

# Distance continuing education in nursing for wound care in prisons

Educação continuada em enfermagem à distância para tratamento de feridas em prisões

Educación continua en enfermería a distancia para el tratamiento de heridas en prisiones

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## Descritores

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## Descriptores

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## Abstract

**Objective:** To develop and validate a distance continuing education course in nursing for wound care in prisons.

**Methods:** Descriptive study on the development, configuration and validation of an online course in wound care aimed at health professionals in the prison system performed in three steps. The first step was the search for anteriority to check the existence of courses of wound care aimed at the prison system and prepare the course content based on a wound care protocol and on articles from databases. The second step consisted of setting up the course on the Moodle platform. In the third step, two rounds of the Delphi technique were applied to validate the course, including the consultation of seven invited experts with a minimum qualification of specialists in wound care (stomatherapy) or with at least one year of experience in the area of wound care.

**Results:** The wound care course was set up on the Moodle platform with six modules, six exercises and a learning assessment. The course was validated after two rounds of evaluation by the judges with a Content Validity Index of 0.83 in the first round and 0.98 in the second.

**Conclusion:** The distance continuing education course in nursing for wound care in prisons called "Online Continuing Education in Wound Care" was developed and validated.

## Resumo

**Objetivo:** Desenvolver e validar um curso de educação continuada em enfermagem a distância para tratamento de feridas em prisões.

**Métodos:** Estudo descritivo sobre o desenvolvimento, a configuração e a validação de um curso *on-line* para tratamento de feridas, destinado a profissionais de saúde do sistema prisional e realizado em três etapas. A primeira fase foi a busca de anterioridade, para verificar a existência de cursos de tratamento em feridas voltado ao sistema prisional e elaborar o conteúdo do curso, com base em um protocolo de tratamento de feridas e em artigos de bases de dados. A segunda fase consistiu na configuração do curso na plataforma Moodle. Na terceira fase, foram aplicadas duas rodadas da técnica Delphi para validação do curso, com consulta de sete especialistas convidados com titulação mínima de especialistas em tratamento de feridas (estomaterapia) ou com pelo menos um ano de experiência em atuação na área de cuidado com feridas.

**Resultados:** O curso de tratamento de feridas foi configurado na plataforma Moodle, com seis módulos, seis exercícios e uma avaliação de aprendizagem. A validação do conteúdo do curso ocorreu após a realização de duas rodadas de avaliação dos juizes, com Índice de Validade de Conteúdo de 0,83 na primeira e 0,98 na segunda.

**Conclusão:** Foi desenvolvido e validado o curso de educação continuada em enfermagem a distância para tratamento de feridas em prisões, denominado "Educação Permanente *On-line* sobre Tratamento de Feridas".

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Conflicts of interest: none to declare.

## Resumen

**Objetivo:** Desarrollar y validar un curso de educación continua en enfermería a distancia para el tratamiento de heridas en prisiones.

**Métodos:** Estudio descriptivo sobre el desarrollo, la configuración y la validación de un curso en línea para el tratamiento de heridas, destinado a profesionales de salud del sistema penitenciario y realizado en tres etapas. La primera fase fue la búsqueda de la anterioridad, para la verificación de la existencia de cursos de tratamiento de heridas direccionados al sistema penitenciario y elaborar el contenido del curso con base a un protocolo de tratamiento de heridas y a artículos de bases de datos. La segunda fase consistió en la configuración del curso en la plataforma Moodle. En la tercera fase, se aplicaron dos rondas del método Delphi para la validación del curso, con la consulta a siete especialistas invitados con titulación mínima de especialistas en el tratamiento de heridas (estomatología) o con un mínimo de un año de experiencia en la actuación en el área de cuidado con heridas.

**Resultados:** El curso de tratamiento de heridas se configuró en la plataforma Moodle, con seis módulos, seis ejercicios y una evaluación de aprendizaje. La validación del contenido del curso se dio después de la realización de dos rondas de evaluación de los jueces, con Índice de Validez de Contenido de 0,83 en la primera y de 0,98 en la segunda.

**Conclusión:** Se desarrolló y validó el curso de educación continua en enfermería a distancia para el tratamiento de heridas en prisiones, denominado "Educación Permanente en línea sobre el Tratamiento de Heridas" (*Educação Permanente On-line sobre Tratamento de Feridas*).

## Introduction

Distance learning is an educational resource through which it is possible to train a large number of professionals and offer flexibility, autonomy, interactivity and mobility of study for students.<sup>(1-3)</sup>

The use of technological tools allows students to build their own knowledge and have a more meaningful and pleasurable learning experience. Previous studies<sup>(3,4)</sup> have shown that distance learning is an effective and low-cost teaching modality in Continuing Health Education.

In continuing education through distance learning, health professionals can be trained on a continuous basis, so that they develop specific knowledge skills, thereby offering greater security in their practice, including wound assessment and care.<sup>(5,6)</sup>

The lack of experience and specific training makes it difficult to provide appropriate care. It is essential to implement resources aimed at continuing education in which strategies and continuous training actions are developed for greater safety in the process of wound assessment and care. Thus, the effective wound care and healing is achieved in the shortest possible time.<sup>(5,7)</sup>

Health professionals working with patients undergoing wound care must know about the healing process, control of the underlying disease, nutritional aspects interfering in wound care so that tissue restoration occurs without complications, and decision making on the most appropriate evidence-based conducts.<sup>(7,8)</sup>

Wounds affect the world population regardless of gender, age or ethnicity. Brazil ranks third in the world

for the largest population of people deprived of liberty. Compared to the general population, the prison population has a greater number of wounds because of the problems faced, such as overcrowding and unhealthy conditions that favor the occurrence of skin injuries.<sup>(9)</sup>

Wounds cause physical, psychological, social and economic changes for the individual, family and society. Thus, investing in continuing education of health professionals in the prevention, assessment and care of wounds is essential to reduce worsening conditions and provide quality of life to the population, in particular to those deprived of liberty, who have aggravating factors.<sup>(9)</sup>

The development of an online continuing education course in wound care for health professionals in the prison system, including physicians, nurses and nursing assistants, is necessary to address specific health issues of this population and standardize care according to the Wound Care Protocol for the Penitentiary System.<sup>(7,9)</sup>

The aim of this study was to develop and validate a distance continuing education course in nursing for wound care in prisons.

## Methods

This is a qualitative descriptive study on the development of a distance continuing education course in nursing for wound care in prisons, and a qualitative and quantitative study regarding the validation of the instrument by a panel of judges.

The study was conducted in three steps. In the first step, the search for anteriority was performed

with the aim to find continuing education courses in wound care focused on health professionals in the Brazilian prison system. The Google search tool was used, as well as pages of the Ministry of Health and the School of Penitentiary Administration of the Department of Penitentiary Administration with the following keywords in Portuguese: “*educação a distância*”, “*educação de enfermagem*”, “*prevenção e tratamento de feridas*” and “*prisão*”. Only one postgraduate course in Health Management in the Prison System was found, offered by the Universidade Federal do Mato Grosso do Sul (UFMS). No course for wound care aimed at health professionals working with people deprived of liberty was found.

For the development and finalization of the online course content, a bibliographic survey was conducted from September 1<sup>st</sup> to November 30<sup>th</sup> 2018 in the main databases, including the Medical Literature Analysis and Retrieval System Online (MedLine<sup>®</sup>), the Latin American and Caribbean Health Sciences Literature (LILACS) and the Education Resources Information Center (ERIC). The specific search strategies of each database and the Health Sciences Descriptors “distance learning”, “nursing education”, “wound care” and “wound healing” and their combinations in Portuguese and Spanish were used.

The selection criteria were: articles in English, Portuguese and Spanish published in the last five years (January 2013 to November 2018) that addressed the chosen theme. The search resulted in 233 works, of which 175 were excluded for being repeated or having title and abstract in disagreement with the study. Fifty-eight articles were evaluated by full reading and 36 were selected.

The course was designed on the Moodle platform in accordance with the format of the School of Penitentiary Administration platform. The content was distributed in six modules and the files for each module were made available for printing. Module titles are numbered in Arabic numerals and identify the topics covered. Post-textual elements such as bibliographical references and attachments (complementary materials) were organized at the end of each module. The course included a learn-

ing assessment for approval and certification. The assessment was structured in ten multiple-choice questions with the possibility of performing three attempts. In this process, the best grade was considered. Students should achieve at least 7.0 points to be approved and receive a certificate issued by the School of Penitentiary Administration.

In the third step, the Delphi technique was applied. Seven nurses were invited and accepted the invitation to compose the committee of expert judges on the subject. This is the minimum number of experts recommended for validation of the Delphi<sup>(10)</sup> method for course evaluation. Inclusion criteria were: minimum title of specialist in stomatology (wound care) or at least one year of experience in the area of wound care. An invitation letter specifying the objective of the study was sent by e-mail to each professional. All invited experts agreed to participate in the survey and filled out the Informed Consent form. Subsequently, guidelines for access to the course were sent together with a course evaluation questionnaire to be answered within seven days.

The Delphi technique allows the performance of multiple rounds of evaluation until there is consensus among judges. For validation of the study, at least two rounds are needed and a Content Validity Index (CVI) greater than 0.78 should be reached. In this study, two rounds were performed, as the CVI in the first round was 0.83 and in the second, 0.98.<sup>(3,10,11)</sup>

The CVI used to measure the proportion of agreement between judges was calculated by dividing the number of “appropriate” and “totally appropriate” responses by the total number of responses for each item in the questionnaire. The overall CVI was calculated by dividing the sum of the index values for all items by the total number of items evaluated.

The course evaluation questionnaires were arranged on a five-point Likert scale, as follows: totally appropriate, appropriate, partially appropriate, inappropriate and not applicable. A space was provided for the justification of assigned concepts and presentation of suggestions for improving the course by the judges.<sup>(3,10,11)</sup>

The evaluation questionnaire consisted of 19 items grouped into five categories as follows: handling the virtual environment (accessibility and navigability); proposed theme (relevance to the target audience and current events); texts and/or hypertexts (quantity of information, depth of approach, usefulness to the target audience, consistency with the course subject, clarity of information and relevance of references); images (quantity, creativity, attractiveness and relevance for learning) and interface quality (use of screen space, content visualization, type and size of typographic fonts, pictures and figures).<sup>(12)</sup>

The study was approved by the Research Ethics Committees of the participating institutions under opinion numbers 2.905.983 and 2.995.718.

## Results

Seven health professionals (J1 to J7) were invited and accepted to participate in the panel of judges in the validation process of the Online Continuing Education course in Wound Care for health professionals in the prison system. All professionals who participated as judges were nurses, had a postgraduate degree and worked in the healthcare area. The time since graduation in nursing varied between one and 20 years. Five judges had a master's degree, four had a specialization in stomatherapy, two were attending a specialization in stomatherapy; two worked in the prison system and one worked in the management and care area of public health.

In the first round of evaluation of the Delphi technique, an overall CVI of 0.83 was obtained. The CVI by categories presented the following values: handling of the virtual environment (0.86); course theme (1.0); content (0.58) and interface quality (0.40). Most suggestions made by the judges were about the content and its organization. The changes made were the creation of a module to address the attributions of the health team in the care of patients with wounds; insertion of complementary materials; changes in terminology and insertion of topics regarding the Unna's boot technique and application of coverings; inclusion of pictures and illustrative figures; and updates of the resolution of

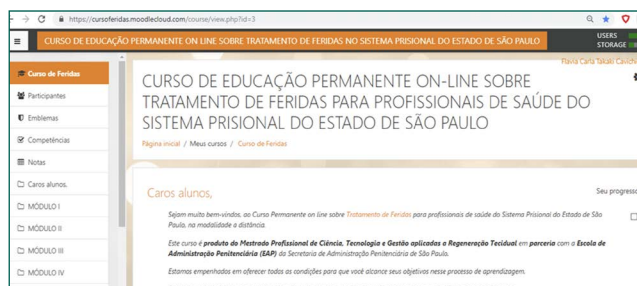
the Federal Council of Nursing -Cofen. The following suggestions were not included: discussion forum, given the proposed format of the course; coverings marks and information about amputation, loss of limb function and sequelae, as they do not fit the content of the wound protocol considered.

After the corrections, the second round of course evaluation was performed. The same seven judges were given a summary of the responses obtained during the first round and the changes made to the course. Then, they re-evaluated the course with corrections. Six out of the seven judges returned the completed questionnaires and one participant was excluded for not returning the questionnaire. There were two comments, and only one suggestion was accepted. The overall CVI was 0.98. Most items achieved a CVI of 1.0; the items content and interface quality had an index of 0.96 and 0.95, respectively, and the items creativity and attractiveness, learning significance and content visualization reached an index of 0.86. Thus, as CVI values were above 0.78 for all items, the Online Continuing Education course in Wound Care for health professionals in the prison system was validated.

The final product was the development of the Online Continuing Education course in Wound Care aimed at health professionals in the prison system, including physicians, nurses and nursing assistants. It contains six modules, six content files in PDF format, 13 items and 49 figures that complement the text, six fixation exercises, five problem-situation exercises with five multiple-choice questions, a learning assessment with ten multiple-choice questions and a 30-hour workload. The syllabus is distributed in the following modules: Module I – Considerations about wounds: definition and classification; Module II – Wound healing: factors that interfere with healing; Module III – Operationalization of care and attributions of the health team; Module IV – Wound assessment; Module V – Wounds: burns, pressure injury, traumatic injury and ulcers; and Module VI – Wound care. The course features a learning assessment for students' approval and certification.

An example of the introductory page of the course is shown in figure 1.





**Figure 1.** Course introductory page

## Discussion

The prison population is at high risk of illness due to conditions such as overcrowding and unhealthy environments. The high incidence of wounds in this population directly affects the patient's quality of life. The lack of more studies on the incidence of wounds in people deprived of liberty makes it difficult to compare with other countries. In a previous study, the most frequent wounds in this population were characterized as burns (22.95%), followed by pressure injuries (21.31%) and traumatic injuries (16.39%).<sup>(9)</sup>

The quality of care and the effectiveness of treatment are directly related to the use of clinical and care protocols, as they ensure the standardization of services and the quality of care provided in health institutions.

Prevention, promotion and treatment actions are essential for the control of chronic and degenerative diseases, which alter the integrity of the skin and interfere with the healing process. The implementation of resources for the continuing education of health professionals in wound assessment and care is essential to offer appropriate comprehensive care and assistance to patients.<sup>(13,14)</sup> The course addressed in this study is interdisciplinary and was developed for health professionals working in the prison system, including physicians, nurses and nursing assistants, so that these professionals can expand their knowledge about wound care. The course offers basic notions for the treatment of wounds and care flow and is directed to multidisciplinary teams, aiming at better efficiency in clinical practice and systematization of care. Studies show that training actions bring good learning results and acquisition of knowledge in care actions performed

by professionals providing care, and impact positively in the patient's treatment.<sup>(3,8,13,15)</sup>

Health professionals working in the prison system experience the peculiar conditions of incarceration that favor skin injuries in the prison population. They have specific training needs that are close to their routine, so care plans can be developed and efficiently executed.<sup>(6,7,9)</sup>

Through distance learning, health professionals can gain knowledge to help them use the protocol as a working tool in wound care.<sup>(4)</sup> Adults are motivated to learn according to personal and professional needs and interests, in a way that the acquired knowledge has application in real everyday problems. For an effective learning process, students must play a protagonist role in the learning process. Virtual learning environments favor self-directed and self-determined learning, value prior knowledge and allow participants to establish the path to be followed. The course becomes attractive when the approach to the content is close to the reality experienced by professionals, since incarceration and the prison system have particularities compared to other public health institutions and hospitals.<sup>(15-17)</sup>

The lack of instruments validated for Brazil for the evaluation of the Virtual Learning Environment stands out. It is difficult to compare development studies and evaluate Distance Learning courses, as few studies have been developed and different evaluation methods were used. The use of a validation instrument made it possible to evaluate and adapt the course developed for the Virtual Learning Environment before its availability to the target audience.<sup>(16,18,19)</sup>

The Online Continuing Education course in Wound Care for health professionals in the prison system was validated using the Delphi technique. This technique was chosen for content and format validation because it is widely used in research in various areas of knowledge, such as business, education, health, tourism, environmental studies, engineering, social sciences, administration, strategic planning and education, in addition to being consolidated in health research.<sup>(11)</sup>

The development and evaluation of online courses has already been addressed in the litera-

ture.<sup>(3,15)</sup> Studies have shown that distance learning courses for wound assessment have contributed to the acquisition of knowledge with better results than in-person education.<sup>(3,14)</sup> The use of online education also favored interest in the subject and encouraged nurses and nursing students to seek more information to meet the demands.<sup>(20)</sup> In the intensive care unit, greater risk assessment, description of the skin and preventive measures were observed.<sup>(9)</sup> Furthermore, it was found that nurses have little time for study, limited knowledge and practical weaknesses to assess the specificities of the injury and patient and indicate the covering and type of dressing to be used in the control of signs and symptoms of these injuries.<sup>(9)</sup>

This study resulted in the Online Continuing Education course in Wound Care for prison health professionals, which aims to expand opportunities of free education to prison health professionals, provide basic concepts on wound care and incorporate standardized methods in wound care, according to the Wound Treatment Protocol for the Penitentiary System. It is a flexible and accessible tool with practical applicability that provides fundamental knowledge for these professionals, so they can change health care routines within prison units and improve the quality of care for patients with wounds.

The perspectives of the study are the implementation of the Online Continuing Education course in Wound Care for health professionals in the prison system on the pages of the School of Penitentiary Administration; obtain the ISBN registration for the digital material of the course; encourage the development of other training courses and extend it to health professionals working in other prisons in the country.

## Conclusion

The distance continuing education course in nursing for wound care in prisons called “Online Continuing Education in Wound Care” was developed and validated.

## Collaborations

Cavichioli FCT, Blanes L, Garbe GG, Nicodemo D and Ferreira LM declare that they contributed to the study design, data analysis and interpretation, article writing or relevant critical review of the intellectual content and final approval of the version to be published.

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