

## Nursing Care Indicators to Nursing Homes

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### Abstract

There is an aging population not only in Portugal but also worldwide. The nursing homes provide its users services adjusted to their needs. Therefore, these institutions should have specialized human resources in health care, such as Nurses. However in Portugal have a low presence of these professionals in nursing homes.

**Objective:** To identify a sensitive nursing care set of quality indicators in nursing homes.

**Methodology:** Using the method of a PICOD question, it was made a search in EBSCO (CINAHL Plus with Full Text, MEDLINE with Full Text, British Nursing Index), resulting in hundred and thirty eight articles in total. There were searched scientific articles published in full text (28-01-2009), between 1998/01/01 and 2008/12/31.

**Results:** From hundred and thirty eight articles we selected twelve and of this identified fourteen quality care indicators: resources to the emergency room; number of days of hospitalization; total days of hospitalization in advanced recovery units; number of medical procedures; sensory function; presence of urinary catheters; loss of function and activities of daily living; controlled use of drugs; use of nine or more different drugs; nutrition; control of infection; pressure ulcers prevalence; pain control; prevalence of falls.

**Conclusion:** The nursing provide an important contribution in improving quality in the nursing homes. The results seems to show that the introduction of these professionals has direct impact in reducing of the use of health services (emergency and hospital days), reducing the falls, better pain management, in prevalence of the number of pressure ulcers and increased functionality. This set of results has obtained from an international research and so, gives the opportunity to various nursing homes or students in very countries monitoring these indicators, to explore them with the aim to verify its applicability and adapt them to the local needs.

**Keywords:** Nursing homes; Quality indicators; Health care; Outcomes

### Introduction

In the coming decades will see an aging population worldwide, which will eventually be reflected in economic, social and demographic level [1], triggering profound implications in planning care for older people - for people over sixty five years old [2].

The aging population has created a concern for health care and support provided by society for the elderly [2]. In Portugal at 2008, seniors (+65) representing approximately 17.1%, in 2060 will represent about 30%, while the percentage of people over eighty years of age will increase from the current 4.4% to 12.1% in 2060 [3].

The growth of health expenditure recorded in the last decade can conduct to an unsustainable financial situation that, given the growing needs for care of an aging population, seems to be necessary a new model of healthcare and monitoring of older people [3].

With long life term comes the comorbidities; therefore the nursing homes have to be prepared with human resources capable to respond to this challenge and use them efficient, to reduce the costs and provide a quality care [4].

The provision of integrated care, with the presence of nurses, differs from other types with respect to the contribution of knowledge about geriatric care, supervision of recreational activities, nutrition, health and development of skills for activities of daily living, such as extra care, food handling activities and social. The nurse can contribute / participate in all activities and care for the elderly [3-4].

The importance of nurses in nursing homes to achieve favorable outcomes. As indicators of quality, these researchers observed the presence of infections in residents and hospitalization for infection to

establish a comparison / contrast between the nursing homes that have nurses on their staff and those in which there is no nursing service. Also there is evidence that the introduction of specialist nurses in nursing homes reduces hospitalizations for infections and other conditions, avoids some medical interventions, help prevent disease and stabilizing the health of the elderly [5].

The existence of a set of indicators of quality of care provided by nurses in nursing homes, more than one need, is now an imperative, as it can lead to an important tool for human resource management, materials and financial [6]. Whatever the health facility involved, the healthcare have high costs, therefore the efficient use of existing resources and the pursuit of high standards of quality should always be regarded as specific goals to achieve [5].

The Institute of Medicine conducted a study on the issue of quality in nursing homes and urged greater government regulation in this sector, in order to increase health indicators in the United States of America [7]. The Omnibus Budget Reconciliation Act of 1987 [4] established nursing care permanently in Nursing Homes, which are institutions of long-term care that provide the permanence of people over sixty-five years old with health services [8].

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Thought all the articles existent about set of indicators in different countries an realities, with this systematic review we propose compile a set of quality indicators that results of an bibliographic research in an international data base of scientific articles.

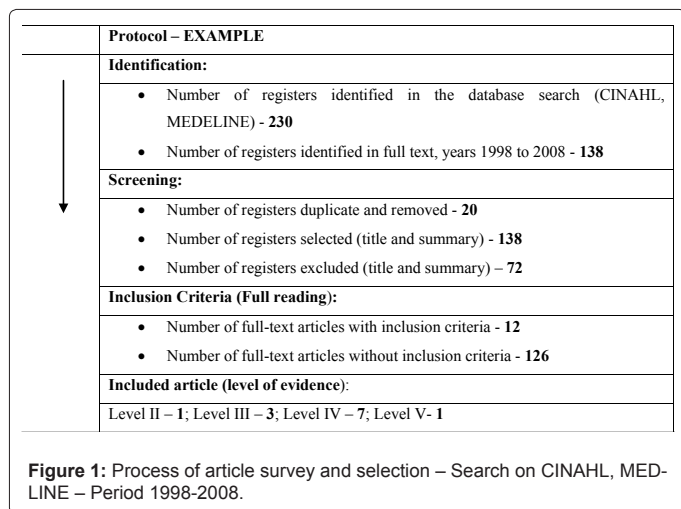
### Methodology

In order to define a wide range of hypotheses inherent to the problem under study and to respond to the objective outlined, it was elaborated a question of departure that meets the criteria of the PICOD format: format: “What are the quality indicators sensitive to nursing care in nursing homes with Permanent nursing”? [9].

Consequently, when defining the target object of study and wanting a broader understanding of this phenomenon, it was carried out a research in the electronic databases CINAHL Plus with Full Text and MEDLINE with Full Text, through EBSCO. The keywords used were previously validated by descriptors of the United States of National Library of National Institutes of Health and searched with the related guidance (Nursing Home Care AND Quality Indicators AND Outcomes.

The articles were searched in full text (28-01-2009), between 01/01/1998 and 31/12/2008, resulting in a total of one hundred and thirty-eight articles. The systematic literature reviews considers it should be included the evidence of the last 5 years, but we consider the time period of 10 years, because of a greater coverage compared to the existing knowledge on the subject in question [9]. In order to evaluate the levels of evidence we used the following six levels of evidence: Level I: Systematic reviews (meta analysis / guidelines for clinical practice based on systematic reviews); Level II: Experimental study; Level III: Quasi experimental study, Level IV: non-experimental studies; Level V: Qualitative study / review of the literature without systematic meta-analysis; Level VI: Opinions of respected authorities / Consensus panels [9].

As inclusion criteria it was privileged articles centered in the problematic, with resource to qualitative and/or quantitative methodology or systematic literature review, to clarify its advantages in the application of clinical practice and his impact on health outcomes. As exclusion criteria it were remove all articles with unclear methodology, repeated in the two databases, dated before 1998 and those without correlation with the object of study. The methodological course carried out is shown in the Figure 1.



### Results

Then describes a list of articles that were selected and considered relevant to the study in question, among which, we present a set of quality indicators sensitive to nursing care in nursing homes.

### Discussion

In the United States of America, was introduced mandating the use of the Resident Assessment Instrument (RAI) and Minimum Data Set (MDS) as a condition for nursing homes can participate in government funded programs for continuous quality improvement [11]. As a result of application of RAI, there were health gains regarding indicators described, well as the decrease of cases of dehydration, increased levels of functionality and decrease of resources hospital emergencies [13,14].

Four dimensions on the assessment of quality in nursing homes: intervention staff, physical environment, food service and community relations, However in MSD the indicators are distributed among twelve areas, namely accidents, behaviors and feelings, clinical management, cognitive function, elimination and continence, infection control, nutrition, physical function, use of psychotropic drugs, quality of life, communication and sensory function and skin care [21]. The indicators include these twelve areas show the incidence of new fractures, the prevalence of falls, the prevalence of symptoms of depression, the prevalence of constipation, the prevalence of chronic bladder catheterization, the prevalence of urinary tract infections, the prevalence of anxiolytic drugs the prevalence of detentions and use of nine or more different drugs [11-13].

The introduction of specialist nurses in nursing homes decrease of presence of urinary catheters, with a consequent reduction of urinary infections. The indicator of presence of urinary catheters was also identified [15,16] and integrated in Minimum Data Set (MSD) [18].

Zimmerman et al. [16] in 2002 have used the presence of infection and hospitalization for infection as an indicator to conclude that in fact the presence of licensed nurses influence this rates. Also in 2001 [15], defended that besides an physical insightful evaluation, should be considered other aspects of person, such as the affection social, cognition, pain, discomfort and overall satisfaction, considering that satisfaction with care is also related to the assessment and pain management. Also Rantz et al. [12], in 1999 realced the importance of monitoring appropriately the pain in addition to the functional aspects.

Bostick [18], with the application of OSCAR and MDS have founded a direct relation between the working hours of nurses in nursing homes and six quality indicators.

a few quality indicators such as rates of pressure ulcers, weight loss, incontinence, constipation, dehydration, falls, depression, urinary infections, dependence in activities of daily living, the use of antipsychotic drugs, the use of physical restriction and functionality. In line with this [10]. already in 1989, find that the introduction of specialist nurses in nursing homes reduces hospitalizations, complications, medical interventions and worsening health status of people over sixty-five years of age [18,19].

Kan et al. [10] have proposed a set of quality indicators to a multidimensional model to the nursing homes. All dimensions are very comprehensive and includes a various group of indicators also referred in other studies.

In fact the involvement of nurses in nursing homes is directly related to the supervision of activities, nutrition, health and development of skills for the maintenance of activities of daily living [21] and in order to

Articles includes / Methodology / Participants	Results
<p>[10]  <b>Methodology:</b> Qualitative approach.  <b>Levels of evidence:</b> IV  <b>Participants:</b> Five communities in the state of Missouri (USA)</p>	<p>The seven dimensions of the multidimensional model (residents and their families) of nursing care are: personal, health, family involvement, communication, environment, home and cost.                      From the analysis of consumers' opinion about the quality and nursing care, the highlights are two key variables: personal and health.</p>
<p>[11]  <b>Methodology:</b> Qualitative approach.  <b>Levels of evidence:</b> II  <b>Participants:</b> 2128 residents in 268 nursing homes, the second by 2088 residents of 254 nursing homes.</p>	<p>The main results indicate that the areas of pressure, dehydration and use of physical restraint were less common in 1993 than in 1990. There was a slower decline of residents of nursing homes with nursing after the implementation of the RAI, compared with the period prior to its introduction. The findings are supported in seven of nine clinical areas examined such as: activities of daily living, urinary incontinence, cognitive performance and social relationships. It was found a significant decrease of all hospital admissions without increased mortality during six months. Used Resident Assessment Instrument (RAI)</p>
<p>[12]  <b>Methodology:</b> Quantitative approach. Structured interviews.  <b>Levels of evidence:</b> III  <b>Participants:</b> Clients of nursing homes</p>	<p>In the elderly assessments, special attention is paid to the functional aspects, yet other areas are important, such as social affection, cognition, pain and satisfaction. Altogether, these aspects refer often to quality of life.                      A comprehensive evaluation and comprehensive was effective in reducing mortality and consequently the use of health services for the residents.</p>
<p>[13]  <b>Methodology:</b> Quantitative approach. comparison of the modifications before and after the presence of Nurses  <b>Levels of evidence:</b> IV  <b>Participants:</b> thirty nursing homes that employ nurses specialists in geriatrics, with thirty other institutions of control that only employ generalist nurses.</p>	<p>It was found a reduction in hospital admissions and in total days in units advanced recovery and verified is still a decrease in some medical acts, like calling urgency. These findings suggest that nurses experts in geriatrics have a crucial role in nursing homes because of the training is targeted to the specifics of its customers.</p>
<p>[14]  <b>Methodology:</b> Quantitative approach. Compare outcomes in nursing homes reimbursed and not reimbursed  <b>Levels of evidence:</b> IV  <b>Participants:</b> Analyzed data of 1998 of 13693 nursing homes in E.U.A</p>	<p>The quality of healthcare is lower in private homes, in relation to nonprofit and public homes, which have higher ratios of nurse / client and staff. The differences were observed in the indicators on the incidence of depression, dementia, deviant behavior, urinary incontinence and pressure ulcers. Used the database Survey Certification and Reporting (OSCAR)</p>
<p>[15]  <b>Methodology:</b> Qualitative and quantitative approach. Semi-structured interview  <b>Levels of evidence:</b> IV  <b>Participants:</b> Sixty-six residents of nursing homes with pain</p>	<p>The majority of residents rating their satisfaction with pain control. These results suggest that satisfaction with pain control can be measured reliably when residents are able to report their pain. This research suggests the incorporation of this indicator routine in nursing homes in a systematic way, for better evaluation.</p>
<p>[16]  <b>Methodology:</b> Qualitative and quantitative approach. Compare the processes of Nursing  <b>Levels of evidence:</b> IV  <b>Participants:</b> Two thousand and five hundred elderly clients admitted to nursing homes, sixty-five years or more</p>	<p>It emphasizes the relationship between the leadership of licensed nurses and considering the quality of care indicators, taking into account: the presence of infection and hospitalization for infection.</p>
<p>[17]  <b>Methodology:</b> Qualitative. Systematic Review  <b>Levels of evidence:</b> III  <b>Participants:</b> Team of researchers from the University of Wisconsin - Madison</p>	<p>The final set of quality indicators includes variables covering processes and outcomes related to care and incidence and prevalence. In terms of residents and facilities, are defined as follows: accidents, behavioral and emotional patterns, clinical management, cognitive functioning, elimination and continence, infection control, nutrition and diet, physical functioning, psychotropic drug use, quality of life, sensory function and communication and skin care. In the United States, the Health Care Financing Administration indicated the use of the Minimum Data Set (MDS) was developed by a team of researchers from the University of Wisconsin - Madison</p>
<p>[18]  <b>Methodology:</b> Quantitative approach. Examine the relationship between the working hours of nurses in nursing homes and six quality indicators.  <b>Levels of evidence:</b> IV  <b>Participants:</b> Five hundred and fifty-five nursing homes.</p>	<p>[18]  <b>Methodology:</b> Quantitative approach. Examine the relationship between the working hours of nurses in nursing homes and six quality indicators.  <b>Levels of evidence:</b> IV  <b>Participants:</b> Five hundred and fifty-five nursing homes.</p>
<p>[19]  <b>Methodology:</b> Qualitative. Observed the records of care  <b>Levels of evidence:</b> IV  <b>Participants:</b> Ninety nursing homes in the state of Missouri (USA)</p>	<p>In institutions where outcomes were mostly good (with low rates of pressure ulcers, weight loss, incontinence, constipation, dehydration, depression, urinary infections, decline in achievement of the activities of daily living, use of antipsychotic drugs, and immobilization bedridden) staff was engaged in the provision of health care and had specific training in geriatrics. The professionals helped the residents to walk as much as possible and regain the ability to walk when necessary. Assess the risk of falling was common and plans were developed to help prevent this risk.</p>
<p>[20]  <b>Methodology:</b> Qualitative and quantitative approach. recorded and listed the direct and indirect care.  <b>Levels of evidence:</b> III  <b>Participants:</b> 41335 listings of activities carried out to determine the activity profile of the traditional care, transitional and integrated nursing homes in the Netherlands.</p>	<p>The licensed nurse plays a key role in all activity profiles. In addressing the impact of integrated care on activity profiles, this study provides information about new types of care.</p>
<p>[21]  <b>Methodology:</b> Qualitative approach. Systematic Review  <b>Levels of evidence:</b> V  <b>Participants:</b> Analyzes various projects to improve quality in nursing homes.</p>	<p>Highlights a clear mission statement to eliminate unnecessary urinary catheters among patients; multidisciplinary involvement of staff nurses, nurse managers, nurse practitioners, and physicians who implemented a nursing protocol for determining continued need for urinary catheters.</p>

Table 1: Body of Analysis – Search on CINAHL, MEDLINE.

1.	Resources to the emergency room;
2.	Number of days of hospitalization;
3.	Total days of hospitalization in advanced recovery units;
4.	Number of medical procedures;
5.	Sensory function (incidence of depression, dementia), communication, social relationships, family participation;
6.	Presence of urinary catheters, incontinence;
7.	Loss of function and activities of daily living (immobilization and bedridden);
8.	Controlled use of drugs (anti-psychotic drug control - the number and method of administration);
9.	Use of nine or more different drugs;
10.	Nutrition (weight loss, constipation, dehydration);
11.	Infection control (pneumonia, urinary tract infections);
12.	Pressure ulcers prevalence;
13.	Control of pain;
14.	Prevalence of falls.

**Table 2:** Set of indicators of quality health care sensitive to nursing homes. - CINAHL and MEDLINE Research

adequately assess the quality of health care, there must be a conceptual model of assessment [11].

Harrington et al. [14] found that the quality of healthcare is better in nonprofit nursing homes which have a better ratio nurse and staff/client. The following indicators to the lack of nursing care permanently in nursing homes: the physical restriction, weight loss, incontinence, the loss of functionality at the level of activities of daily living, increased pressure ulcers and behavioral problems [16]. The author concludes his study by establishing a direct relationship between increased hours of nursing care with reducing the prevalence of pressure ulcers [18].

The nurses experts in geriatrics have a crucial role in nursing homes [14]. Already [12] Rantz have suggested these facts in another study. Paulus, Raak and Keijzer [20] have identified in their study that the licensed nurse plays a key role in all activity profiles, statement that Kane and Kane, in 2000 reinforced with their findings.

Sublet [21] reinforce the idea that the use of quality indicators of health care cannot, however, be regarded in itself as an end but a means, a constant search for improvement of care [14-17].

## Conclusion and Implications for Professional Practice

Guide it by the question, “What are the quality indicators sensitive to nursing care in nursing homes with Permanent nursing?” We conducted a critical analysis of all of the selected articles and we were able to develop a set of nursing care indicators to nursing homes, being the majority of these corroborated by the authors that we have consulted for the elaboration of the validity of this systematic review, thus responding to this question.

The constants changes on the demographic data and the long life term require that the healthcare system of each country change to response effectively, so the assessment of quality of healthcare is actually a priority in different levels of the modern society and can be a powerful tool in management of human and material resources.

The important role of nurses in nursing homes is clear in the studies reviewed and for a continuous improvement of quality in nursing cares, the monitoring of quality indicators is crucial. So in table 2 are the set of nursing care indicators to nursing homes.

We recommend more investment in this area by government agencies in terms of research, implementation of programs to

continuous quality improvement in nursing homes, with monitoring of health gains, based on the structure of nursing care indicators described.

In terms of research the authors propose structured programs of research from the post graduate training in nursing implementation and monitoring of the indicators described.

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