

# HEALTHY PLACES: THE RELATIONSHIP BETWEEN ARCHITECTURE AND NURSING

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## Abstract

Objective: To identify the contributions that the nursing profession can make to the architecture of the health spaces in order to make them the most appropriate and sustainable as possible. Methods: Systematic review of the literature. Used the Nursing & Allied Health Collection databases: Comprehensive, CINAHL Complete, Library, Information Science & Technology Abstracts; & MedicLatina. The articles were selected with the following criteria: 1. Full-text articles; 2. Peer-reviewed articles. 3. Articles published between 1994 to 2014. We selected 10 of the 117 articles presented. Results: Nurses can provide valuable contributions in accordance with its practice and holistic view of the patient that may lead to health outcomes, not only for patients and their families but also for multidisciplinary teams working in the various contexts of care such as acute care, primary care and long-term care, improving the work satisfaction and reducing the turnover. Healthy healthcare environments are associated not only with better health outcomes but also with better management of human and financial resources. Conclusions: it should be promoted a partnership and coordination between architecture and nursing, to promote healthy environments for patients and professionals, working together to eliminate architectural barriers and investing in financial and ecological sustainability of spaces. Further studies are needed to support this evidence.

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**Keywords:** Architecture, nursing, environments, health, outcomes

## Introduction

Over time, structures have been created that are intended to be a place for the provision of health care. These structures are based on principles of sustainability and accessibility, although principles are not always consistent with those that are the real needs of users and professionals who work there.

Nurses represent the largest share of professionals in health, are present throughout the twenty-four hours a day among users and it is in these spaces that are designed and built, that they carry out their activity. We considered relevant to assess how nursing profession can help the give the architecture tips for designing the best spaces and aim to create value especially when it comes to effective health gains not only for users but also to the professionals who work there which conditions should also be preserved. We assume the principle that this interdisciplinary work can be effectively added value to health.

### **Methodology**

We conducted a systematic review of the literature. We used the Nursing & Allied Health Collection databases: Comprehensive, CINAHL Complete, Library, Information Science & Technology Abstracts; & MedicLatina. The articles were selected with the following criteria: 1. Full-text articles; 2. Peer-reviewed articles. 3. Articles published between 1994 to 2014. We selected 10 of the 117 articles presented.

### **Results**

In this sense we prepared a summary table of the studies considered more relevant to the development of theories. These studies are structured in the following table taking into account aspects impacting on analysis to be undertaken, including the purpose, the type of study, the population, the instruments and the respective results. This analysis type, similar to that used in the process of systematic review of the literature, allows a cross-reading and summarized the characteristics of the studies.

Study	Authors	Year	Aim	Methodology	Results
1	Hunteman, Greg	2013	Make design decisions based on aspects known to promote positive outcomes.	-	This definition underscores the need to approach projects with a knowledge base of current evidence for design that will provide better outcomes. By using existing EBD and contributing new informed design recommendations, architects can continue to improve the quality of life inside long term care communities.
2	Connellan, Kathleen; Gaardboe, Mads; Riggs, Damien; Due, Clemence; Reinschmid, Amanda; Mustillo, Lauren	2013	To present a comprehensive review of the research literature on the effects of the architectural designs of mental health facilities on the users.	Systematic search of peer reviewed literature addressing mental health care and architectural design published between 2005 to 2012, as well as a systematic search for academic theses for the period 2000 to 2012.	Based on the review results, especially the growing evidence of the benefits of therapeutic design on patient and staff well-being and client length of stay, additional research questions are suggested concerning optimal design considerations, designs to be avoided, and the involvement of major stakeholders in the design process.
3	Stichler, Jaynelle F.	2013	Describe the physical challenges that ageing nurses experience and the facility design features that can promote healthy work environments to motivate nurses to continue working	Electronic databases in medicine, nursing, psychology, and architecture were searched and evidence-based, non-evidence-based, and	Older nurses have a wealth of knowledge and expertise, and the design of nursing units can optimize their work experience. Nurse Managers must participate in design efforts and advocate designs that support aging nurses.

				review articles and government and organisational newsletters were evaluated.	
4	Molina, Francisco; González, Maripaz; Lizancos, Francisco; Casañas, Felisa V.; Castro, Alvaro	2012	To offer an approach to architecture for healing and care	Review of the different architectural models, since the fifteen century have been developed	-
5	Knibbe, J. J.; Waaijer, E.	2012	Explain the process of designing the health care environment ergonomic and which considerations are taken into account.	An internet application was developed that helps nurses and architects to choose activities and the space demands that is associated with these activities for a whole range of activities. Therefore a pilot study was undertaken that assesses under real life conditions the space requirements with the use of modern video-	5 nurses performed 5 different activities with 5 patients of increasing level of functional mobility. These movements and use of space was assessed by means of video from a height of 8 meters.

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6	Lamb, Gerri; Zimring, Craig; Chuzi, Joshua; Dutcher, Diane	2010	Bridging educational programs in the United States across healthcare, architecture, industrial design, and human computing disciplines to design more effective and safer healthcare environments. New combinations of professionals including those outside the traditional healthcare disciplines are coming together to solve quality and safety problems and to re-envision the physical and social design of healthcare organizations.	A set of seven interprofessional competencies were identified through review of the literature, interviews of faculty and leaders in the field, and experience of the authors teaching interprofessional courses in healthcare design.	The relevance and feasibility of these competencies were assessed through expert review by faculty and consultants and implementation in multiple courses.	
7	Cesario, Sandra K; Stichler,	2009	Discuss the development of a graduate-level nursing course that provides nurse leaders	Literature Review, Experts Consultation,	Nurses are the largest group of health care providers and the most knowledgeable about design features that support	

	Jaynelle		with knowledge and competencies in health care design and enables them to engage in effective interdisciplinary communication during the design process.	Courses	optimal patient care. There are many venues for providing nurses with the information and skills needed to have a powerful voice on the interprofessional design team.
8	Wang, Chia-Hui; Kuo, Nai-Wen	2006	This study explored long-term care resident priorities with regard to long-term care facility design in terms of both physical and psychological needs. This study further clarified changing trends in long-term care concepts;	Literature analysis, in-depth interviews, and the application of the Delphi survey	Results of our Delphi survey indicated the following top five priorities in long-term care facility design: (1) creating a home-like feeling; (2) adhering to Universal Design concepts; (3) providing well-defined private sleeping areas; (4) providing adequate social space; and (5) decentralizing residents' rooms into clusters.
9	McCarthy, Michael	2001	To explain how design can make hospital stays a far better experience.	-	Stress and noise in cramped hospitals can make recovery slow for bed-bound patients. High turnover of nurses has also been blamed on the chaotic work environments in most hospitals
10	McMahon, B	1994	To observe the process of institutionalization, and attempts made to counter this process.	Participant Observation	There is a relationship between space and the use of space, and the structure of authority and communication on the ward and between the ward and the 'outside world'.

## Discussion

The articles selected and presented before, can validate that architects play a real value and very important role in the design and construction of adequate spaces for the provision of health care. It was also possible to validate that the nurse plays an important role in building spaces and whose input must be assessed. The training of nurses should be directed also to be able to nurse assess and give consistent contributions to this partnership work so this training should be conducted from the beginning of the course. Architects must also support this training allowing the nurse to have the best

possible knowledge of the items to be addressed and taking into account the perspective of the drawing and construction. This partnership will bring as referred, capital gains on two important areas: in the professional point of view, the nurses and the other professionals will have better working conditions which in itself increases the indices of satisfaction and motivation, reducing turnover rates and promoting the stability of teams bringing economic benefits for the institution. In the customer's point of view, this association will be even more useful because it is described that better spaces reduce the incidence of adverse events, improves communication and promotes the patient recovery. All these points are effective health gains that also have to be converted into quality indicators that are measurable so you can make an effective assessment of the changes that are implemented. These changes will also be possible decision-makers and administrators are involved, explaining the added value of this joint work.

## **Conclusion**

This review showed that there are benefits in getting the contributions of the nursing discipline in the construction of health buildings or providing health care, especially with regard to health indicators. We believe that there is still a long way to perform for nurses and architects to work together in promoting better spaces, and spaces that have objectively health gains. We believe that this partnership is a complementary partnership because both professions, however distant they are, have a point of convergence and respect to continuous quality improvement, and the best citizen access to better care and better living conditions. Studies are needed with sensitive indicators and the indicators reflect these gains in a reliable and scientifically way.

## **References:**

- Castro Molina, F. J., Castro González, M., Megias Lizancos, F., Martin Casañas, F. V., & Causapie Castro, Á. (2012). Arquitectura hospitalaria y cuidados durante los siglos XV al XIX. *Cultura de Los Cuidados. Revista de Enfermería Y Humanidades*, 16, 38–46. doi:10.7184/cuid.2012.32.05
- Cesario, S. K., & Stichler, J. (2009). Designing health care environments: Part II. Preparing nurses to be design team members. *Journal of Continuing Education in Nursing*, 40(7), 324–328. doi:10.3928/00220124-20090623-02
- Connellan, K., Gaardboe, M., Riggs, D., Due, C., Reinschmidt, A., & Mustillo, L. (2013). Stressed spaces: Mental health and architecture. *Health Environments Research and Design Journal*, 6, 127–168.



- Council, M., Nmc, T., Caulfield, H., Jenkinson, A., Cases, C., Commission, R., ... Forbes, B. (2004). Incompetence an employer issue Bad hospital design leads to poor staff performance. *Nursing Standard*.
- Doff, S. D., Jackson, E. R., Lendrum, J. T., & Grobe, W. C. (1965). Orienting the architect to nursing home design. *Public Health Reports (Washington, D.C. : 1974)*, 80, 1077–1082.
- Duffin, B. C. (2006). Computerised cabinet will allow staff to keep better tabs on drugs Nurses invited to help design buildings for improved care, 20(24).
- Johansson, M., & Brunt, D. (2012). The Physical Environment of Purpose-Built and Non-Purpose-Built Supported Housing for Persons with Psychiatric Disabilities in Sweden. *Issues in Mental Health Nursing*, 33(2007), 223–235. doi:10.3109/01612840.2011.647254
- Knibbe, J. J., & Waaijer, E. (2012). Designing the care environment in hospitals and nursing homes: A pilot for a new and reliable method for determining the optimum space to live in and work in. *Work*, 41, 5650–5651. doi:10.3233/WOR-2012-0907-5650
- Lamb, G., Zimring, C., Chuzi, J., & Dutcher, D. (2010). Designing better healthcare environments: interprofessional competencies in healthcare design. *Journal of Interprofessional Care*, 24(July), 422–435. doi:10.3109/13561820903520344
- McCarthy, M. (2004). Stress and noise in cramped hospitals can make recovery slow for bed-bound patients. *The Lancet*, 364, 403 – 405.
- McMahon, B. (1994). The functions of space. *Journal of Advanced Nursing*, 19(1961), 362–366. doi:10.1111/j.1365-2648.1994.tb01093.x
- Olsen, R. V, Hutchings, B. L., & Ehrenkrantz, E. (1999). The physical design of the home as a caregiving support: an environment for persons with dementia. *Care Management Journals : Journal of Case Management ; The Journal of Long Term Home Health Care*, 1(2), 125–131.
- Outdoors, T. G. (n.d.). Nursing homes : Now healing from the outside in. *October*.
- Rabig, J. (2009). Home again: small houses for individuals with cognitive impairment. *Journal of Gerontological Nursing*, 35, 10–15. doi:10.3928/00989134-20090706-04
- Regnier, V., & Denton, A. (2009). Ten new and emerging trends in residential group living environments. *NeuroRehabilitation*, 25, 169–188. doi:10.3233/NRE-2009-0514
- Rendering, M. C., & Cme, C. V. (n.d.). Evidence-based DESIGN, (November 2013).
- Rollins, J. a. (2004). Evidence-based hospital design improves health care outcomes for patients, families, and staff. *Pediatric Nursing*, 30(4), 338–339.
- Sasse, B. Y. R. (n.d.). CoNDm AsSESSMi in nursing homes, (June 2007).

- Stichler, J. F. (2013). Healthy work environments for the ageing nursing workforce. *Journal of Nursing Management*, 21, 956–963. doi:10.1111/jonm.12174
- Tye, J. (2011). Designing the Invisible Architecture of Your Hospital. *Creative Nursing*, 17(3), 126–129. doi:10.1891/1078-4535.17.3.126
- Wang, C.-H., & Kuo, N.-W. (2006). Zeitgeists and development trends in long-term care facility design. *The Journal of Nursing Research*, 14(2), 123–132.