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Protocolo de Enfermagem para consulta de puericultura
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Objective: to present a Nursing protocol for childcare consultations based on the Nursing Model of Roper-Logan-Tierney.

Methods: for its development, the following items were carried out: literature review, selection and reading of materials considered important in the area of children’s health. Results: it was carry out the textual development of the protocol divided into five chapters, according to milestones of the infant’s growth and development; inclusion of variables – protocol questions, separated according to life activities recommended in the Nursing model; and content evaluation by nine investigators using the Content Validity Index, with most items presenting an index greater than 0.80. Conclusion: the produced protocol is relevant to support childcare Nursing consultations, enabling standardized directed care and comprehensive care of children’s health in their first months of life.

Descriptors: Child Health; Nursing Assessment; Nursing; Child Care.

Objetivo: presentar un protocolo de Enfermería para consulta de puericultura, basado en el Modelo de Enfermería de Roper-Logan-Tierney. Método: para construir el protocolo, se realizaron: revisión de la literatura, selección y lectura de los documentos relevantes para el área de salud del niño. Resultados: el desarrollo textual del protocolo, dividido en cinco capítulos según los marcos del crecimiento y desarrollo del lactante; inserción de las variables – cuestiones del protocolo, dispuestas de acuerdo con las actividades de vida propuestas en el modelo de Enfermería; y evaluación del contenido por nueve investigadores a través del Índice de Validez de Contenido, con la mayoría de los artículos superior a 0,80. Conclusión: el protocolo producido se señaló como útil para orientar la atención de Enfermería en puericultura, lo que permite atención estandarizada y dirigida a la atención integral de la salud de niños en sus primeros meses de vida.

Descripciones: Salud del Niño; Evaluación en Enfermería; Enfermería; Cuidado del Niño.

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Introduction

Childhood is a period in which much of the potential of human beings is developed. However, the disturbances which affect this time, especially during the first years, are responsible for serious consequences on individuals and communities. Care technologies and health education are being explored to ensure and maintain the quality of life of this population.(1)

Child care in Brazil has been based on the assumptions of health promotion, prevention, early diagnosis and recovery of diseases in childhood, together with the scheduled follow-up of growth and development. These actions are complemented by control activities of prevalent diseases, and the basic actions such as promoting breastfeeding, nutritional guidance and immunizations. They also contribute to the promotion of quality of life, making the joint effort of the whole family, the team and the various governmental or non-governmental organizations essential.(2)

Among the current health care areas in the Family Health Strategy, one of the tools for monitoring the health of children is the Child Care Program, which aims to: monitor growth and development; advise on accident prevention according to age group; assess psychomotor development; identify problems and difficulties of the mother and other family members, seeking to clarify them; observe the vaccination coverage; encourage breastfeeding; guide the introduction of complementary foods; and prevent diseases that most often affect children in the first year of life, such as diarrhea and respiratory infections.(3)

Protocols are considered health technologies that serve as important tools for dealing with various problems in the care and management of services. They should be directed by technical, organizational and policy guidelines, and have the foundation studies validated by assumptions of scientific evidence as developed by experienced professionals and experts in an area, and they serve to guide flows, conduct/behavior and clinical procedures of the workers in health services.(4)

Thus, in order to care for the infant in pediatric nursing and considering their specific adaptation to extra uterine life and their biopsychosocial needs, the Roper-Logan-Tierney Model of Nursing can promote nursing practice based on conceptual frameworks, considering that a more effective and affective relationship with the user can be consolidated, along with enhancing the knowledge of theoretical models of Nursing by way of a broader view and the multifaceted dimension of human beings, in their universes of existence and experience.(5-6)

In this context, the need to develop a protocol based on the Roper-Logan-Tierney Model of Nursing (which is highly relevant in the studied field), should enable nurses to better monitor patients during consultations based on its Nursing model, allowing for care with greater autonomy and developing actions aimed at the comprehensive care of children’s health in their first months of life. The objective of the study was to develop a nursing protocol for childcare consultations, based on the Roper-Logan-Tierney Activities of Living (ALs) Model.

Methods

This is a methodological research that involved rigorous research methods for collecting and organizing data in order to develop and validate tools.(7)

The study was conducted in the childcare system offered by the Federal University of Ceará, located on the Pici Campus. The childcare system features a monthly average of 100 nurse consultations,
and about 300 children are registered in the service.

The implementation of nursing consultations in this scenario features an instrument based on the 12 activities of daily living (ALs), proposed by the Model of Nursing Care⁸: (1) Maintaining a safe environment; (2) Communication; (3) Breathing; (4) Eating and drinking; (5) Elimination; (6) Washing and dressing; (7) Controlling body temperature; (8) Mobilization; (9) Working and Playing; (10) Expressing sexuality; (11) Sleeping; and (12) Death and dying.

In addition to having the 12 items described above, the instrument used in the service also included anthropometric measurements, ponderal gain, and physical and cognitive examination of the infant. The protocol of this study was built from these activities and from the instrument already used in service, having the Model of Nursing as theoretical reference⁸. Notably, the activities of living are divided into five factor groups: biological, psychological, socio-cultural, environmental and politicoeconomic. These factors are closely related to the duration of life in the developmental stages of childhood.

For construction of the protocol, the study included the following steps: Step 1 - Survey and Content Selection: first, a search was made in the literature in order to identify materials in the area through periodicals in national and international databases (Virtual Health Library; Index of scientific and technical literature in Latin America and the Caribbean; State University of São Paulo and the Federal University of Ceará dissertation banks, virtual library documents of the Ministry of Health Technical Department of Child Health and Breastfeeding, and materials contained in the website of the Federal Nursing Council). Therefore, the following descriptors of Health Science were used alongside the connective and: “protocol,” “child health,” and “manual.” For defining the instruments to be selected, the following inclusion criteria was used: aged zero to 12 months, being electronically available, containing information related to child care and which had at least one nurse member among the authors. After the search, nine manuals were found contemplating the object protocol, with at least one of the authors being a nurse, as presented below in Figure 1.

<table>
<thead>
<tr>
<th>Code</th>
<th>Protocol name</th>
<th>Location/year</th>
<th>Characteristics</th>
<th>Professionals involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cartilha de puericultura</td>
<td>São Paulo/2004</td>
<td>0 to 12 months</td>
<td>Pediatrician and nurse</td>
</tr>
<tr>
<td>2</td>
<td>Atenção à saúde da criança</td>
<td>Secretaria de Estado de Saúde de Minas Gerais/2005</td>
<td>0 to 5 years</td>
<td>Multi-professional team</td>
</tr>
<tr>
<td>3</td>
<td>A atenção à saúde da criança de zero a cinco anos de idade</td>
<td>Secretaria Municipal da Saúde de Porto Alegre/2004</td>
<td>0 to 5 years</td>
<td>Multi-professional team</td>
</tr>
<tr>
<td>4</td>
<td>Saúde da criança e do adolescente: crescimento, desenvolvimento e alimentação</td>
<td>Belo Horizonte/2008</td>
<td>0 to 5 years</td>
<td>Pediatricians and nurse</td>
</tr>
<tr>
<td>5</td>
<td>Linha de cuidado da atenção integral à saúde da criança</td>
<td>Rio de Janeiro/2010</td>
<td>0 to 10 years</td>
<td>Multi-professional team</td>
</tr>
<tr>
<td>6</td>
<td>Manual de puericultura</td>
<td>Faculdade de Medicina do ABC/2004</td>
<td>0 to 19 years</td>
<td>Professors, collaborators from Faculdade de Medicina do ABC and nurses</td>
</tr>
<tr>
<td>7</td>
<td>Protocolo de ação para assistência de enfermagem</td>
<td>Secretaria Municipal da Saúde de Campinas/2008</td>
<td>0 to 2 years. Highlighting all stages of the lifecycle</td>
<td>Nursing team</td>
</tr>
<tr>
<td>8</td>
<td>Protocolo de enfermagem em atenção à saúde de Goiás</td>
<td>Goiânia/2010</td>
<td>0 to 5 years</td>
<td>Nursing team</td>
</tr>
<tr>
<td>9</td>
<td>Puericultura: condutas para o acompanhamento do crescimento e desenvolvimento de crianças de zero a dois anos nas consultas de enfermagem</td>
<td>Recife/2010</td>
<td>0 to 2 years</td>
<td>Nursing team</td>
</tr>
</tbody>
</table>

Figure 1 - Protocols identified in the study
Step 2 - Content Description, occurred after the selection of the content read in the nine manuals and literature in the area. Analyses of material considered relevant to the construction of the protocol were made. The information considered important for use during nursing care for children was selected, then the content to compose the protocol was organized. The contents were classified according to the 12 Activities of Living proposed in the Roper-Logan-Tierney Model of Nursing. In this step, information that was consistent with the three steps proposed by the Nursing Process (physical-examination/medical history, diagnoses and suggested interventions) were kept in the materials. The steps of implementation and evaluation were not considered.

In the next step, Step 3 - Textual Development and Graphic Representation of the Protocol, the textual protocol development was divided into five chapters, containing information alluding to the child-care approach according to age group. In addition, steps have been described for conducting the physical examination of the child, procedures for referrals, guidance on vaccination, nursing diagnoses, and interventions facing the most frequent complaints and complications identified in the service, which were directed at each age group in five chapters.

Next, Step 4 - Validation of the Protocol/Consultation by Experts or Professionals with experience in the Area of Interest. In the selection of judges, nine participants were invited to the validation process. The judges were chosen according to the following criteria: maximum degree (specialization, master and doctorate); scientific production in childcare area and/or construction protocols; and working experience of at least 5 years in the area.

Judges were selected by the “snowball” methodology, in which each participant indicates another professional in the field that meets the criteria described above. In the end, nine judges were selected. Copies of the protocol divided by age groups within the nursing period and considering the 12 Activities of Living were sent to the judges. These professionals judged the content of the protocol for Activity of Living, appearance, equipment design and applicability in practice. At the end, each could give suggestions for material improvements. The minimum agreement of 75% among judges served as a decision criterion on the relevance of the item.

Data analysis was done from the literature information and we used the Content Validity Index, considering as validated by obtaining a value equal to or greater than 0.75 of the presentation aspects, structure and relevance of the material. The Likert scale was adopted for each item, with four response levels, as follows: (1) Inadequate, (2) Partially adequate, (3) Adequate (4) Fully adequate, (5) does not apply.

This study was approved by the Research Ethics Committee of the Federal University of Ceará, with opinion number 480.724.

Results

In relation to the characterization of the nine manuals and protocols identified in the first stage of the study, it was observed that all were published after 2004. Overall, they approached the care of children in early childhood, having been prevalent in the period of zero 12 months. Some addressed broader issues such as adolescent health, women’s health, adult health and health of the elderly, as well as health surveillance. The organization of care, information systems, violence to children and adolescents, and childhood illness were issues raised by several authors.

The largest organization of institutions for manuals and protocols were from Municipal or State Health Departments. Three were published by universities and, in most cases, by multidisciplinary teams in health. Eight protocols came from the south-central regions of the country and only one publication from the Northeast.

In the second stage, the content judged more important were classified according to the 12 Activities of Living proposed in the Roper-Logan-Tierney Model of Nursing. The third stage was composed of textual
Development of a Nursing protocol for childcare consultations

construction and graphical representation of the protocol, in which it was decided that the age groups would be divided from zero to 28 days; 29 days to 3 months; 4 to 6 months; 6 to 8 months; and 8 to 12 months. These groups were selected because of the similarities of care and developmental milestones.

Activities of Living were described, as well as their definitions and content that composed them. Judges’ suggestions were then added, representing the fourth stage of the study. With regards to maintaining a safe environment, this was characterized by a variety of environmental hazards to which children were left exposed which endangers their safety, health and survival; for example, stress, physical, emotional or sexual abuse and disorder(8). In the materials analyzed, only four addressed this issue. According to the judges, the items related to this Activity of Living were contextualized according to age established by the Protocol, maintaining an appropriate language for the target audience, including guidelines on prevention of domestic accidents and exposure of the newborn to largely circulated places and people.

Concerning communication, the highlight was the relation between parents and children from the first months of life(8). Of the nine protocols analyzed, only three addressed the issue. As a suggestion, three judges commented on the importance of understanding the milestones of child development in order to correctly evaluate the Activity of Living. According to them, each child has their development milestone and the nurse should have sufficient theoretical basis for identifying such changes.

Breathing was defined based on the life-sustaining processes such as oxygen transport, respiration, ventilation and gas exchange(8). In this activity, three identified materials highlighted the common respiratory diseases in childhood, such as: infection of the upper airways, pneumonia, asthma, cough, fever, nasal congestion, and sinusitis, among others. This brought forth definitions, signs and symptoms, evaluation and classification of the disease, diagnostics, flow charts and nursing care guidelines. The judges gave guidance about the importance of talking with parents about environmental hygiene to improvements in breathing patterns and preventing smoking parents to have contact with the child while smoking.

Eating and drinking played a significant role in the daily standard of living for all age groups and for most people were a pleasant activity being essential to life(8). All protocols identified in the review highlighted the importance of exclusive breastfeeding in the first 6 months of life, as well as general guidance on feeding and care in preparing food in cases of weaned (non-breastfed) children. Of the participants, five Judges highlighted the importance of father involvement and other family members in the process of feeding and introduction of complementary feeding.

Elimination is an act practiced by all individuals, with a constant regularity and throughout life(8). Of the materials consulted, three protocols emphasized the care of children with diarrhea, the definition and classification of the disease, and an interview with the parents about the clinical presentation and treatment; only one protocol highlighted the characteristics of the newborn’s stool, which is important to identify changes by the nurse. Only one judge commented on the importance of following changes in genitourinary or intestinal elimination, which may reflect behavioral problems.

With regards to washing and dressing, emphasis was placed on the evaluation of the hygienic conditions of the child and their clothes, as well as guidance on the frequency and products used in the child’s bathroom, changing diapers, cleaning the navel, oral hygiene and tips for preventing diaper rash(8). Only one protocol raised the clinical management of major skin disorders in children and two protocols referred to the oral health, emphasizing oral cleaning and the use of pacifiers and bottles. Two judges highlighted the importance of educating mothers for oral cleaning from the first days of birth.

With regard to expressing sexuality, parents should not be asked about the planning of the pregnancy, nor the their preference in relation to
gender\(^{(8)}\). Considering the consequences of unplanned pregnancy, two of the protocols examined stressed guidance on family planning, in addition to general child care. As a suggestion, one of the judges requested the inclusion of a flow chart for specific routing for planning, especially teenage mothers.

Maintaining body temperature, mobilization, working and playing, sleeping, and death and dying had no suggestions from experts. Some of the contents surrounding the protocol were as follows; maintaining body temperature described the production and loss of heat\(^{(8)}\). The protocol described guidelines for sunbathing, the use of appropriate clothing for the baby and in case of fever, instruments to check the temperature and keep it stable.

Mobilization described the capable and incapable competencies of the child’s mobility\(^{(8)}\). The developmental milestones were highlighted which contributed to the identification of possible changes, and made suggestions of games and activities that could be carried out with children and their families.

On working and playing, parents and caregivers should be evaluated and inquiries made about the time parents devoted to their children, and what they did together during leisure time\(^{(8)}\).

The sleeping Activity of Living related to the sleep/awake cycle and psychological and environmental factors which influence it\(^{(8)}\).

The last Activity of Living referred to death and dying, and the loss of close relatives of the child should be investigated\(^{(8)}\). This protocol sought to address, beyond death itself, the absence of a family member, which often could be related to drug use and imprisoned relatives (very common situations in families receiving the service), which could influence the social network of child care.

Also in relation to the fourth stage regarding the criteria for selection of judges, all were female with 5-10 years of training time, and had publications in journals involving the area of children’s health. Among the judges, three had a doctorate and all had experience in care, teaching and research in the area of study. Four were university professors and five were nurses. As for location, five were from Ceará, one from Maranhão, two were from Pernambuco and one from Rio Grande do Sul.

Concerning protocol validation, all items obtained values of the Content Validity Index over 0.80, as shown in Figure 2.

<table>
<thead>
<tr>
<th>Activities of Living from Roper-Logan-Tierney’s Model</th>
<th>Judges main suggestions</th>
<th>Content Validity Index (average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining a safe environment;</td>
<td>Addressing the need for home visits. Caution with sleeping in a hammock, a typical Brazilian northeastern tradition.</td>
<td>0.9</td>
</tr>
<tr>
<td>Communication;</td>
<td>Evaluating the interaction of the child with all members of the family and not just the interaction of mother- child.</td>
<td>1.0</td>
</tr>
<tr>
<td>Breathing;</td>
<td>Inserting other drugs as harmful to the child, not only cigarettes, and some general care with cleaning the house, fans, curtains and carpets, in order to prevent respiratory diseases.</td>
<td>0.8</td>
</tr>
<tr>
<td>Eating and drinking;</td>
<td>Reinforcing the importance of healthy eating habits in the family, Reinforcing discontinuity of pacifier/bottle use.</td>
<td>0.9</td>
</tr>
<tr>
<td>Elimination;</td>
<td>Reinforcing the care measures for cramp relief along with prophylaxis of parasite constipation.</td>
<td>0.86</td>
</tr>
<tr>
<td>Washing and dressing;</td>
<td>Correct cleaning utensils, avoid materials with bisferol.</td>
<td>0.9</td>
</tr>
<tr>
<td>Controlling body temperature;</td>
<td>No suggestions made.</td>
<td>1.0</td>
</tr>
<tr>
<td>Mobilization;</td>
<td>No suggestions made.</td>
<td>1.0</td>
</tr>
<tr>
<td>Working and Playing;</td>
<td>No suggestions made.</td>
<td>1.0</td>
</tr>
<tr>
<td>Expressing sexuality;</td>
<td>No suggestions made.</td>
<td>1.0</td>
</tr>
<tr>
<td>Sleeping;</td>
<td>No suggestions made.</td>
<td>1.0</td>
</tr>
<tr>
<td>Death and dying</td>
<td>No suggestions made.</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Figure 2** - Activities of Living Content Validity Index and judges suggestions.
Discussion

Most of the innovations in the health of children are concentrated in the South and Southeast of the country, possibly because of having more established research groups and intervention. In addition, publications in Nursing are still scarce. This fact is an incentive for professionals to develop publications in the area, as they may be responsible for carrying out child care consultations in primary health care. Thus, the construction of protocols that address the real needs of services and of the assisted community should be encouraged\(^\text{(10)}\).

It is necessary to consult publications and research on safe environments. According to data from the Mortality Information System, in 2013 accidental or violent events were the primary cause of child deaths in the age group between 1 to 10 years in Brazil. In Fortaleza, 50.3% of unintentional injuries in this age group were by falling\(^\text{(10)}\). Aggression (violence) accounted for 6.9% of child deaths in that age range\(^\text{(11)}\).

Consequently, from all the results and information generated by the analysis of the materials, the developed protocol highlights the importance of the nurse assessing the child’s living conditions, the storage location of cleaning supplies, as well as guidance on the completion of the screening test, the OAE (ear exam), vaccines, and accident prevention tips in order to create a safe environment for child development.

In addition with regard to communication, the infant begins clearer and more coordinated vocalization within their first 6 months of life, imitating sounds and interacting better with the environment in which it exists. For the remainder of the first year of life, they should start to understand simple commands like “no,” saying goodbye and replicating syllables\(^\text{(8)}\).

Concerning breathing, infections that affect the respiratory system weaken the child, hindering its development as it affects almost all of their life activities. Respiratory problems in the long run cause muscle and bone abnormalities of the face, and functional disabilities, like chewing, among others\(^\text{(12)}\). We emphasize the importance of evaluating the occurrence of allergies, coughing and runny nose, checking the respiratory rate, research reports of dyspnea and the presence of smokers who live with the child, as well as dust or dirt which comes into contact with the child, and the orientation of the house cleaning.

With regard to the Activity of Living of eating and drinking, it is emphasized that until 6 months of life, infants should have exclusive feeding of breast milk because it has the essential nutrients for children in this age group\(^\text{(13)}\). Therefore exclusive breastfeeding, types of food, the correct suckling/feeding position, the correct dilution of artificial milk, a menu for non-breastfed children, introduction of complementary foods, the weight curves and guidelines aimed at children, and the mother’s diet should all be encouraged\(^\text{(14)}\).

An infant is very sensitive and delicate. The created material sought to highlight skin care, noting that chemicals can trigger allergies and rashes, among other dermatological problems\(^\text{(15)}\).

In the first months of life, personal hygiene is the task with which parents and caregivers need to be the most careful. Therefore, the materials analyzed emphasized the general care with hygiene of children, particularly with regard to diaper and care for bathing, describing essential guidelines that the health professional should perform during child consultations\(^\text{(12)}\).

Another important point made was about motor development, which follows an evolutionary chronological order with distinct and predictable stages, characterized by changes in skills and movement patterns that occur throughout life\(^\text{(16)}\).

Regarding leisure time, parents are advised against visits with the baby to crowded places which contributes to reducing the child’s risk of acquiring infections, as they are still very fragile because they have not yet completed the vaccination schedule\(^\text{(16)}\).
The sleep pattern among infants between 6 and 12 months is variable. Each child has their daily requirement of sleeping hours, being around 15 hours. Quality sleep is one that allows adequate rest and so that the child is prepared and ready to carry out the activities\(^{(11)}\). Thus, nurses should pay attention to the guidelines on the frequency and characteristics of the baby’s sleep, and some care with children sleeping in a crib or hammock, characteristic of regions in northeastern Brazil.

The last Activity of Living proposed by the Roper-Logan-Tierney Model approaches the subject of death, noting that the knowledge of the death process and the stages of grief can help the user to better understand the feelings that permeate the individual. This facilitates the provision of nursing care to mother/caregiver infant who experienced the loss of a loved one or some specific related situation\(^{(17)}\).

**Conclusion**

The study resulted in the development of strategies that enabled the adequate health care of infants, based on the evidence-based practice. The protocol in childcare proved to be an instrument guide of nurses for systematized and standardized care assistance, guaranteeing Nursing’s autonomy and space.

Care and health education technologies have been widely exploited to maintain the quality of life of the public. Thus, the protocol based on the Roper-Logan-Tierney Model of Nursing provided comprehensive care for children in their first months of life, as the model referred to the 12 Activities of Life that characterize the living of the individual. Thus, the application of this protocol can fill the gaps in childcare, enabling holistic and systematic care in childcare.

Our results can help guide the development, information, education and communication to users of the Unified Health System, in addition to the continuing education of professionals which should facilitate the care of children in primary care, aiming to meet the specific characteristics of this population and develop public policies that address the needs of this population group.

The development of protocols in pediatric nursing area is strongly encouraged as guiding instruments of daily work for the development of actions in the different scenarios of health practices.

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**Collaborations**

Gubert FA and Martins MC contributed to the orientation and design of the research. Brito LLMS, Santos DAS, Pinheiro MTM and Pinheiro SRCS contributed to the design, analysis, data interpretation and writing of the article.

**References**

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