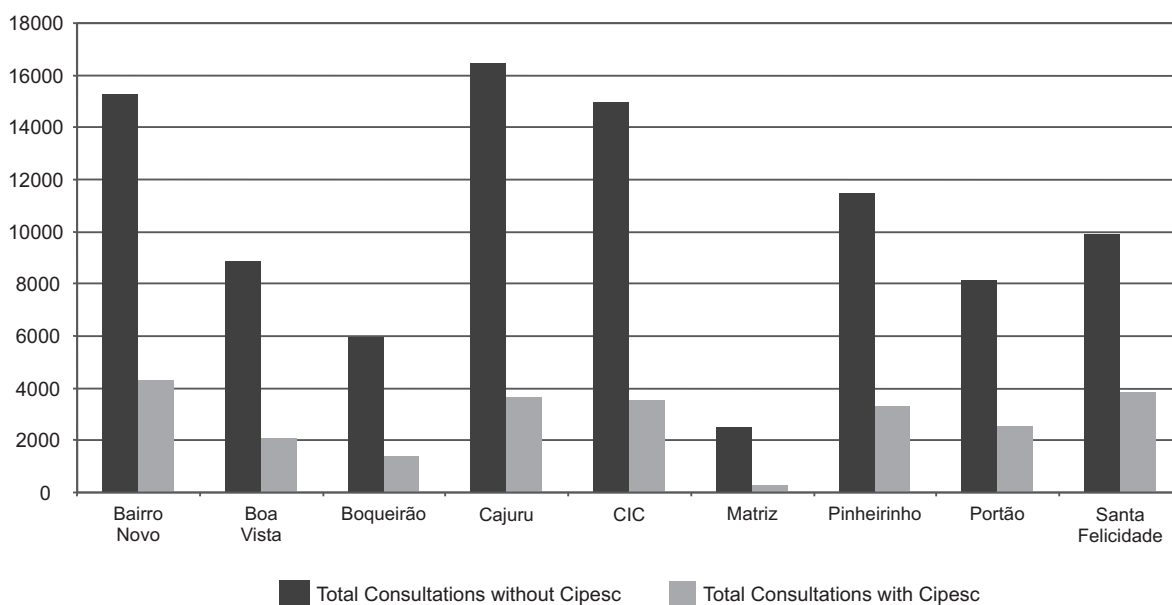


Local Health System	Total Populaion
Bairro Novo	124,330
Boa Vista	225,696
Boqueirão	188,192
Cajuru	195,742
CIC	166,192
Matriz	202,304
Pinheirinho	130,214
Portão	224,850
Santa Felicidade	129,795

Figure 4 - Total effective Nursing Consultations per Local Health System, in Curitiba - April/June -2005

Figure 5 shows the variation in CIPESC® use among the SDs, with a maximum 27.91% (SD Santa Felicidade) and minimum 11.53% (SD Matriz). This shows that most consultations occur without using the CIPESC®. However, it is observed that

21% of all nursing consultations performed in the city involved using the classification; an index considered optimistic, considering the implementation of the classification was restricted to the women and children health care assistance.



**Figure 5** - Total Nursing Consultations performed using or not using the Cipesec® per Local Health System in Curitiba - April/July - 2005

The purpose of nursing practice classifications, in addition to the consultations, is to meet the different types of demands, individually, considering the social, economical, and cultural aspects involved in the situation<sup>(13)</sup>. This instrument is capable of strengthening the process evaluation of nursing practice outcomes and impacts, and it permits to capture differentiated practice standards in different contexts<sup>(14)</sup>.

The main purpose of the classification systems is to standardize the professional language, which helps provide uniform service quality, making it easier to control the process<sup>(2)</sup>. Using classification systems permits to plan nursing interventions and, therefore, offers more solvability in the actions.

As for *health care coverage*, the MH defines as parameters those that estimate the health care needs of a population. The nursing consultation parameter established by the MH is 0.5 to 1 consultation/person/year.

The coverage rate for the general population, in Curitiba, achieved an average of 0.08 consultations per person, covering 6% of the population. The comparison between the general population and the population receiving nursing consultations by SD shows a coverage that ranges between 1 and 11%. This implies that a great part of clients are unaware of the consultation performed by nurses and, therefore, do not recognize the professional as capable of meeting and solving their needs.

Studies about organizational behavior have shown that organizations, as well as its members, are resistant to changes<sup>(15)</sup>. That initial resistance is implicit in nurse professionals in terms of taking the responsibility of a consultation, as well as in the user, who is used to having medical consultations as the only choice. Although nurses experience *the construction, repercussions and outcomes of the live work in action* due to their multiple roles in the health team, they sometimes do not wish to undo institutionalized processes, which give them confidence<sup>(16)</sup>.

Nursing consultations are counter hegemonic to the biomedical model, because its organization aims at care, prioritizing, in public health, disease prevention and health promotion actions.

The World Health Organization emphasizes that among the factors that promote longevity and quality of life improvement, 53% are associated with life style, 20% with the environment, 17% to genetic background, and only 10% are associated with medical care. Therefore, nursing is in a fertile ground for developing its knowledge, by directing health care actions to the determinants of the environment and health education as the promoter of life style changes<sup>(17)</sup>.

From the perspective of *technology innovation* in health services, it is known that its implementation affects clients as well as workers, who need proper raining to use the instrument appropriately, thus affecting productivity and the

quality of the service that is delivered. That introduction requires, in addition to training, equivalent organizational changes, which will permit the organization to fully use the benefits of technology<sup>(18)</sup>. Those benefits only appear and are comparable if all those involved participate in the process, hence generating the need for standardization<sup>(2)</sup>.

## FINAL CONSIDERATIONS

Although the advancement achieved with the implementation of nursing consultations and the use of the CIPESC® in the computerized medical records system, it is observed there is a need to adopt a strategy of re-planning and control, to optimize its use and maximize the outcomes.

The presented results lead to the analysis of four issues that determine the consolidation and development of nursing consultation and CIPESC® use in the Curitiba MHD. The first issue refers to reorganizing the nurses' work process so that it presents, among other details, the description of the position for the different nurses working in the same HU, differentiating their activities and scope of responsibility, and establishing the difference between the nurses' and the HU manager's work.

The second issue concern establishing goals and indicators for nursing consultation, correlated to the plans established for the city, with the objective to monitor this activity.

Another aspect refers to broadening the CIPESC® nomenclature to cover other areas of nursing practice, besides

women's and children's health, making it available to other users of the health system and developing new knowledge.

Finally, it should be considered that it is important to provide a continuing education program that involves updating the professionals involved in the process and the new nurses starting work in the municipal network.

It is known that nurses' work consists mainly of a set of backstage activities, which are not seen by the client, and work as an obstacle to a concrete and tangible professional/client approach. Although the importance of activities related to planning and developing health care actions are taken into consideration, they are developed in the backstage of the process, and therefore are not acknowledged by clients, who do not identify nurses as promoters of such actions.

The implementation of the CIPESC®, as a tool to be used during nursing consultations on a computerized medical records system, in addition to being considered a systematized approach to the nursing care process in Collective Health, permits the visibility, on institutional reports, of nursing diagnoses and interventions.

This condition permits to outline the profile of the clientele being cared for by the nurse, and to make nursing practices acknowledged in their full range and extension. This makes it possible to characterize the nurses' role in delivering health care to the population and, therefore, a new professional position capable of influencing the construction of public policies.

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