

Teaching of Health Care-Related Infections within an Integrated Nursing Curriculum

Suellen Karina de Oliveira Giroti¹, Mara Lúcia Garanhani¹,
Maria Helena Dantas de Menezes Guariente¹, Elaine Drehmer de Almeida Cruz²
¹Department of Nursing of the State University of Londrina (UEL),
State University of Londrina, Londrina, Brazil
²Department of Nursing of Federal University of Paraná, Curitiba, Brazil
Email: suellenkarina@hotmail.com

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Health care-related infections have become an issue of paramount importance in the health care field. Their rates are high in many parts of the world and the adherence of health care professionals to prevention and control measures still involves a minority of them. This study aims to analyze how the teaching on the theme *health care-related infections* takes place within an integrated Nursing curriculum. This is a qualitative research carried out through documentary analysis of the teaching plans adopted in interdisciplinary modules and interviews conducted with professors. Data collection took place in 2012. To deepen the analysis, we used Edgar Morin's theoretical framework. We found out that the formal teaching on the theme was conducted in a theoretical and practical way, and there were some contradictions between what professors reported and what was recorded in the teaching plans. Given the complexity of health care-related infections, we hope that this study contributes so that professors dealing with Health Sciences think through their education practices, seeking to systematize this theme with a view to training professionals committed to prevention measures and infection control. We advocate for including the theme in a cross-sectional way into the curriculum to educate nurses and the other health care professionals.

Keywords: Nursing Education; Infection; Curriculum

Introduction

Many contents are relevant to train the nurse for a professional practice consistent with the social needs involved health care; among them, stand out the theme health care-related infections (HCRIs).

In the late 20th century, HCRIs started being regarded as a public health problem, instead of being just focused on the hospital environment. The subject began to be publicized, discussed, and planned, promoting the development of prevention and control actions in all health care areas in the world (Lacerda, 2003).

The HCRIs are among the five leading causes of death worldwide (Nosow & Puschel, 2009), next to cardiovascular diseases, neoplasms, respiratory diseases, and infectious diseases. According to a study carried out in Brazilian hospitals, there is a wide variation in the mortality coefficients due to hospital-related infection, from 9% to 58%, reaching 40% among bloodstream infections. It is known that the rates related to these illnesses vary according to topography, primary disease, etiology, among others (Marra *et al.*, 2011; Ministry of Health, 2009).

Given this context, nurse's training requires systematic discussions on HCRIs. They must be taught, covering the theo-

retical and practical knowledge field, in order to develop professional activities and attitudes aimed at the prevention and control of infections (Azambuja, Pires, & Vaz, 2004). We emphasize that the various diagnostic and therapeutic procedures taught always comply with infection prevention guidelines and routines (Pereira, Souza, Tipple, & Prado, 2005; Tipple & Souza, 2013). Thus, it is believed that, as soon as the theme HCRI becomes more frequently addressed in Higher Education courses, there will be an increased adherence to prevention and control guidelines on the part of these professionals.

Since the nurse is the professional in charge of supervising the various environments involved in health care, she/he must be prepared to work there by connecting her/his entire knowledge to the prevention and control of the HCRIs.

Thus, we decided to conduct this study to deepen this issue regarding nurse's training. Therefore, the guiding question of this research is: "How has the teaching on the theme HCRI been conducted in a Nursing course in southern Brazil?" The purpose is to analyze this issue within an integrated Nursing curriculum.

Method

Type of study: this is a research with a qualitative nature,

carried out in 2012.

Study site: this study was carried out in a Nursing school in southern Brazil, which has been applying an integrated curriculum for thirteen years.

The integrated curriculum is defined as that providing a knowledge organization which integrates contents holding a relation to each other. For this, there is subordination of each previously acquired piece of knowledge to a central idea.

The integrated curriculum enables the inclusion of themes in a gradual, comprehensive, and continuous way, over the four years student training, by means of interdisciplinarity. Knowledge construction takes place by putting social reality and the health care field into question, encouraging student's active participation in the learning process, appreciating her/his previous knowledge, and establishing a relationship between theory and practice (Garanhani & Do Valle, 2010).

The curriculum matrix of this proposal is established in 18 interdisciplinary modules. They are characterized as activities seeking to develop competences through the inter-relation of concepts and organization of activities, which encourage meaningful learning by means of active methodological strategies. The modules are organized into teaching units which guide and lead the student to a gradual acquisition, with greater breadth and depth in the development and construction of knowledge (Garanhani, Alves, Nunes, & Araújo, 2012).

The teaching plans used in modules of the Nursing course were named planning and development notebooks of the interdisciplinary modules. These notebooks are designed by professors from the knowledge areas related to the teaching units involved, and they are intended to make clear the learning path that the student should follow. The notebooks are structured in: general purpose, workload, competences, specific performances and skills, teaching units, and activity sequences to be developed by the student in different learning environments, assessment criteria, and references.

Study participants: 19 professors of the undergraduate Nursing course participated in the study, whose inclusion criteria was being coordinator of a module and teaching according to the integrated curriculum for at least two years. Other sources of data were the planning and development notebooks of the interdisciplinary modules.

Data collection procedures: data were collected by means of semi-structured interviews with 19 professors of the Nursing course and documentary analysis of the planning and development notebooks of the interdisciplinary modules of the year 2012.

The semi-structured interview consisted of the following questions: In the module you coordinate, is any approach formally or informally made to health care-related infections? How are these activities conducted?; Is this theme considered in student's learning assessment? How? How do you assess the teaching of this subject in the integrated curriculum? After transcribing the interviews, professors' testimonies were identified using a number. When the modules had more than one coordinator, we added a letter to the number, in order to identify the different coordinators involved in the same module, e.g. 11A, 11B, and 11C. The planning and development notebooks for the teaching and learning activities of the interdisciplinary modules were randomly numbered, corresponding to the coordinators concerned.

Data analysis procedures: for analyzing the interviews, we used the content analysis technique (Bardin, 2011), applied in 3

phases: pre-analysis, material exploration, and processing of results.

Pre-analysis: it is the time for organizing materials, systematizing ideas, choosing documents, reviewing the hypotheses and objectives proposed. At this time, the interviews were transcribed, read, and organized, providing an overview of the collected data.

Material exploration: this phase consists in encoding data to reach the text's core understanding, a representation of the content. At this phase, the transcribed interviews were interpreted and separated into register units. Then, these units were brought closer with regard to their similarities and differences, i.e. they were organized into categories.

Processing of results: the results already categorized are interpreted so that they become meaningful. The results of this study were interpreted and analyzed from the researcher's perspective, as well as by means of the theoretical framework on HCRI and the theoretical framework proposed by Edgar Morin (2000, 2010, 2011).

For documentary analysis of the teaching plans of interdisciplinary modules, then there was a reading which consisted of four phases, as suggested by Gil (2010): exploratory, selective, analytical, and interpretive reading.

The exploratory reading: it aims to identify information and data in the documents studied, analyzing consistency and establishing the relation of information contained in the documents to the proposed problem. At this phase, all the teaching plans, represented by the planning and development notebooks of the interdisciplinary modules were fully read.

The selective reading: it is a critical and objective reading aimed to determine which material actually matters, considering the research objectives. At this time, we sought to identify which notebooks of the interdisciplinary modules could provide references to the theme HCRI. At this time, two modules were excluded, because they consist in preparing the course conclusion monograph.

The analytical reading: it aims to organize and summarize information contained in the documents, seeking answers to the research problem. Reading at this phase must be objective, impartial, and respectful, without researcher's bias or unwell-beingness. At this phase, we selected in the planning and development notebooks of the interdisciplinary modules the following topics: module identification; competences, performances, skills and references specific to HCRI.

The interpretive reading: it is the last phase of this process and the most complex one, seeking to compare the meaning obtained through analytical reading without compromising the scientific validity of documents. At this phase, we sought to relate citations of the theme under study to concepts and constructs defined by the theoretical grounding of the subject and the theoretical framework proposed by Edgar Morin (2000, 2010, 2011).

In this study, we use the term "formal" to deal with teaching situations, where it is intended to promote education so that there is a pedagogical interaction with overt definition of objectives, criteria for selecting contents, identification of methodological guidelines, and indication of assessment criteria. In turn, the term "informal" refers to activities taking place without overt definition of purpose and strictly educational interaction, when situations occur with no prediction or formalization of procedures (Ministry of Health, 2003).

Theoretical framework: in order to study teaching on

HCRI within an integrated Nursing curriculum, we chose to adopt as theoretical framework the Complex Thought proposed by Edgar Morin. This thought has enabled us to think through the theme of HCRI within the integrated curriculum, including the complexity of interdisciplinary education pursuing entirety. When making the Complex Thought closer teaching on HCRI and the integrated curriculum, we believe that it is possible to address this theme as a complex content.

Ethical aspects: this study was approved by the Research Ethics Committee of the State University of Londrina (UEL), Paraná, Brazil, under the Protocol 173/2011, according to the CAAE 0162.0.268.000-11.

Results and Discussion

Out of the 19 interviewed professors, 12 have a Ph.D academic title and 7 are Masters, only 1 is a man, the time since graduation ranged from 10 to 34 years and 17 are graduated from the university under study. The time working as a professor ranged from 6 to 34 years, and the time working as module coordinator ranged from 1 to 10 years.

Out of the 16 planning and development notebooks of the interdisciplinary modules, used in the Nursing course in 2011, we identified 44 references to the theme HCRI from the 2nd to the 4th grades of the course. In the first year of the course, this theme was not introduced to the students

In the second year, 2 modules addressed the contents: hand hygiene and antisepsis, use of gloves for prevention and self-protection, disinfection of the patient's unit, sterilization processes and quality control, microbial death mechanisms, biosafety, and issues related to the Regulating Standard (RS) 32, which deals with the safety and health status of health care professionals. The following definitions were worked on: hospital-related infections; infection in health care services; usual, resident, and transient microbiota; asepsis; anti-asepsis; contamination; disinfection; cleaning; sterilization, and chemical agents.

In the third year, all modules adopt some sort of approach to the theme. They were related to the prevention and control of hospital-related infections regarding newborn infant's health, children and adolescents' health, women's health, and adult health.

The last year of the course brought relevant issues regarding critical patients, transmission mechanisms of infectious agents, major agents found in patients from the intensive care unit, prevention of hospital-related pneumonia in patients using mechanical ventilation, tracheostomy tube care, biosafety, RS 32, unit disinfection processes, and isolation/caution standards regarding communicable diseases.

Combining the analysis of the notebooks of the interdisciplinary modules to the interviews conducted with professors enabled the construction of three thematic categories which cover teaching, extracurricular activities, and the theme HCRI.

Teaching of Health Care-Related Infections

The professors reported conducting formal, theoretical, and practical activities, in 9 interdisciplinary modules. The documentary analysis revealed that 7 interdisciplinary modules showed agreement between the formal record of the activity and the interview with professors.

Regarding the theoretical contents addressed, themes associated to HCRI were cited, such as: nursing history, microorgan-

isms, surgical site infection, infectious diseases during pregnancy, puerperal complications, respiratory infections, vaccination, basic sanitation, disinfection, sterilization, and processing of dental/medical hospital devices. Reports by professors illustrate these findings:

We mainly address the reason why she [Florence Nightingale] had a health education view, we talk about it [...] they approach this issue of hospital-related infection, which is very important, caring procedures, and everything else, so, by studying Florence, they see that she decreased the hospital-related infection rate, the number of deaths. (5)

In fact, infection is systematized, in the module where it is addressed, we check signs of surgical site infection, indicate factors [...] we mainly address surgical site infection, not only that related to the patient, but also that related to the professional. (14B)

In this study, the RS 32 and biosafety were included because we believe that these themes have a direct relation to HCRI. The coordinators have described formal activities on these 2 themes in 5 modules. Documentary analysis showed that, formally, the RS 32 and biosafety are addressed in 3 notebooks of the interdisciplinary modules.

According to professors, practical classes enable the acquisition of specific techniques, such as hand hygiene, surgical instrumentation, and conduction of invasive procedures, especially at units with surgical patients, material and sterilization center, and surgical center, as well as guidelines for hospital discharge. The speech of a professor expresses an example of practical activity:

[...] nevertheless, they have a practical class on handwashing. This handwashing class is a practice using paint on the hands. (4)

Respondents also reported that there is no formal education on HCRI in 5 modules, and 1 of these had some activities designed as formal in the notebook of the module. This leads us to reflect on the lack of knowledge about the module itself. Some coordinators justified the absence of the theme based on the relevance of the contents specific to their modules.

Documentary analysis also showed that 4 interdisciplinary modules had specific bibliographic references on HCRI. They were cited by respondents with regard to formal activities and had records in the planning and implementation notebooks; 3 interdisciplinary modules, which also mentioned formal activities and records in documentary analysis, showed no specific references to the theme.

Many professors reported that in the interdisciplinary module they work in they adopt an informal approach to the theme, totaling 13 modules. The informal approaches were reported as those occurring by means of reflection on the theme both in theoretical and practical classes. For instance, reflections on HCRI related to care for polytrauma patients, as well as for children and elderly people, different types of infection, material and sterilization center and surgical center, emergence of multidrug-resistant microorganisms, among others. The speech below illustrates this finding:

[...] but we have worked this way. We care for the child with multidrug-resistant organism, then, we discuss which microorganism we are fighting, why [the patient] is isolated. So, we always discuss with them, explain the reason why we use the protective equipment, we analyze whether it is needed. (15)

The results revealed both agreement and disagreement between what is recorded in the notebooks of the interdisciplinary

modules and the testimonies of professors. This fact shows both a clear and structured dimension of the curriculum and a hidden curriculum which is progress.

Contradiction between what was recorded and what was reported is not an unusual fact in education, as professors often address themes which were not planned. However, this reality, although showing that the issue has been addressed, does not guarantee that it will be made available for all students. Anyway, both situations express a reality experienced between teaching planning and execution.

It is possible to observe that the hidden curriculum practice takes place in the reality under study. The hidden curriculum is that where standards, teachings, and values are transmitted in an implicit, but effective, way to students, and usually they are not described in the course plannings prepared by professors (Magalhães & Ruiz, 2011).

Thus, in this curriculum, overt and covert teaching practices interact, there is no absolute reason, but a teaching practice which is conducted by means of ongoing construction.

Thinking of education according to the reflections provided by Morin's complex thought implies put it under a totalizing view, under a comprehensive understanding of life with regard to all of its possibilities and constraints. Morin believes that something complex requires a thought which captures relations, inter-relations, mutual implications, multidimensional phenomena, realities which are both sympathetic and conflictive, besides respecting diversity and, at the same time, unity. This is an organizing thought that designs the reciprocal relationship between all parties (Morin, Almeida, & Carvalho, 2009).

According to Morin, the fragmentation and compartmentalization of disciplines leads to hyper-specialization, something which prevents us from looking at the global, making it impossible to learn what is woven together. The knowledge separating the complex from the world divides problems into portions, but the key issues are not divisible, they must be thought through within their context, which needs to be related to world's context (Morin, 2010). The author claims that life brings possibilities and constraints through contradictory concepts, in a dialogical way. It becomes dialogic by combining two principles which should exclude each other, but, at the same time, they are inseparable within the same reality, assuming that contradictory notions come together in order to devise a single complex phenomenon (Morin, E., Almeida, M., & Carvalho, E. A. (Org.). (2009).

One principle of the integrated curriculum assumes that the whole and the parts are simultaneously worked on, connecting concepts and relating them to knowledge from various disciplines. This is the principle of entirety, which must be implemented in all modules of the curriculum (Garanhani, Alves, De Almeida, & Araújo, 2012). We may relate this principle to Edgar Morin's holographic principle, which claims that not only the part is into the whole, but the whole is inscribed on the parts; thus, we may not reduce the whole to the parts, or the parts to the whole (Morin, Almeida, & Carvalho, 2009; Morin, 2011; Ministry of Health, 2003).

We emphasize the importance of the relationship between theory and practice for constructing knowledge and the adoption of strategies for active teaching and learning. The student, by conducting activities in this context, has the possibility to gather values and responsibilities, establishing relationships between social facts and the various realities observed in practice. The experience in multiple and varied practical spaces

enables the student to exercise perception, observation, and analysis, contributing to change concepts and meanings (Coberlini et al., 2010). Theoretical and practical spaces must be together in the teaching and learning process, thus, the student may establish a meaningful relationship during the acquisition of knowledge.

Thus, we emphasize the need for professors to think through teaching on the theme HCRI, so that it is part and is connected to the other contents addressed in nurse's training. It is noteworthy that the absence of the theme is not justified by the contents specific to each module. Thinking of entirety, we believe that the HCRIs are observed in the everyday work of all health care services. Education must be a training process which does not reject specific knowledge, indeed, it has to deal with the specificity of events, processes, natural phenomena, and history, as a provisional synthesis of multiple determinations (Silva & Camillo, 2007).

Morin (2011) emphasizes that the professor must not simply communicate the contents which students should study, but participate in the construction of knowledge, contextualizing and inter-relating students' doubts and findings, contributing to improve individual discretion and responsibility.

We think that the HCRIs must be among the cross-sectional themes within the curriculum, regarded as those permeating the curricular disciplines, aiming to contribute to provide the nurse with a comprehensive training, making her/him able to face reality and live in a globally connected world. Cross-sectionality promotes a systematic approach of themes along with contents specific to each module, every year and in an increasing way, and it is related to specific abilities that students must acquire (Guariente et al., 2012). Thus, the information and data are addressed in context, allowing students to make sense of them, since knowledge on isolated information or data is not enough for learning (Silva & Camillo, 2007).

Morin, E., Almeida, M., & Carvalho, E. A. (Org.). (2009) indicates that the pertinent knowledge must recognize this multidimensional nature and introduce relevant data to it. Complex thinking is useful to interconnect these kinds of knowledge, in order to deal with the relationship between the disciplines.

We highlight the importance of specific bibliographic references to support students when studying the theme. Currently, the provision of technical-scientific content (Ministry of Health, 2009; Center for Disease Control and Prevention [CDC], 2011; Silva, Carvalho, Canini, Cruz, Simões & Gir, 2010), by means of open access to scientific journals, organizations, and government agencies, enables updating and favors the teaching and learning process.

Knowledge integration between professors must benefit both of them, in order to establish a recursive relationship, where products and effects are producers and causers of each other (Morin, 2005). A society is produced through interactions between individuals, generating an organized whole which retroacts on individuals, in order to coproduce them as human subjects, something which they would not be if they had no education, language, and culture (Estrada, 2009).

It is considered that, with regard to the education processes, there are always less systematized and more spontaneous spaces which interact with what is actually found. Often, these spaces are those allowing interactive processes with education outcomes as favorable as the formal spaces (Ministry of Health, 2003).

However, the non-systematized education practice, informal, depends on the opportunities of each reality, leading the theme

to be addressed only if a correlated situation occurs during the practical class. This informality does not ensure the intentionality required so that the theme is worked on with all students, a fact observed in this study in the approach to the content multidrug-resistant microorganisms. Respondents indicated that this approach is not systematized, they believe that there is no way for the student to go through the practical fields without experiencing this subject. However, in case they do not care for patients with multidrug-resistant microorganisms, the systematic approach to the theme would be absent in the curriculum under analysis.

Edgar Morin's complex thought proposes interaction between the various thinking modes, by focusing on a thinking way which does not separate, but rather connects and seeks needed and interdependent relationships between all aspects of human life (Silva, Carvalho, Canini, Cruz, Simões, & Gir, 2010). The author argues that we must seek a knowledge way able to grasp objects within their context, complexity, and set (Garanhani, Alves, De Almeida, & Araújo, 2012). It is believed that the theme HCRI, when addressed in formal and informal ways, allows students to take contact with its complexity, gathering knowledge to achieve a professional training with critical and reflective abilities.

Extracurricular Activities Aimed at the Teaching of Health Care-Related Infections

During the interviews, some professors mentioned as a contribution to student learning the optional extracurricular internship offered by the Commission for Hospital-Related Infection Prevention and Control (CCIH) of the University Hospital. The internship, according to the coordinators, provides opportunity to supplementary activities and it is regarded as a factor which has significantly contributed to student learning, according to the testimony below:

What a mind change when they [students] go through this environment, when they start understanding more clearly the activities of CCIH. [...] They bring more information, a better mastery of concepts. When we discuss concepts on infection, sterilization, they already have this knowledge; when we discuss biosafety, care for patients with multidrug-resistant bacteria [...] they already know the way how to care for them, they know the way how to act. The issues of contact prevention, epidemiological surveillance, students know them all. (11B)

Other professors reported that the students participating in the internship at CCIH, often, bring updates on HCRI, even contributing to professors' learning. In this interaction between professors and students, we resume the idea of recursion, where knowledge exchange between individuals generates an organized whole (Estrada, 2009; Morin, 2011).

The National Curriculum Guidelines for the Undergraduate Course in Nursing provide for the development of extracurricular activities, which should be supplementary and conducted on a continuous way throughout the professional training (Resolução CNE/CES n. 3/2001, 2001). We noticed that the internship at CCIH brings the student into the hospital environment, allowing students to establish a relationship between theory and practice and, thus, contributing to professional training.

We may say, anchored in Morin's complex thought, that it becomes of paramount importance to learn to contextualize, know how to situate knowledge in an organized set, i.e. global-

ize. Students must gather knowledge in their own life to better clarify their behavior and self-knowledge, favoring the ability to reflect, meditate on knowledge (Morin, Almeida, Carvalho & organizadores, 2009). Knowledge acquired during the extracurricular internship, increasing the information on HCRI within the integrated nursing curriculum, leads the student to contextualize the theme under study with regard to the global reality in which we live.

Assessment of Learning on Health Care-Related Infections

Professors mentioned that, when assessing students, the HCRI are included, at least, into 1 of the education units of 4 interdisciplinary modules. These 4 modules also showed formal and informal education activities and only 1 of them did not address this content in the notebook. Below, we have the account of a professor on the way how he assesses students with regard to the theme under study.

We have a written assessment, risk factors for infection, signs of surgical site infection, the issue of hospital discharge, which advice would you give to a patient at the time of hospital discharge after surgery. (14B)

However, in 11 interdisciplinary modules the respondents reported that the theme was not included when assessing, either theoretically or practically. We stress that, out of these 11 modules, 5 reported formal and informal activities and other 4 reported informal activities. Out of the 11 modules, 5 showed activities described in the planning and development notebook of the interdisciplinary modules observed in documentary analysis.

Ensuring continued reflection and assessment of education practice, checking the needs to change or rearrange them, involves an attitude of commitment and responsibility in the teaching and learning relationships, always taking into account the complexity and comprehensiveness of this practice (Bedin & Scarparo, 2011). In this sense, the situation presented above deserves attention, since, if on the one hand we have the positive fact that the theme concerned is addressed at various times throughout the course, on the other hand this theme is disconnected from the abilities aimed by the students, because it is not addressed during the formal assessment process. Assessment is not intended only to formally register learning, indeed, it has a diagnostic, procedural, descriptive, and qualitative function. It is a strategy for intervening, needed in order to achieve future advances from the level reached by the student in the teaching-learning process (Ministry of Education, 2007). Thus, we highlight the importance of also including the HCRI in the assessment process of student learning, something which contributes to the assessment on the way how this theme is addressed by professors.

A key principle of Complex Thought related to the assessment process is recursion, a process in which products and effects are, simultaneously, both causes and producers of what has been produced, thus breaking with the linear idea of cause/effect and product/producer (Menossi, Zorzo & De Lima, 2012; Morin, 2011). This process favors a self-constitutive, self-organizing and self-productive cycle.

Final Remarks

This study showed that not all interdisciplinary modules of the integrated curriculum under study addressed the theme HCRI.

Formal education is conducted in a theoretical and practical way, and there are contradictions between what professors reported they do and what is recorded in the teaching planning notebooks. Informal and extracurricular activities take place in the education practice within the reality under analysis.

Considering the results and the relevance of the HCRI for nurse's training, we advocate for their inclusion in nursing curricula as a cross-sectional theme, i.e. which permeates all modules and/or disciplines every year. There is a need for formally including HCRI in teaching planning. We suggest that this proposal also be discussed in the assessment forums of Nursing curricula, providing professors with opportunities to think through teaching on HCRI and share experiences. We also regard as relevant updating professors' knowledge on contents, abilities, and skills aimed at the HCRI, enabling an integrated approach to the specific contents of each interdisciplinary module, aiming at nurse's training.

We hope that the analysis of this experience in a Nursing course which has adopted an integrated curriculum can also be experienced in other Nursing schools. The curriculum, in its pedagogical project, focuses on the use of active methodologies under a teaching and learning idea which is critical and thoughtful, with interdisciplinary and inseparability between theory and practice. This curriculum also promotes the training of professionals by means of the knowledge required to improve the critical and reflective ability to analyze their professional actions.

Given the complexity of HCRI, we hope that this study can contribute so that the professors working within the Health Sciences field pay attention to their education practices on HCRI; it must be systematized in the curricula in order to have effects on student's learning, on the training of committed professionals who are aware of prevention and control measures aimed at the HCRI.

REFERENCES

- Azambuja, P. E., Pires, D. P., & Vaz, M. R. C. (2004). Prevention and control of hospital-related infection: The interfaces with the worker's training process. *Text & Context Nursing, 13*, 79-89. <http://dx.doi.org/10.1590/S0104-07072004000500009>
- Bardin, L. (2011). *Content analysis* (5th ed.). Lisbon: Ed. 70.
- Bedin, D. M., & Scarpato H. B. K. (2011). Comprehensiveness and mental health in the Unique Health System under the light of Edgar Morin's complexity theory. *Psychology: Theory and Practice, 13*, 195-208. http://pepsic.bvsalud.org/scielo.php?pid=S1516-36872011000200015&script=sci_arttext
- Centres for Disease Control and Prevention (2011). *Guidelines for the prevention of intravascular catheter-related infections*. Department of Health & Human Services, CDC, Atlanta. <http://www.cdc.gov/hicpac/pdf/guidelines/bsi-guidelines-2011.pdf>
- Corbellini, L. V. L., et al. (2010). Nexus and challenges in nurse's professional training. *Brazilian Journal of Nursing, 63*, 555-560. <http://www.lume.ufrgs.br/bitstream/handle/10183/28857/000764623.pdf?sequence=1>
- Estrada, A. A. (2009). The fundamentals of Edgar Morin's complexity theory. *Akrópolis, 17*, 85-90.
- Garanhani L. M., & Do Valle, E. R. M. (2010). *Nursing education: Existential analysis in an integrated curriculum from Heidegger's perspective*. Londrina: EDUEL.
- Garanhani L., M., Alves, E., Almeida, E. F. P., & Araújo, L. D. S. (2012). Guiding principles of the pedagogical project of the integrated nursing curriculum. In: E. M. Kikuchi, & M. H. D. M. Guariente (Eds.), *Integrated curriculum: The experience of the nursing course of the State University of Londrina*. Londrina: EDUEL.
- GIL, A. C. (2010). *How to develop research projects* (5th ed.). São Paulo: Atlas.
- Guariente, M. H. D. M., et al. (2012). Saps of the integrated nursing curriculum. In: E. M. Kikuchi, & M. H. D. M. Guariente (Eds.), *Integrated curriculum: The experience of the nursing course of the State University of Londrina*. Londrina: EDUEL.
- Lacerda, R. A. (2003). *Infection control in the operating room: Facts, myths, and controversies*. São Paulo: Atheneu.
- Magalhães, R. C. B., & Ruiz, E. M. (2011). Stigma and hidden curriculum. *Brazilian Journal of Special Education, 17*, 125-142.
- Marra, A. R., et al. (2011). Nosocomial bloodstream infections in Brazilian hospitals: Analysis of 2563 bases from a prospective nationwide surveillance study. *Journal of Clinical Microbiology, 49*, 1866-1871. <http://dx.doi.org/10.1128/JCM.00376-11>
- Menossi, J. M., Zorzo, J. C. da C., & de Lima, R. A. G. (2012). The dialogic life-death in care delivery to adolescents with cancer. *Latin American Journal of Nursing, 20*, 126-134.
- Ministry of Education (2007). *Continued training program for teachers at the early grades of Primary School: Literacy and language*. Brasília: Brazil.
- Ministry of Health (2003). *Pedagogical training in professional education in the Nursing area*. Brasília: Brazil.
- Ministry of Health (2009). *Surgical site: National criteria of infections related to health care*. Brasília: Brazil.
- Morin, E. (2005). *Method 4: Ideas-Habitat, life, customs, organization* (4th ed.). Porto Alegre: Sulina.
- Morin, E. (2010). *The well-made mind: Rethinking reform, reforming thought* (18th ed.). Rio de Janeiro: Bertrand Brasil.
- Morin, E. (2011). *Introduction to complex thought*. Porto Alegre: Sulina.
- Morin, E., Almeida, M., & Carvalho, E. A. (2009). *Education and complexity: The seven kinds of knowledge and other essays* (5th ed.). São Paulo: Cortez.
- Nosow, V., & Puschel, V. A. A. (2009). The teaching of attitudinal contents in the early training of the nurse. *Journal of the School of Nursing of USP, 43*, 1232-1237. <http://www.scielo.br/pdf/reeusp/v43nspe2/a15v43s2.pdf>
- Pereira, M. S., Souza, A. C. S., Tipple, A. F. V., & Prado, M. A. (2005). Hospital-related infection and its implications for nursing care. *Text & Context Nursing, 14*, 250-257. <http://www.scielo.br/pdf/tce/v14n2/a13v14n2.pdf>
- Resolution CNE/CES nr. 3/2001. (2001). *Establishes the national curricular guidelines for the undergraduate nursing course*. Brasília: Ministry of Education.
- Silva, A. M., Carvalho, M. J., Canini, S. R. M. S., Cruz, E. D. A., Simões, C. L. A. P., & Gir, E. (2010). Methicillin-resistant *Staphylococcus aureus*: Knowledge and factors associated with adherence by the nursing team to preventive measures. *Latin American Journal of Nursing, 18*, 50-56. http://www.scielo.br/pdf/rlae/v18n3/pt_08.pdf
- Silva, A. L., & Camillo, S. O. (2007). Nursing education under the light of the complexity paradigm. *Journal of the School of Nursing of USP, 41*, 403-410. <http://www.scielo.br/pdf/reeusp/v41n3/09.pdf>
- Tipple, A. F. V., & Souza, A. C. S. (2013). Infection prevention and control: How are we? What are the advances and challenges? *Electronic Journal of Nursing, 13*, 10-11. <http://www.fen.ufg.br/revista/v13/n1/v13n1a01.htm>