



Construction and validation of educational video for the guidance of parents of children regarding clean intermittent catheterization*

Construção e validação de vídeo educativo para orientação de pais de crianças em cateterismo intermitente limpo

Construcción y validación de video educativo para orientación de padres de niños en cateterismo intermitente limpio

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ABSTRACT

Objective: To construct and validate an educational video for the guidance of parents of children who require clean intermittent catheterization. **Method:** Methodological study, developed in two stages: construction and validation of the video was performed by experienced judges from March to December 2016. The construction of the technology had the Theory of Adaptation as theoretical reference. For the data analysis, the intraclass correlation index was used. **Results:** The first version of the video was 12 minutes, after validation the replacement of technical terms by colloquial language, dynamism in dialogues and the mention of handwashing before assembling the material was recommended. With regard to total reliability, the intraclass correlation coefficient for all the categories evaluated was 0.768, considered reasonable. In the evaluation of language clarity, relevance to practice and theoretical relevance, the results were 0.745, 0.771 and 0.777, respectively, considered reasonable, with $p < 0.0001$. **Conclusion:** The educational video was valid regarding appearance and content, with potential to mediate educational practices in hospital and outpatient settings.

DESCRIPTORS

Urinary Catheterization; Child; Audiovisual Resources; Health Education; Pediatric Nursing.

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INTRODUCTION

Chronic diseases belong to the group of pathologies that require uninterrupted care. When such pathologies affect children, care should be directed, as well as involving the family and the health team, as it will cause changes in family structure and dynamics, leading to biopsychosocial disorganization of the family and child⁽¹⁾.

Among the chronic diseases, the Myelodal Dysfunction, mainly due to Myelodysplasias, is a disturbance in the dynamics of storage and emptying of the bladder. Such dysfunction causes repetitive urinary tract infection and urinary incontinence⁽²⁾. The worldwide incidence rate is 0.3-4.5 per 1,000 live births⁽³⁾. In Brazil, the incidence of 1.1-4.1 per 1,000 live births was found in studies conducted in the states of São Paulo and Paraná⁽⁴⁻⁵⁾.

One of the most appropriate alternative treatments is Clean Intermittent Catheterization (CIC), indicated for patients at any age, who do not spontaneously and adequately eliminate urine, which is recommended every 4 or 6 hours, according to the urodynamic study of patients⁽⁶⁾.

As it requires long-term continuous treatment, the nurse must have the capacity and the necessary knowledge to favor the adhesion of family members and caregivers, contribute to the maintenance of therapy and adaptation to the new reality in which the patient and his family are inserted⁽⁷⁾.

Educational and audio-visual technologies, such as educational video, are established as tools which support education, since the association of audio with images brings the contents closer to the population's reality, generating interest and, consequently, generating more learning⁽⁸⁾.

Adaptation to the new reality becomes a relevant aspect, since the recurrence of the CIC procedure requires time and dedication, requiring specific strategies and care so that the patient and family can adapt to the physical and psychosocial changes that permeate this period. Thus, Adaptive Nursing Theory shows itself as a suitable theoretical support before changes in the life of the child and the family⁽⁹⁾.

In order for this adaptation to be established assertively, Roy's concept of adaptation is based on the four metaparadigms: person, environment, health, and nursing. With regard to the recipient of nursing care, they become able to adapt to the environment, individually or collectively. The environment means all the conditions, situations and influences that affect the individual. Health is the reflection of the individual in the environment, which seeks to achieve survival goals. Nursing is the key to caring for the individual, who lives in constant influence of environmental stimuli, which affect him positively and negatively⁽⁹⁾.

In this perspective, it is believed that nurses can create and apply technologies, such as videos, in order to mediate educational practices in a hospital context, being based on this process in Nursing theories, such as Adaptation, in which nursing can change the life habits and health of the patient and family, adapting them to the environment in which they live in.

In view of this, the objective of this research was to construct and validate an educational video for the guidance of parents of children who require Clean Intermittent Catheterization.

METHOD

A methodological study developed in two stages in the period from March to December of 2016. The first stage was the elaboration of an educational technology, the video; the second, content validation by judges and technicians.

The first stage which consisted in the elaboration of the video took place according to the three phases proposed by Fleming: Pre-Production, Production and Post-production. The pre-production phase involved seven steps; the one of production and post-production, in one step, respectively.

In step 1 of the pre-production, a search was done in the literature of national and international scientific productions, in the following databases: PubMed; Scopus, CINAHL and LILACS. The descriptors present in the Medical Subject Headings (MeSH) were used: "intermittent urethral catheterization", "children", "neurogenic urinary bladder", "nursing care", "caregivers". The controlled descriptor "intermittent urethral catheterization" was associated, through the Boolean operator AND, to the descriptors mentioned above. Papers published between 2011 and 2016 were included; 15 out of the 402 articles included the descriptors and were selected.

In step 2 and 3 of the pre-production, the elaboration of the story and the script of the video, based on the Adaptation Theory⁽¹⁰⁾, took place. The story briefly described the actions intended in the scenes of the video, based on actual facts that occurred in a nursing consultation. The first version of the script sought to define the scenes, inserted speeches, environment and audiovisual elements. The script included the following scenes: 1. Opening of the video; 2. Presentation of the nurse; 3. Presentation of parents-characters; 4. Presentation of the anatomy and physiology of the urinary system; 5. How to recognize signs and symptoms of micturition dysfunction; 6. What is CIC; 7. Presentation and assembly of materials used in CIC; 8. Hand washing; 9. Hygiene of the genitalia of the child; 10. Procedure and care about CIC; 11. Disposal of urine and materials; 12. Review of CIC topics; 13. End of the nurse's presentation.

In step 4 the storyboard was created, in which visual elements, like figures, photos and text referring to the illustrations were included. There were 13 images, which corresponded to the scenes that composed the video.

The selection of judges and technicians occurred in step 5, and were recruited through non-probabilistic intentional and snowball sampling⁽¹¹⁾. Consultations were done based on the *Lattes* Platform in order to verify the adequacy of the judges and technicians with the criteria established in the study. Through the searches, nine health professionals were content judges and three professionals in the area of communication and audiovisual were part of the technical judges. It should be noted that the odd number of judges deliberates the function of possible draws in opinions and agreement between them⁽¹²⁾.

In step 6, the construction of three necessary instruments for video validation took place. The first, for content judges (content validation), was divided into two parts: general information and script evaluation. The evaluation of the script contained nine categories: Concept Idea, Dramatic Construction, Rhythm, Characters, Dramatic Potential, Dialogues, Visual Style, Target Audience and Relevance. The second, for the

technical judges (appearance validation), with all the categories of the first instrument, adding three more: Functionality, Usability and Efficiency. The third instrument, for content judges and technicians (evaluation of the scenes of the educational video), with the following criteria: Clarity of language; Relevance to practice and Theoretical relevance, which categorized the evaluation of scenes. Each criterion was evaluated using a Likert scale with 5 items: 1 very low, 2 low, 3 medium, 4 high and 5 very high, being considered relevant with the level of agreement varying in the score between 3 and 5 and irrelevant with level of agreement between 1 and 2.

Regarding the content and appearance validation, it is questioned the relevance (yes or no) and degree of relevance (not representative, item needs major revision to be representative, item needs small revision to be representative, representative). The first two items of the degree of relevance with scores of 0 and 1 were considered irrelevant and the last two were considered relevant with scores of 2 and 3.

In step 7, the Intraclass Correlation Coefficient (ICC) was chosen in order to analyze the total reliability of the educational video script, as well as the significance of the p value <0.001. Thus, the values obtained through ICC calculations were considered a very good value if they were above 0.9, good if they were between 0.8 and 0.9, reasonable if they were between 0.7 and 0.8, weak if there were between 0.6 and 0.7 and unacceptable if they were less than 0.6⁽¹³⁾.

For an ideal agreement mean, at least 0.8 (80%) was considered among the judges in order for the item to be considered relevant⁽¹⁴⁾. Items in this study that did not reach minimum agreement were analyzed again and reformulated or withdrawn⁽¹⁵⁾. The data obtained were organized and analyzed by the statistical program Statistical Package for Social Sciences, version 20.0, for tabulation and calculation of ICC mean.

In phase 2 of Production, the filming took place at the Laboratory of Communication in Health (*LabCom_Saúde*), located in the Nursing Department of the Universidade Federal do Ceará (UFC). Two children, one female and one male, 3 and 5 years old were selected, who used catheterization, and were accompanied by their respective mothers, two professionals actors and a nurse trained in CIC.

In phase 3, The Post-production, the editing and finalization of the video occurred. The post-production stage consisted in the participation of two technical professionals specialized in construction of videos, one being a scene director and the other a camera operator.

The second stage, Content validation by content and technical judges, took place between March and September 2016. Twelve judges participated, nine of which were content judges and three were technical judges, with experience in the thematic area of the research. The technical judges evaluated the same categories of the content judges, but in a perspective directed towards the video production technique.

The present study was approved by the Research Ethics Committee of the Universidade Federal do Ceará, under opinion 1.615.750. All the participants received and signed the Term of Free and Informed Consent and were guaranteed privacy and anonymity, according to Resolution No.

466/12 of the Directives and Norms of Research Involving Human Beings of the National Health Council.

RESULTS

The first stage, the elaboration of the video, culminated with a version containing 12 minutes and 13 scenes. Nine content judges and three technical judges participated in the second stage of validation.

As for the content judges, who are experts and have extensive experience in the thematic area of the study, their mean age was 43.3 years, with a standard deviation of ± 10.0 years, median of 38 years of age, ranging between 29 to 63 years of age. All were female. Four judges had a doctorate in health, six, had a master's degree in health and three had specializations in the field of urology or nephrology. It should be noted that all specialists had at least 2 years of practical experience.

As for the first instrument (content validation), the Intraclass Correlation Coefficient (ICC) was used to analyze the proportion of agreement between content judges on the degree of relevance of each category (Table 1).

Table 1 – Distribution and percentage of agreement among content judges regarding the educational video script – Fortaleza, Ceará, Brazil, 2016.

Categories/subcategories	Yes	No	Agreement Percentage (%)
Concept Idea	9	-	100.0
Relevant/Current Thematic Content	9	-	100.0
Content consistent with video objective	9	-	100.0
Objective of the video consistent with practice	8	1	88.8
Enunciated clearly	7	2	77.7
Understandable Information	8	1	88.8
Sufficient Information	7	2	77.7
Suitable for Health Professional use	8	1	88.8
Proposes behaviour change	9	-	100.0
Dramatic Construction			
Starting point has impact	9	-	100.0
Script interest grows	9	-	100.0
Good script presentation	9	-	100.0
Scenes reflect stereotypes/discrimination	6	3	66.6
Rhythm	8	1	88.8
Motivational Scenes	8	1	88.8
Scenes reflect stereotypes/discrimination	1	8	88.8
Tiring rhythm	2	7	77.7
Characters			
Character empathy	9	-	100.0
Sufficient characters and situations	7	2	77.7
Dramatic Potential			
There is emotion	6	3	66.6
There are surprises	5	4	55.5
Dialogue			
Dialogues are natural	8	1	88.8
Characters have suitable vocabulary	5	4	55.5
There is a conclusion	9	-	100.0
Relevant conclusion	9	-	100.0
Visual style			
Scenes reflect important aspects	9	-	100.0
Target audience			
The content is directly related to the audience	9	-	100.0
Identification of the target audience with the problem	9	-	100.0
Compatible language with the audience knowledge	5	4	55.5
Relevance	8	1	88.8
Script highlights important thematic aspects	9	-	100.0
Relevant scenes for the target audience	6	3	66.6
Script provides a summary for the revisions	9	-	100.0

Unanimous agreement among the judges is observed (100%) regarding the following aspects: Idea concept, dramatic construction, characters, visual style, target audience, and relevance.

Concerning the dramatic construction, six (66.6%) judges stated that the scenes reflected stereotypes or discrimination. It is believed that this was due to the recommendation of the educational video to approach the characteristics of the target audience, in order to allow parents and caregivers to identify with the characters in the video.

Regarding the dramatic potential, six (66.6%) judges also stated that there is emotion and five alleged surprises in the scenes. Regarding the category of dialogues and the target audience, in terms of language appropriate to the general public, five (55.5%) judges evaluated that dialogues and language needed revision in order to be compatible with the level of knowledge of the target audience.

In the last category, which portrays the relevance, all judges stated that the script illustrates important aspects of the subject and gives a summary of what CIC is, consolidating the content addressed in the educational video.

Regarding total reliability, the ICC value for all categories evaluated was 0.768, considered reasonable. The confidence interval was set at 95%, estimated to be between 0.444 and 0.939, thus being adequate and with a significant p value of 0.0001, as seen in Table 2.

Table 2 – Representativeness and Intraclass Correlation Coefficient of the categories among content judges – Fortaleza, Ceará, Brazil, 2016.

Categories	Content	
	Representative	Non representative
Concept Idea	7	2
Dramatic Construction	9	-
Rythm	8	1
Characters	8	1
Dramatic Potencial	7	2
Dialogues	8	1
Visual Style	8	1
Target Audience	7	2
Relevance	8	1

Total reliability: ICC= 0.768; [0.444; 0.939]; p< 0.0001

As for the degree of relevance of the representativeness of the educational video script, it was identified that the category dramatic construction obtained unanimity in the representative degree, while in the other categories one or two judges considered it non-representative.

From the analysis of the suggestions from the content judges, some of these were accepted, such as hand washing before gathering materials needed for the CIC procedure and using simpler language. Exemplifications of some pathologies that lead the child to need CIC were included and the term “catheter” was standardized.

As for the technical judges, audiovisual professionals, with experience in the field of educational videos, the mean age was 33 years, with a standard deviation of ± 8.1 years,

with median of 28 years of age, ranging between 28 to 43 years of age. Two judges were female and one was male.

As for the second instrument (appearance validation), there was unanimous agreement regarding the categories: characters, dramatic potential, dialogues, target audience, functionality and usability.

In the rhythm category, two judges affirmed that there was no growing attraction, with a dramatic curve. This is due to the fact that the script does not include technical terms from the audiovisual, time and filming environment. It was also observed that this absence led two judges to declare that there was no dynamism of the environments. An improved dynamics of the scene and characters' actions was recommended.

In the visual-style category, two judges claimed that the environment was repeated, and suggested other filming locations. However, *LabCom_Saúde* was chosen as the location as it was the only location that offered an appropriate environment for recording videos, as the hospital's nursing office was small and noisy, and thus an inappropriate location to record quality scenes.

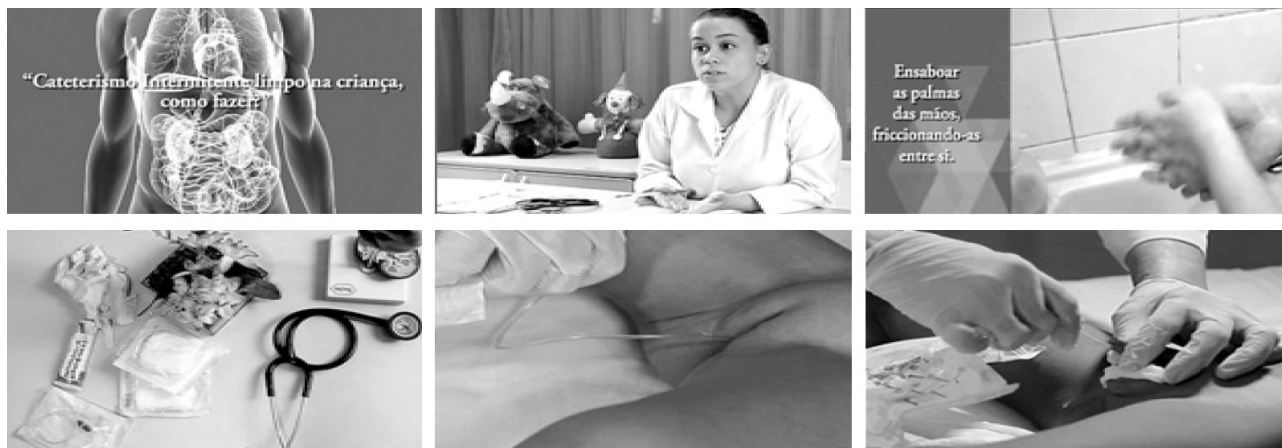
Regarding the degree of relevance, the unanimity in representativeness was highlighted in the rhythm, characters, dramatic potential, visual style, target audience, functionality and usability categories. Two judges scored the item efficiency as not representative, because they reported that the dialogues should use a technical language and fluency.

The suggestions from the technical judges were adhered to in order to make the video more attractive to the audience, such as more sequential and dynamic dialogues, and more clarity with new visual and audio elements.

As for the third instrument (evaluation of the video scenes), a greater agreement in the clarity of scene 12 was observed, which depicts the main subjects about CIC. It is emphasized that scene 8, which was about the hygiene of the child's genitalia, received an irrelevant evaluation from a content judge, with a degree of “very low”, when he/she reported that the scene did not explain how to do the hygiene. Therefore, this scene was modified. In scene 10, three experts rated “low” for the scene that corresponds to the care to be taken with CIC, suggesting images relating to the hygiene of the child's genitalia. Therefore, this action was included. However, all scenes represented a greater sum in the evaluation of the scores considered relevant, with an agreement level between 4 and 5.

Regarding the ICC, inferring in the 95% confidence interval, which evaluated the concordance ratio between content and technical judges on the degree of relevance of each category: clarity of language, pertinence to practice and theoretical relevance totaled an average of 0.764. Thus, the item of theoretical relevance closest to 0.8 was considered to be good and relevant among content and technical judges for the CIC theme in children.

The suggested changes were accepted and the necessary modifications were made. The final version of the educational video, “Clean Intermittent Catheterization, how to do it?” has 10 minutes and 38 seconds in duration, including credits, being within the time frame for educational videos (Figure 1).



Source: Prepared by the authors

Figure 1 – Scenes from the educational video: “Clean Intermittent Catheterization, how to do it?” – Fortaleza, Ceará, Brazil, 2016.

DISCUSSION

Validation studies of educational technologies, such as videos, games, booklets and manuals, have been perfected and used both for health promotion and education and for application in teaching-learning strategies, in particular video, which, as a mass form of communication, is a visually attractive material⁽¹⁶⁾.

It is important that health professionals, especially nurses, engage in the construction and the use of new technologies in their area of practice, both in teaching and in practice. The development of studies and strategies in health education aims to facilitate user learning, stimulating the modification of health habits and seeking to achieve the benefits of its clientele⁽¹⁷⁾.

With Roy's Adaptation Theory, nursing is able to delve deeper into the process and the result of thinking in which people are embedded in society and environment in order to improve well-being, quality of life and of death. In an integrated system, if the adaptation is positive, there is an adequate life process, otherwise a bad adaptation negatively destabilizes the individual's life process⁽⁹⁾.

Roy's Adaptation theory becomes an important tool for the adaptation of family and children who use CIC, according to which nursing is able to modify the habits of life and health, with the purpose of helping the individual and those around to adapt to the environment and the circumstances surrounding them.

Content validation refers to the analysis of the representativeness or relevance of a study. In this research, content and technical judges unanimously argued the importance of using an educational video to guide parents and caregivers of children who use CIC. The application of educational technologies, such as educational video, has enabled the nurse professional to share knowledge, promote discussions and debates, clarify questions and encourage the participation and engagement of all involved, becoming a link between the educational technology and the target audience⁽¹²⁻¹⁸⁾.

Appearance validation consists of the subjective form of validating an instrument, it is the judgment regarding clarity

and comprehension⁽¹⁹⁾. The clarity and objectivity aspects are necessary for the language in the validation of the instrument. A confused and incomprehensible language can cause fatigue and dispersion. Nonetheless, one must take precedence over interactivity in educational content, which is necessary to create an atmosphere of conversation with the viewer and thus attract the viewer to the reflection of the subject addressed⁽²⁰⁻²¹⁾.

In the content aspects, judges argued that the language of the educational video was composed of robust words that were hard to understand for the target audience, such as “rubbing”, “genitals” and “apprehensive”. It should be noted that these terms have been replaced. It is important that educational technologies and materials are developed according to the level of schooling of the intended audience, a level that directly influences understanding and health care⁽²²⁾.

In the technical aspects, two judges claimed that there was no dynamism in the dialogues and script of the video, because it contained unnatural speech. Adequate and fluid language makes the video more attractive and captures the viewer's attention better, approaching content more clearly and effectively, making it an instrument capable of modifying individuals' attitudes and behaviors⁽²³⁾.

With regard to the handwashing, which was suggested by a content judge, there is a need for this action with only soap and water, before gathering the materials and the clean intermittent catheterization, dispensing any antiseptic product, in order to reduce the rates of urinary infections⁽²⁴⁾.

Videos that are directed to education and health promotion, used to sensitize a social group to change certain behaviors in face of a health problem should not exceed 20 minutes because a long exposure time results in the reduction of attention of the viewers⁽²⁵⁾.

In view of this, health education technologies, including educational video, are an attractive form of communication, since audio and video are capable of holding the attention of the viewer. The validation of expert content judges and technicians make these technologies effective and appropriate to the public, and may favor the modification of the health habits of a population, as it correctly informs, bringing it

closer to its reality, in order to make it more adapted to the environment in which it is included⁽²⁶⁾. Roy's Adaptation model states that the person adapts holistically, interacting with internal and external environments. The main objective of the human being is to maintain the integrality of the environment, influenced by external and internal stimuli, and one of the goals of this nursing theory is to effectively and successfully provide adaptation⁽²⁷⁾.

CONCLUSION

It is believed that the educational technology in the form of video, incorporated into interventions and orientations of parents and caregivers of children who use CIC, contributes to the nurses' performance in their educational practice with the clientele and favors adherence to the adequate use of CIC by children in everyday life.

Guidelines for parents and caregivers of children on Clean Intermittent Catheterization, mediated by educational

technologies, are necessary in professional practice, especially in nursing, because they are more involved in the care process and in health education.

The video of this study is relevant because it is a technology that can be made available as a vehicle for communication and education of parents and caregivers for the benefit of children's health related to Clean Intermittent Catheterization.

The educational video was valid regarding appearance and content, with potential to mediate educational practices in a hospital context.

The time for the development of this research made it impossible to clinically validate the video with the target audience, but this stage will be conducted in a later study, with the application of the educational technology to the target audience. Among the limitations of this research, we highlight the difficulty of the expert judges in returning the instruments, in the validation stage.

RESUMO

Objetivo: Construir e validar vídeo educativo para orientação de pais de crianças em cateterismo intermitente limpo. **Método:** Estudo metodológico, desenvolvido em duas etapas: construção e validação de vídeo com juízes *expertises* no período de março a dezembro de 2016. A construção da tecnologia teve como referencial teórico a Teoria de Adaptação. Para análise dos dados utilizou-se do índice de correlação intraclasse. **Resultados:** A primeira versão do vídeo foi composta por 12 minutos, a validação indicou a substituição de termos técnicos por linguagem coloquial, dinamismo nos diálogos e menção à lavagem das mãos antes de reunir o material. No que se refere à confiabilidade total, o coeficiente de correlação intraclasse para todas as categorias avaliadas obteve o valor de 0,768, considerado razoável. Na avaliação de clareza de linguagem, pertinência à prática e relevância teórica, os resultados foram 0,745, 0,771 e 0,777, respectivamente, considerados razoáveis, com $p < 0,0001$. **Conclusão:** O vídeo educativo mostrou-se válido quanto à aparência e ao conteúdo, com potencial para mediar práticas educativas em contexto hospitalar e ambulatorial.

DESCRITORES

Cateterismo Urinário; Criança; Recursos Audiovisuais; Educação em Saúde; Enfermagem Pediátrica.

RESUMEN

Objetivo: Construir y validar video educativo para orientación de padres de niños en cateterismo intermitente limpio. **Método:** Estudio metodológico, desarrollado en dos etapas: construcción y validación de video con jueces *expertises* en el período de marzo a diciembre de 2016. La construcción de la tecnología tuvo como marco de referencia teórico la Teoría de Adaptación. Para el análisis de los datos se utilizó el índice de correlación intraclase. **Resultados:** La primera versión del video estuvo compuesta de 12 minutos, la validación señaló el reemplazo de términos técnicos por lenguaje coloquial, dinamismo en los diálogos y mención al lavado de las manos antes de reunir el material. En lo que se refiere a la confiabilidad total, el coeficiente de correlación intraclase para todas las categorías evaluadas obtuvo el valor de 0,768, considerado razonable. En la evaluación de claridad de lenguaje, pertinencia a la práctica y relevancia teórica, los resultados fueron 0,745, 0,771 y 0,777, respectivamente, considerados razonables, con $p < 0,0001$. **Conclusión:** El video educativo se mostró válido en cuanto a la apariencia y el contenido, con potencial para mediar prácticas educativas en entorno hospitalario y de ambulatorio.

DESCRIPTORES

Cateterismo Urinario; Niño; Recursos Audiovisuales; Educación en Salud; Enfermería Pediátrica.

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