

# Shift handover qualification in obstetric unit during the pandemic period: reinventions and learning

*Qualificação da passagem de plantão em unidade obstétrica durante período pandêmico: reinvenções e aprendizados*

*Calificación de cambio de turno en unidad obstétrica en período de pandemia: reinvenções y aprendizajes*

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## ABSTRACT

**Objective:** Qualify the shift handover in an Obstetric Unit during the COVID-19 pandemic period, through Permanent Health Education.

**Method:** Action research conducted in southern Brazil. The research was conducted from interviews with healthcare professionals and students and the data were analyzed using the Reflexive technique. Interventions took place in different work shifts, with the support of a serial album as a didactic and educational resource.

**Results:** The data analysis made it possible to record experiences and the delineation of two thematic categories: From traditional approaches to the reinvention of learning in healthcare work; and From conformism to professional growth.

**Conclusion:** The shift handover in the Obstetric Unit, through Permanent Health Education, enabled autonomous, interactive, and cooperative learning; awakened the desire to transcend the work routine; and highlighted the need to continuously (re)signify the healthcare work process.

**Descriptors:** Pandemics. COVID-19. Education, continuing. Learning health system. Delivery rooms.

## RESUMO

**Objetivo:** Qualificar a passagem de plantão em Unidade Obstétrica durante período pandêmico da COVID-19, por meio da Educação Permanente em Saúde.

**Método:** Pesquisa-ação realizada na região sul do Brasil. A investigação foi conduzida a partir de entrevistas com profissionais e alunos da saúde e os dados foram analisados pela técnica *Reflexive*. Já as intervenções ocorreram nos diferentes turnos de trabalho, com o apoio de um álbum seriado como recurso didático e educativo.

**Resultados:** A análise dos dados possibilitou o registro de vivências e a delimitação de duas categorias temáticas: De abordagens tradicionais à reinvenção da aprendizagem no trabalho em saúde; e Do conformismo ao crescimento profissional.

**Conclusão:** A passagem de plantão em Unidade Obstétrica, por meio da Educação Permanente em Saúde, possibilitou o aprendizado autônomo, interativo e cooperativo; despertou o desejo de transcender a rotina de trabalho; e intuiu à necessidade de (re)significar continuamente o processo de trabalho em saúde.

**Descritores:** Pandemias. COVID-19. Educação continuada. Sistema de aprendizagem em saúde. Salas de parto.

## RESUMEN

**Objetivo:** Calificar el cambio de turno en la Unidad Obstétrica durante el período de pandemia de COVID-19, a través de la Educación Permanente en Salud.

**Método:** Investigación acción realizada en la región sur de Brasil. La parte investigativa se realizó a partir de entrevistas a profesionales de la salud y estudiantes y se analizó mediante la técnica *Reflexive*. Ya las intervenciones se realizaron en diferentes turnos de trabajo, con el apoyo de un álbum seriado como recurso didáctico y educativo.

**Resultados:** El análisis de datos permitió registrar experiencias y la significación de las intervenciones resultó en dos categorías temáticas: De los enfoques tradicionales a la reinención del aprendizaje en el trabajo en salud y Del conformismo al crecimiento profesional.

**Conclusión:** El cambio de turno en la Unidad de Obstetricia, a través de la Educación Permanente en Salud, posibilitó el aprendizaje autónomo, interactivo, colegiado; despertó el deseo de trascender la rutina laboral; y destacó la necesidad de (re)significar continuamente el proceso de trabajo en salud.

**Descriptor:** Pandemias. COVID-19. Educación continua. Aprendizaje del sistema de salud. Salas de parto.

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## ■ INTRODUCTION

The COVID-19 pandemic, a disease caused by the new coronavirus (Sars-CoV-2), had an impact on global public health and compromised, above all, vulnerable groups such as pregnant women, parturients, the elderly people and others<sup>(1)</sup>. The pandemic generated uncertainties, learning, opportunities, questions and, at the same time, demanded professional reinvention and the urgent search for teaching and learning strategies capable of surpassing traditional models. The sectors overall were affected, but the situation was aggravated in healthcare services, due to the exhaustive work routines, illness among professionals and others<sup>(2,3)</sup>.

Healthcare professionals on the front lines in the fight and treatment of the new coronavirus were among the most affected. They remained exposed to high viral loads and a range of factors that influenced their personal, family, and social health. Moreover, the exhaustive workload, the lack of specific medications, the need for rapid, assertive, and continuous learning of new routines and protocols resulted in mental distress and high physical exhaustion. In the same proportion, there were correlated factors associated with fear of contracting the disease, concern for their own well-being and that of their family members, among other problems<sup>(4-6)</sup>.

The reinvented continuing/permanent health education emerged, in this context, as a viable and possible alternative to subsidize demands for professional qualification at work<sup>(7,8)</sup>. Integrated learning in healthcare work has traditionally been planned and scheduled on a specific annual calendar and streamlined based on various methodologies. With the emergence of the COVID-19 pandemic, this orderly and systematic course was changed in almost all health services and requiring agile and resolute theoretical-practical approaches.

Published studies are mostly aimed at highlighting the gaps in remote learning during the pandemic period, difficulties in accessing and managing online teaching and learning platforms, difficulties related to the transition to remote learning, among others<sup>(9-14)</sup>. One study recognized, however, the effects of the COVID-19 pandemic on the life and training of healthcare professionals and indicates prospective lifelong training strategies, such as telehealth and others<sup>(15)</sup>.

Therefore, the COVID-19 pandemic resulted in physical, emotional, social, and other professional consequences. It was thinking about the urgency of integrating the University to healthcare services and, to address the needs of healthcare professionals that the present research question emerged: How to qualify the shift handover in an Obstetric Unit in the emergency of the COVID-19 pandemic period, through Permanent Health Education? The objective was,

therefore, to qualify the shift handover in an Obstetric Unit during the COVID-19 pandemic period through Permanent Health Education.

## ■ METHOD

### Study design

Action research was adopted due to the possibility of this methodology to provide collaborative and participatory teaching and learning for healthcare professionals and students. This method considers empiricism based on a previously identified demand, to enable interventions that meet the needs and demands of the participants<sup>(16)</sup>. During the construction of this study, the criteria of the Consolidated Criteria for Reporting Qualitative Research (COREQ)<sup>(17)</sup> were considered.

### Study setting

The process of qualifying the shift handover, through Permanent Health Education, took place in an Obstetric Unit of usual risk, of a medium-sized hospital in southern Brazil, during the COVID-19 pandemic period. Interventions focused on thematic needs suggested by local managers and were conducted with the participation of professionals and students of undergraduate courses in healthcare fields (Nursing, Physical therapy, Medicine, and Nutrition).

The Obstetric Unit comprises two delivery rooms, pre-delivery and post-delivery (PPP), an assessment room with risk classification, a pediatric consultation room and 23 beds, of which 16 are for hospitalization, 2 for normal deliveries, 2 for observation and 3 beds for newborns, nursery format. The team consists of Physicians and Obstetric Nurses, Pediatricians, Nursing Technicians, Residents in Obstetric Nursing, in addition to undergraduate students in healthcare fields on supervised internship. The daily work routine is six hours and/or night and weekend shifts. This institution was chosen because it is the setting for an expanded action-research focused on Permanent Health Education and, mainly, because of the desire of the local Nursing management that, in the pandemic period, sought support to foster agile and resolute learning processes.

### Study participants

The study included 23 professionals from the multiprofessional health team who, a priori, had been integrated into the process of qualifying the shift handover in the Obstetric Unit,

as follows: Obstetric Nurses (5); Residents in Obstetric Nursing (4), Obstetricians (2); Pediatrician (1); Nursing Technicians (11). Five undergraduate students in healthcare from a local University, who were in a supervised internship, also participated. The following inclusion criteria were considered: healthcare professionals and students in practical activities at the Obstetric Unit, who had previously participated in all the shift handover qualification interventions. Professionals and students who, for some justified reason, were absent from the service were excluded from the study.

### Interventions in the obstetric unit

Initially (beginning of the action research) Permanent Health Education interventions related to preventive and restrictive measures for COVID-19, conducted in the first half of 2021, were contemplated. Among the interventions, which were identified based on needs assessments by field of study and indicated by the local nursing management, were weekly educational workshops on handwashing, correct use of personal protective equipment, gowning and de-gowning procedures, basic measures to combat the new coronavirus COVID-19, among others.

The present research addresses meanings regarding interventions on the care of newborns in an Obstetric Unit, promoted during the shift handover. Interventions were conducted in different work shifts, with the support of a serial album as a didactic and educational resource<sup>(18)</sup>, which was organized from a collection of sheets containing illustrative figures. Based on technical-scientific documents from the Ministry of Health and scientific evidence, the serial album was designed to equip professionals and students with regard to the care of newborns in an Obstetric Unit, more specifically during the emergency of COVID-19.

The module on the qualification of newborn care in an Obstetric Unit, promoted during the shift handover with the support of the serial album, was promoted by two university professors, specialized in the area, with previous experience in conducting Permanent Health Education activities. This module was requested by the local management, due to the high number of complications in newborns in the Obstetric Unit. The interventions were conducted in-person, lasting 15 to 20 minutes/shift, right after the professionals received the handover from the previous shift. The interactive and participatory interventions involved analyzing and questioning the illustrations contained in the serial album. The institutional contingency protocols were respected throughout the process.

### Data collection technique

Data collection was conducted between July and December 2021. After the dynamization of interventions in the scenario, it was conducted the investigative process of the meaning of the qualifying interventions of the shift handover related to the care of newborns, based on the didactic resource serial album. This investigative process took place through interviews, on days and times previously scheduled, and was guided by in-depth questions: Tell me about the meaning of Permanent Health Education in this new modality. What is the meaning of the qualifying interventions of the shift handover, based on the didactic resource serial album? What did this journey mean to you?

### Data analysis technique

For data analysis, it was used the Reflexive<sup>(19)</sup> analysis technique. It enabled the recording of experiences and facilitated the fluid, dynamic and flexible coding of meanings attributed to the interventions performed. Under this framework, we sought to achieve not only accuracy, but the in-depth understanding of the experiences, based on the six phases of the thematic analysis: a) Familiarization – consisted of repeated reading of the data and a drafted list of ideas; b) Initial code generation – manual systematization of relevant extracts from the statements; c) Coding of themes – themes were sought based on the classification of different codes; d) Refinement of themes – the refinement of the themes was conducted from the validation of the initial themes; e) Naming of categories – based on the essence that each theme portrays in its set of codes, naming the thematic categories; f) Production of the report – the aim was to provide a reflective and detailed description of the path experienced.

### Ethical aspects

Throughout the construction and reporting of this study, the recommendations of Resolution No. 466/2012 of the National Health Council<sup>(20)</sup> and the recommendations of Curricular Letter No. 2 of 2021 related to research during the pandemic<sup>(21)</sup> were considered. The study was approved in 2021 by the Research Ethics Committee under opinion number: 4830591. It should be noted that after acceptance by the participants, they signed the Informed Consent Form. The anonymity of the participants was ensured and their statements were identified, throughout the text, with the initials "N" for Nurse, "R" for Resident, "P" for Physician, "NT" for Nursing Technician and "HS" for Healthcare Students, followed

by a number, corresponding to the order of the speeches: N1..., R1..., P1..., NT1..., HS1...HS5.

## RESULTS

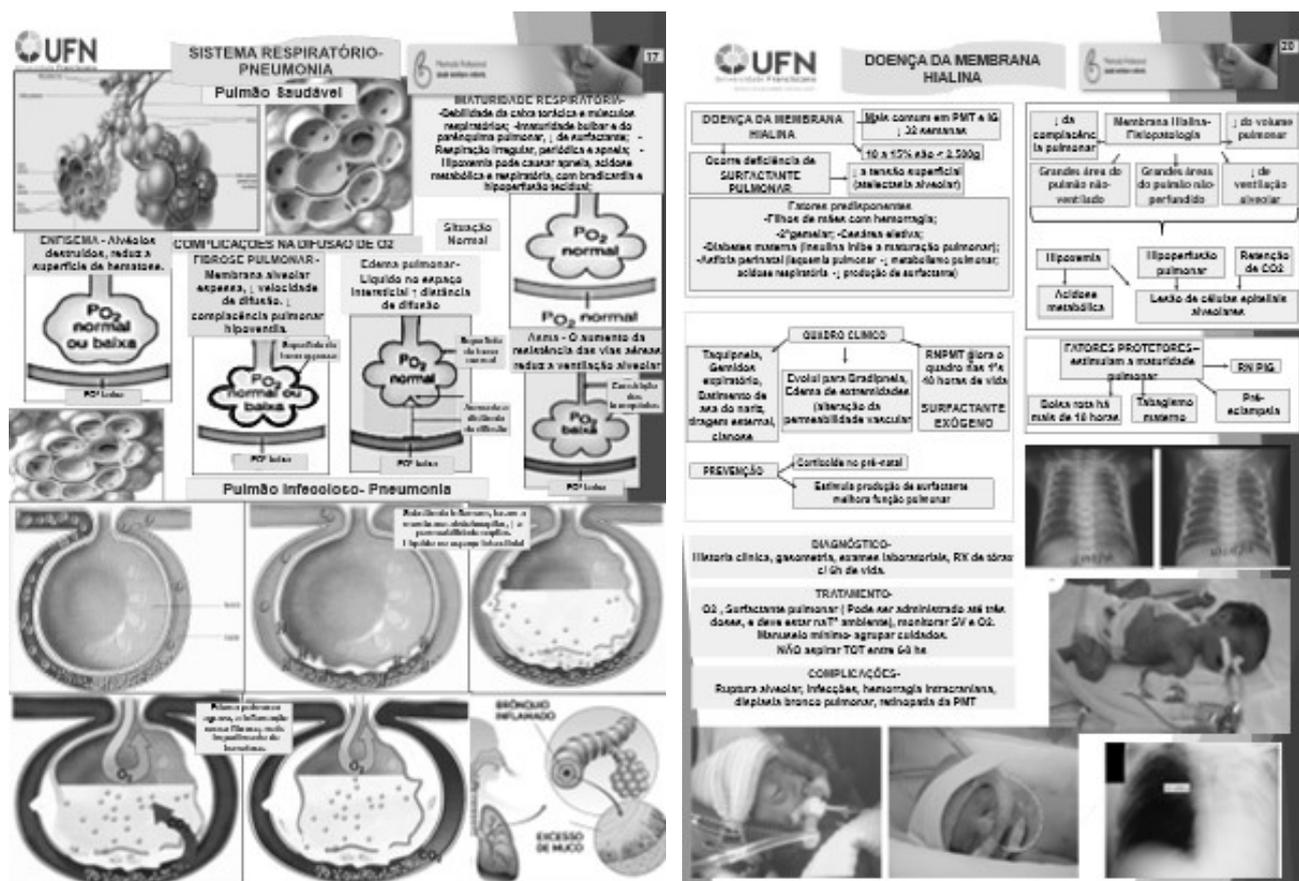
The Permanent Health Education intervention module consisted of 54 meetings, which occurred daily right after the shift handover, that is, at 1:10 pm and 7:10 pm. Healthcare professionals and students who were entering and completing their shift participated in this process. The meetings lasted 15 to 20 minutes, and the same theme was repeated in the different work shifts. This process had the serial album as a didactic resource, which was previously developed by undergraduate and graduate nursing students, based on demands for professional qualification at work during the pandemic period. The themes contemplated in the serial album are about the care of the newborn's skin and stump,

Apgar test, physiological changes (respiratory, cardiac, neurological, gastrointestinal) and other.

Figure 1 shows illustrations of the serial album consisting of 30 pages: cover, figures and the respective script sheets and technical sheet with the names of the authors.

The serial album described is fully available and free of charge at the following link: <https://www.ufn.edu.br/site/arquivo/baixar-arquivoanexoado/CDA8C33CEA480A74039A8EA0ABBE4B5E>.

The analyzed data resulted in two thematic categories, named: From traditional approaches to the reinvention of learning in healthcare work, and From conformism to professional growth. It was decided, in addition to the descriptive presentation of thematic meanings, to give voice to the experiences and expressions manifested and/or not by the participants, considering the dynamism and interactivity of the action-research.



**Figure 1** – Illustrations from the serial album, entitled “Care for the newborn in the first week of life”. Santa Maria, Rio Grande do Sul, Brazil, 2021  
Source: The authors.

## From traditional approaches to the reinvention of learning in healthcare work

Although tired and often demotivated by the exhaustive work routine intensified with the COVID-19, the professionals and students involved in the meaning of the intervention process, demonstrated to be prestigious, supported and considered in their unique needs, when expressing:

*How good it was. This way of promoting permanent education has become much easier, more attractive and engaging. (N1, N2, N3, R1, R2, P2, NT1, NT3, HS1, HS2, HS3, HS5)*

Most participants recognized and highlighted the importance of learning arising from real demands and streamlined in short periods and during working hours. They also emphasized the relevance of methodologies that enable interaction, proximity and articulation of theoretical knowledge with practice, as shown:

*All shifts had the opportunity to participate and also discuss topics that we requested and felt the need to learn more about. (NT1)*

*This form of permanent education facilitates our participation, as we are learning during the work shift and in an easy way. (NT2)*

*Being able to discuss nursing care in the workplace and during working hours, without having to come on another shift or out of working hours, makes it much easier and motivates us to learn more. (R3)*

*The methodology used to address the theme of care for newborns in the first week of life was creative, which allowed the team to visualize and understand the improvements in a pleasant way. The use of time combined with the shift handover also contributed to the team's participation. (N1)*

Other participants referred, in the same proportion, to the images and illustrations in the serial album, which allowed and expanded the apprehension of new information, and favored the participatory construction of theoretical-practical knowledge, as explained.

*This modality of permanent education using the serial album was wonderful; well-illustrated and problematized. (N2)*

*The methodology used by you through the serial album made our learning process much easier, as it used accessible, easy-to-understand language and discussed issues that we are experiencing. This shows us why things happen, the respiratory complications of Newborns. (N3)*

*I had several doubts that were resolved from the serial album illustrations. This knowledge of permanent education at the same work shift enriches us and drives us to want to know more. (R1)*

*I thought the serial album was wonderful, as it was very illustrative and very explanatory. Easy-to-understand words were also used and, therefore, I was able to relate well to our daily practice. (HS2)*

*The serial album was very supportive. I noticed that everyone became more attentive and satisfied. (P1)*

Some participants highlighted the relevance of the meetings held during the shift handover, between shifts, because they occurred before the work routine and because the professionals are in smaller groups, closer and determined to learn collectively. One participant highlighted the fact that this serial album remained in the Obstetric Unit, for later revisions, if necessary.

*Look, even though I was sometimes interrupted by routine issues, the ongoing education in the shift handover, using the serial album, was very rich. I admired your willingness to repeat the same subject three times. It was better than a lecture in the auditorium, because then we would be close, clarify doubts and we would always see the images. (N2)*

*The training conducted during shift handover with the team was extremely valuable, as it reinforced important topics for the team and, as a result, the serial album was made available when doubts arise about the discussed themes could be addressed. This enabled the whole team to have clear and cohesive information. (N3)*

*The training conducted during the shift handover provided broad participation and learning, because in this way, we can, in addition to exercising listening, enable a moment of knowledge exchange and strengthening of care. (N4)*

*I thought the methodology of the serial album was super cool. You managed to fill this knowledge gap. I know I still have a lot to learn, but these meetings during the shift handover were great and very productive. (R3)*

Learning during the shift handover, enhanced by the serial album as a didactic-instructional tool, contributed, according to the participants' statements, to greater integration and participation of professionals in the construction of new knowledge. This approach resulted in professional motivation and aroused the desire for further learning and updates.

### From conformism to professional growth

It was observed, in most of the participants' statements, the relevance of this modality of permanent health education, on the shift handover and from illustrative and attractive didactic resources. This teaching and learning approach allows promoting the autonomous construction of knowledge and the possibility of qualifying professional practices throughout life.

*This form used to promote permanent education at the Unit awakened in me a great desire to search for more, to always know more. I realized myself, that I needed this recycling. I was a little settled in my routines. (NT2)*  
*I liked the participation of the nursing technicians, who even when they finished the requested topics, they asked for more subjects to be discussed. This stimulates us as Nurses who coordinates an obstetric unit to promote more discussions on the subjects and care that we practice on a daily basis. (N2)*

*We need to have more moments like these, as it stimulates our continuous learning. (NT1)*

Participants highlighted the importance of relevant and meaningful thematic discussions for their daily professional practice. They recognized the importance of scientific evidence that guides the healthcare work process.

*You addressed topics that we experience on a daily basis and, often, we did not know how to act. Now, with these clarifications, we learned about childbirth complications, the main diseases that affect newborns, and the most important nursing care to be performed at that moment. This has opened our minds, I think it's very important for us to do things and know with evidence why we're doing it. (R2)*

*Oh, the serial album experience during the shift handover was wonderful. You know, people who work in two places don't have a lot of time available, so the way you organized it was great. I leave here with a lot of desire*

*to learn new things. That's why I always asked a lot of questions in our meetings. (NT1)*

The experience carried out by the participants showed the desire for evolution and continued learning. In addition to new knowledge and practices, the experience boosted initiatives, fostered the desire for autonomous search and awakened the need to go beyond the daily work routine.

*Learning with a serial album is very easy to absorb knowledge and also to learn more about pathologies. Today I learned a lot and I wanted to learn more. (NT4)*

*It was a very fruitful moment, rich in the exchange of knowledge and experiences, through a different perspective on the care for the newborn. It provides us with clarity and knowledge on topics that have not often addressed. I hope to continue with this dynamic. (R3)*

*I already told the hospital management that we should have more continuing education meetings during shift handovers. This makes it much easier for us and helps us to better understand the pathophysiology of diseases and the actions we must take. (N2)*

The results demonstrated that permanent health education does not consist in idealizing long and exhausting training periods. Engaging, close, collaborative and small group learning experiences can increasingly (re)signify and enhance the daily practice of healthcare professionals, especially during pandemic periods.

## ■ DISCUSSION

When discussing Permanent Health Education, in a pandemic period, the first questions that come to mind are: how to organize a permanent education schedule in view of the exhaustive work routines of healthcare professionals? How to reinvent this path based on participatory and interactive approaches that can motivate healthcare professionals? How to innovate and (re)signify Permanent Health Education amidst the imminence of generalized chaos in the health area?

Periods of uncertainty and chaos offer, in parallel, opportunities and the potential for transcending established mental models and institutionalized thinking. Similar to the changes that occurred in the educational system leading to paradigm shifts<sup>(22-24)</sup> in days and weeks, profound changes also occurred in the scope of Continuing Health Education. However, it is necessary, beyond resolutions and guidelines

promoting Permanent Health Education, to contemplate and anticipate technologies that meet the needs of professionals, especially during the COVID-19 pandemic.

Among the main technological strategies used by healthcare services, realistic simulation stands out, which guarantees a safe environment for the qualification of professionals, especially in situations with a potential risk of contagion, such as COVID-19. Studies show that several healthcare services promoted the training of professionals during the pandemic based on simulations, which were updated both from a pedagogical and technological point of view. This technological advance allowed the training of skills, such as quick decision-making, teamwork and other decisive actions<sup>(25,26)</sup>.

Faced with routine changes and prospecting technologies, collective and interprofessional approaches are encouraged and necessary. Limiting to the healthcare field demonstrates the inability and incapacity to confront the complex challenges that need to be addressed to improve health and well-being and, in this way, reduce discontinuities in healthcare work. A study demonstrates that, to face rapid and growing changes, it is necessary to expand collective efforts to document, understand and record practical lessons and new and old initiatives<sup>(27)</sup>.

The required changes are increasingly associated with teaching and learning approaches both in the formal educational system and in lifelong training paths. Beyond to reproducing academic content, it is necessary to awaken the autonomous construction of participants, in this case healthcare professionals. Therefore, there is talk of a prospective movement to induce new knowledge and practices, for which technologies and/or didactic resources are highly desired. This perception was clear in the speech of the participants, when they stated that the *"serial album was relevant to relate theory to daily practice"*.

The serial album can be considered a technology of easy access and wide reach in healthcare services, due to its practicality, dynamism, and the fact that it does not depend on advanced resources for its implementation. A study<sup>(28)</sup> that used the serial album showed highly favorable characteristics from the possibility of creating illustrative characters and playful approaches to a certain topic.

The serial album is a didactic resource, widely used in healthcare services. One study, in particular, constructed and validated the serial album for the prevention of pressure ulcers in hospital settings<sup>(29)</sup>. Another study validated the content and design of a serial album for children aged 7 to 10 years, with a view to preventing and controlling body weight<sup>(30)</sup>. Both studies concluded the relevance of the serial album and its educational potential in health education processes.

Didactic-educational technologies aim to build and share knowledge and practices in an interactive and horizontal way among the participants. Under this approach, these technologies should increasingly be stimulated and promoted among healthcare professionals, undergraduate and graduate students and users, to enable innovation and transformation of the work process and health care<sup>(31)</sup>.

Permanent Health Education, understood as lifelong learning, is based on the idea that personal, social, professional development and continuous learning occur uninterruptedly throughout life journey, with the aim of re-signifying professional practice. Another study<sup>(32)</sup> showed that lifelong learning combined with didactic technologies, such as the serial album, has been driving new ways of managing and streamlining the training process.

The contributions of this study to the technical-scientific advancement of Nursing/Health are associated with the perception that Nursing has the potential to reinvent itself in different contexts, realities and situations. It is recognized, in this direction, that the disorder caused by the COVID-19 pandemic enabled healthcare professionals to open up to the new and be willing to take collective and prospective leadership. It is also emphasized that the present work can serve as a stimulus for other centers that try to reinvent the process of permanent health education. It is not possible for healthcare professionals, in general, to exit the pandemic in the same way they entered it, considering that the vital system has been changed.

As for limitations of this study, one limitation is the non-participation of all professionals scheduled in intervention activities, due to incidents during the shift handover. Another limitation is associated with any sound noise present in the unit.

## ■ CONCLUSION

The shift handover in the Obstetric Unit, through Permanent Health Education during the COVID-19 pandemic period, enabled the qualification of the work process, by inducing autonomous, interactive, and cooperative learning in the different work shifts.

It was evident that the desire for qualification and growth on the part of professionals and students involved is related to the healthcare intervention approaches, as well as to the didactic resources of support and interlocution. Training pathways capable of promoting visual, auditory, and kinesthetic learning are increasingly valued and requested.

Based on the results achieved, it is suggested that further research be conducted that include diversified approaches to

learning at workplace, in order to expand and strengthen the process of permanent health education, as lifelong learning. It is essential that the teaching and learning process at work serves as a driver of dynamism, creativity and innovation and not be reduced to a mere schedule of prescriptive tasks for compliance with institutional and/or legal regulations.

## ■ REFERENCES

1. Sánchez-García JC, Moreno NPC, Tovar-Gálvez MI, Cortés-Martín J, Liñán-González A, Olmedo LA, et al. COVID-19 in pregnant women, maternal-fetal involvement, and vertical mother-to-child transmission: a systematic review. *Biomedicine*. 2022;10(10):2554. doi: <https://doi.org/10.3390/biomedicine10102554>
2. Peeri NC, Shrestha N, Rahman MS, Zaki R, Tan Z, Bibi S, et al. The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what lessons have we learned? *Int J Epidemiol*. 2020;49(3):717-26. doi: <https://doi.org/10.1093/ije/dyaa033>
3. Pinho JRR, Oliveira KG, Sitnik R, Maluf MM, Rodrigues PHS, Santana RAF, et al. Long term persistence of coronavirus SARS-CoV-2 infection. *Einstein*. 2021;19:eRC6369. doi: [https://doi.org/10.31744/einstein\\_journal/2021RC6369](https://doi.org/10.31744/einstein_journal/2021RC6369)
4. Van Bavel JJ, Baicker K, Boggio PS, Capraro V, Cichocka A, Cikara M, et al. Using social and behavioural science to support COVID-19 pandemic response. *Nat Hum Behav*. 2020;4(5):460-71. doi: <https://doi.org/10.1038/s41562-020-0884-z>
5. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open*. 2020;3(3):e203976. doi: <https://doi.org/10.1001/jamanetworkopen.2020.3976>
6. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *New Engl J Med*. 2020;382(13):1199-207. doi: <https://doi.org/10.1056/nejmoa2001316>
7. Kumar A, Sarkar M, Davis E, Morphet J, Maloney S, Ilic D, et al. Impact of the COVID-19 pandemic on teaching and learning in health professional education: a mixed methods study protocol. *BMC Med Educ*. 2021;21:439. doi: <https://doi.org/10.1186/s12909-021-02871-w>
8. Ballesteros BLB, Cortez EA. Permanent education as a strategy to transform the meaning of life of the health professional in the face of the pandemic. *Res Soc Dev*. 2021;10(6):e49510615707. doi: <https://doi.org/10.33448/rsd-v10i6.15707>
9. Alsoufi A, Alsuyhili A, Mshergahi A, Elhadi A, Atiyah H, Ashini A, et al. Impact of the COVID-19 pandemic on medical education: medical students' knowledge, attitudes, and practices regarding electronic learning. *PloS One*. 2020;15(11):e0242905. doi: <https://doi.org/10.1371/journal.pone.0242905>
10. Jowsey T, Foster G, Cooper-loelu P, Jacobs S. Blended learning via distance in pre-registration nursing education: a scoping review. *Nurse Educ Pract*. 2020;44:102775. doi: <https://doi.org/10.1016/j.nepr.2020.102775>
11. Al-Balas M, Al-Balas HI, Jaber HM, Obeidat K, Al-Balas H, Aborajooch EA, et al. Distance learning in clinical medical education amid COVID-19 pandemic in Jordan: current situation, challenges, and perspectives. *BMC Med Educ*. 2020;20(1):341. doi: <https://doi.org/10.1186/s12909-020-02257->
12. Khalil R, Mansour AE, Fadda WA, Almsnid K, Aldamegh M, Al-Nafeesah A, et al. The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: a qualitative study exploring medical students' perspectives. *BMC Med Educ*. 2020;20(1):285. doi: <https://doi.org/10.1186/s12909-020-02208-z>
13. Mpungose CB. Emergent transition from face-to-face to online learning in a South African University in the context of the Coronavirus pandemic. *Humanit Soc Sci Commun*. 2020;7:113. doi: <https://doi.org/10.1057/s41599-020-00603-x>
14. Munir F, Saeed I, Shuja A, Aslam F. Students fear of COVID-19, psychological motivation, cognitive problem-solving skills and social presence in online learning. *Int J Educ Pract*. 2021;9(1):141-54. doi: <https://doi.org/10.18488/journal.61.2021.91.141.154>
15. Rose S. Medical student education in the time of COVID-19. *JAMA*. 2020;323(21):2131-2. doi: <https://doi.org/10.1001/jama.2020.5227>
16. Koerich MS, Backes DS, Sousa FGM, Erdmann AL, Albuquerque GL. Pesquisa-ação: ferramenta metodológica para a pesquisa qualitativa. *Rev Eletr Enferm*. 2020;11(3):717-23. doi: <https://doi.org/10.5216/ree.v11.47234>
17. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349-57. doi: <https://doi.org/10.1093/intqhc/mzm042>
18. Fontenele NAO, Ximenes MAM, Brandão MGS, Fernandes CS, Galindo Neto NM, Carvalho REFL, et al. Creation and validation of a serial album for the prevention of pressure ulcer: a methodological study. *Rev Bras Enferm*. 2021;74(3):e20201060. doi: <https://doi.org/10.1590/0034-7167-2020-1060>
19. Souza LK. Pesquisa com análise qualitativa de dados: conhecendo a análise temática. *Arq Bras Psicol*. 2019 [citado 2021 jun 24];71(2):51-67. Disponível em: <http://pepsic.bvsalud.org/pdf/arb/v71n2/05.pdf>
20. Ministério da Saúde (BR). Conselho Nacional de Saúde. Resolução nº 466, de 12 de dezembro de 2012. Aprova diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. *Diário Oficial União*. 2013 jun 13 [citado 2021 jun 24];150(112 Seção 1):59-62. Disponível em: <https://pesquisa.in.gov.br/imprensa/jsp/visualiza/index.jsp?data=13/06/2013&jornal=1&pagina=59&totalArquivos=140>
21. Ministério da Saúde (BR). Secretaria-Executiva do Conselho Nacional de Saúde. Comissão Nacional de Ética em Pesquisa. Orientações para procedimentos em pesquisas com qualquer etapa em ambiente virtual [Internet]. Brasília, DF; Ministério da Saúde: 2021 [citado 2021 jun 17]. Disponível em: [http://conselho.saude.gov.br/images/Oficio\\_Circular\\_2\\_24fev2021.pdf](http://conselho.saude.gov.br/images/Oficio_Circular_2_24fev2021.pdf)
22. Maqsood A, Abbas J, Rehman G, Mubeen R. The paradigm shift for educational system continuance in the advent of COVID-19 pandemic: mental health challenges and reflections. *Curr Res Behav Sci*. 2021;2:100011. doi: <https://doi.org/10.1016/j.crbeha.2020.100011>
23. Dhahri AA, Arain SY, Memon AM, Rao A, Mian MA; Medical Education Pakistan (MEP) collaborator group; Muhammad Amer Mian. The psychological impact of COVID-19 on medical education of final year students in Pakistan: a cross-sectional study. *Ann Med Surg*. 2020;60:445-50. doi: <https://doi.org/10.1016/j.amsu.2020.11.025>
24. Sun MS, Wah CBL. Lessons to be learnt from the COVID-19 public health response in Mauritius. *Public Health Pract*. 2020;1:100023. doi: <https://doi.org/10.1016/j.puhip.2020.100023>
25. Brandão CFS, Bergamasco EC, Vaccarezza GF, Barba MLF, Andrade EFM, Cecilio-Fernandes D. Training in healthcare during and after COVID-19: proposal for simulation training. *Point of View. Rev Assoc Med Bras*. 2021;67(Suppl 1):12-7. doi: <https://doi.org/10.1590/1806-9282.67.Suppl1.20200710>
26. Mohammadi G, Tourdeh M, Ebrahimi A. Effect of simulation-based training method on the psychological health promotion in operating room students during the educational internship. *J Educ Health Promot*. 2019;8:172. doi: [https://doi.org/10.4103/jehp.jehp\\_106\\_19](https://doi.org/10.4103/jehp.jehp_106_19)

27. Falloon G. From digital literacy to digital competence: the teacher digital competency (TDC) framework. *Educ Technol Res Dev.* 2020;68:2449-72. doi: <https://doi.org/10.1007/s11423-020-09767-4>
28. Rodriguez Sandoval MT, Bernal Oviedo GM, Rodriguez-Torres MI. From preconceptions to concept: The basis of a didactic model designed to promote the development of critical thinking. *Int J Educ Res Open.* 2022;3:100207. doi: <https://doi.org/10.1016/j.ijedro.2022.100207>
29. Fontenele NAO, Ximenes MAM, Brandão MGSA, Fernandes CS, Galindo Neto NM, Carvalho REFL, et al. Creation and validation of a serial album for the prevention of Pressure Ulcer: a methodological study. *Rev Bras Enferm.* 2021;74(3):e20201060. doi: <https://doi.org/10.1590/0034-7167-2020-1060>
30. Saraiva NCG, Medeiros CCM, Araujo TL. Serial album validation for promotion of infant body weight control. *Rev Latino Am Enfermagem.* 2018;26:e2998. doi: <http://doi.org/10.1590/1518-8345.2194.2998>
31. Santos SB, Machado APA, Sampaio LA, Abreu LC, Bezerra IMP. Acquired syphilis: construction and validation of educational technology for adolescents. *J Hum Growth Devel.* 2020;29(1):65-74. doi: <https://doi.org/10.7322/jhgd.157752>
32. Ivenicki A. Digital lifelong learning and higher education: multicultural strengths and challenges in pandemic times. *Ensaio Aval Pol Públ Educ.* 2021;29(111):360-77. doi: <https://doi.org/10.1590/S0104-403620210002903043>

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