

# SYSTEMATIC REVIEW AND INTEGRATIVE

## NURSING RESOURCES AND INNOVATIONS FOR HOSPITAL DISCHARGE: AN INTEGRATIVE REVIEW

### RECURSOS E INOVAÇÕES DE ENFERMAGEM PARA A ALTA: REVISÃO INTEGRATIVA

### RECURSOS EN INNOVACIONES DE ENFERMERÍA PARA EL ALTA HOSPITALARIA: REVISIÓN INTEGRADORA

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Submitted on: 2013/09/16

Approved on: 2014/06/03

## ABSTRACT

This study aimed to identify nursing resources and innovations applied to patient discharge. It is an integrative literature review in which PubMed, Cochrane, LILACS and SciELO databases were used. Sample consisted of 12 articles. The use of a checklist, an ultra-short hospitalization programme and a liaison nurse were identified as nursing innovations. The resources were as follows: multidisciplinary teamwork, integration between primary care, specialized care, social services and hospital discharge, telephone follow-up after discharge, whiteboard, electronic health record, written educational material, printed care plan, discharge protocols, case management, audio tapes, booklet with phones and web sites of community services, continuing education of health professionals, discharge coordinator, nurse facilitated discharge and nurse educator. In conclusion, resources and innovations may help managers and health professionals in improving their discharge procedures

**Keywords:** Patient Discharge; Innovation; Health Resources; Nursing.

## RESUMO

*Este estudo objetivou identificar recursos e inovações de enfermagem aplicados à alta de pacientes. Trata-se de revisão integrativa da literatura em que foram utilizadas as bases de dados PubMed, Cochrane, LILACS e SciELO. A amostra constituiu-se de 12 artigos. Como inovações de enfermagem foram identificados o uso de checklist, programa de internação ultracorta e enfermeira de ligação. Os recursos em geral identificados foram: trabalho em equipe multidisciplinar; integração entre atenção primária, especializada e serviços sociais para a alta hospitalar; acompanhamento por telefone pós-alta; quadro branco; registro eletrônico de saúde; material educativo escrito; plano de cuidado impresso; protocolos de alta; gerenciamento de caso; fita de áudio; folheto com telefones e web sites de serviços da comunidade; educação continuada dos profissionais de saúde; coordenador de alta, enfermeira-facilitadora da alta e enfermeira educadora. Os recursos e inovações para a alta podem contribuir com gestores e profissionais de saúde no sentido de fornecer subsídios para melhorias do processo de alta.*

**Palavras-chave:** Alta do Paciente; Inovação; Recursos em Saúde; Enfermagem.

## RESUMEN

*El objetivo del presente estudio fue identificar qué recursos e innovaciones de enfermería se aplican en el alta del paciente. Se trata de una revisión integradora de la literatura cuya base de datos fue PubMed, Cochrane, LILACS y SciELO. La muestra estuvo compuesta por 12 artículos. Se identificaron las innovaciones de enfermería: checklist, el programa de hospitalización ultracorta y la enfermera de enlace. Se identificaron los recursos: el trabajo en equipo multidisciplinario, la integración de los servicios de atención primaria, especializada y social para el alta hospitalaria, seguimiento por teléfono después del alta, pizarra, registro electrónico, material educativo escrito, protocolos para alta, gerencia de caso, cita de audio, folleto con los teléfonos y páginas web de servicios de la comunidad, formación continuada de los profesionales de la salud, coordinador, enfermera-facilitadora para alta y enfermera educadora. Llegamos a la conclusión que los recursos e innovaciones de enfermería para el alta hospitalaria, juntamente con gestores y profesionales de la salud, contribuyen a mejorar el proceso de alta hospitalaria.*

**Palabras clave:** Alta del Paciente; Innovación; Recursos em Salud; Enfermería.

## INTRODUCTION

Hospital discharge is a process that has to be taken into account by the patient care plan in order to facilitate patients' transition from care service to home. Family, caregivers, hospitals and primary care services should work together; standards and implementation of activities should be monitored regularly. Health services should also be receptive to innovative solutions.<sup>1</sup>

As part of this process, care delivered by health professionals should be organized and established in an effective plan for discharge whose multidisciplinary approach should be focused on the patient and his family's safety.

Discharge planning is part of the nursing process<sup>2</sup> which is in need of best practices.<sup>3</sup> Therefore, nursing resources and innovations should be part of daily care practices, aiming at improving the discharge planning that, effectively executed, promotes patient's recovery, reduces care costs and prevents unplanned readmissions.<sup>4,5</sup>

Discharge planning requires different health resources such as human, material, financial and physical and innovations as well. An innovation consists in the development of an idea or invention converted into useful application, which can be incorporated into products, services or processes.<sup>6</sup>

Considering the importance of discharge planning for patients, their families and society, this study aimed at identifying in the scientific literature resources and innovations used in patient discharge procedures.

## METHODOLOGY

This is an integrative literature review that allows systematic analysis;<sup>7,8</sup> it is one of the most comprehensive review methods that enables simultaneous inclusion of experimental and non-experimental research in order to obtain full understanding of the phenomenon studied.<sup>8</sup>

The review stages proposed by Broome<sup>9</sup> are: formulation of research question; establishment of criteria for the search of studies; definition of data to be extracted from selected studies; categorization of studies; assessment of studies included in the integrative review.

The guiding question was: "What are the resources and innovations used by nurses during patient discharge?"

The researchers used the following databases: United States National Library of Medicine – PubMed (<http://www.ncbi.nlm.nih.gov/PubMed/>); Latin American and Caribbean Health Sciences – LILACS (<http://lilacs.bvsalud.org/>); Scientific Electronic Library Online – SciELO (<http://www.scielo.br/>); and The Cochrane Library (<http://www.thecochranelibrary.com/view/0/index.html>)

Search in LILACS and SciELO used controlled descriptors of the Health Sciences Descriptors (DeCS), namely: patient discharge, *nursing*, *innovation* and *health resources*, in the follow-

ing combinations: patient discharge AND nursing AND innovation; patient discharge AND nursing AND health resources; patient discharge AND nursing AND innovation AND health resources. Search in PubMed and Cochrane used controlled descriptors of the Medical Subjects Headings (MeSH): *patient discharge*, *nursing* and *health resources*; and the non-controlled descriptor *innovation*, using Boolean operator AND between the descriptors and the combinations previously mentioned.

Studies were selected after reading titles and abstracts in order to refine the sample through inclusion and exclusion criteria. Articles in Portuguese, English or Spanish published from January 2002 to December 2012 dealing with nursing resources and innovations used in patient discharge were included. Studies that did not answer the guiding question were excluded.

The studies' full – text version search was made through the service of bibliographic exchange of the Federal University of São Carlos library collection, and the CAPES Portal de Periódicos via the Electronic Library of the UFSCar search system.

Researchers identified 222 studies in PubMed. After reading their titles and abstracts, 210 were excluded and 12 included and their full text obtained. Four studies were identified in the Cochrane Library database, three in SciELO and LILACS, all of them excluded for being unrelated to the research subject.

The selected studies were then summarized and author's name, year, title, journal, method, country of origin, level of evidence, study conclusion and resources and innovations mentioned identified. Resources and innovations were grouped into the following thematic categories established by the authors of this paper: administrative resources, material resources and human resources.

For classification of level of evidence, the researchers adopted Melnyk's and Fineout-Overholt's method: level I – evidence proceeds from systematic review or meta-analysis of randomized controlled trials, relevant or originated from clinical guidelines based on systematic reviews of randomized controlled trials; level II – evidence from at least one well-designed randomized controlled trial; level III – evidence from well-designed clinical trials without randomization; level IV - evidence from cohort studies and well-designed case-control; level V - evidence from systematic review of descriptive and qualitative studies; level VI – evidence from a single descriptive or qualitative study; level VII – evidence from opinion of authorities and/or report of expert committees.

## RESULTS

Eight of the analysed articles had nurses as main author and four did not clearly indicate authors' speciality. In eight studies the main's author home institution was a university and in four a hospital. Regarding the country of origin, three were from England, three from the USA, three from Australia; Canada, Denmark and Belgium provided one study each.

As for the periodical in which they were published, two were in general nursing magazines, two in healthcare interdisciplinary journals, two in paediatric nursing magazines, and one in each of the following publications: oncology nursing journal, urologic nursing magazine, nursing management magazine, anaesthesiology and intensive care magazine, emergency nursing magazine and medical journal.

The selected studies consisted of six original articles, two updates<sup>11,12</sup>, two case studies<sup>13,14</sup>, one note and information<sup>15</sup> and one experience report<sup>16</sup>. Among the study designs of those six original articles, two randomized controlled trials<sup>17,18</sup>, one quasi-experimental study<sup>19</sup>, one cohort study<sup>20</sup>, one action research<sup>21</sup> and one descriptive study were identified.<sup>22</sup>

Among the articles, seven are not included in the classification of levels of evidence<sup>10</sup> used; two were level II<sup>17,18</sup>; level III<sup>19</sup>, level IV<sup>20</sup>, and level VI<sup>22</sup> covered one study each.

Three studies<sup>16,20,21</sup> counted the implementation of a checklist and of an ultra-short hospitalization programme, as well as the presence of a discharge liaison nurse at the Intensive Care Unit as innovations to improve hospital discharge process.

The other nine studies<sup>11,15,18-20,22</sup> dealt with the tools used in the discharge process: administrative, material and human resources.

In the category *administrative resources*, researchers identified: coordination between primary care, specialized care and social services for discharge<sup>13</sup>; discharge planning management<sup>13</sup>; case management<sup>19</sup>; post-discharge follow-up telephone calls<sup>15,16,22</sup>; contact telephone number of nurse responsible for hospitalization and postoperative care<sup>16</sup>; and discharge guidelines.<sup>15</sup>

Category *material resources* included: checklist<sup>21,22</sup>, white-board<sup>13,14</sup>, electronic health record (electronic medical record)<sup>13</sup>, printed care plan<sup>13,16,19</sup>, written information<sup>11,16</sup>, audio tapes<sup>18</sup>, written educational material<sup>15,18,22</sup> and brochure with telephone numbers and web sites of community services.<sup>22</sup>

In the *human resources* category, multidisciplinary teamwork<sup>13</sup>, further education of health professionals<sup>15</sup>, discharge coordinator<sup>19</sup>, discharge facilitator<sup>12</sup>, and nurse educator were identified.<sup>17</sup>

The identified nursing resources and innovations are listed in Table 1, according to the type of study and level of evidence.

## DISCUSSION

The development and implementation of resources to ensure a successful hospital discharge is a current nursing practice issue. These professionals play a crucial role in discharge planning. Since they spend a significant time with patients, they are able to effectively gather information and are aware of the care that patients may need.<sup>12</sup>

Among the sample studies those not classified according to the level of evidence grading system predominated, which indicates the need for studies with better levels of evidence to support clinical practice. The studies included data about nursing resources and innovations developed and implemented in hospital services, as well as expert revisions and updates on the subject. It is worth emphasizing that no Brazilian studies on the topic were retrieved.

Data show the need to include administrative, human and material resources in discharge planning. Health services should be also organized and documents, records and guidance materials made available for health professionals to use. Furthermore, it is necessary to generate new knowledge or improve existing one about innovative care interventions that point towards new alternatives<sup>23</sup> for improving the discharge process.

The authors of an action research carried out in England in 2006 considered the use of a checklist as a breakthrough in discharge process. They demonstrated it is a useful tool for discharge training for it promotes standardization of information to be delivered before discharge and it formalizes the training level expected at that stage.<sup>21</sup>

The checklist is an easy handling material resource that can be used in hospital discharge training programmes, since it can ensure that procedures for a safe practice are followed and enables a fast record of actions taken during discharge process.

An experience report from a university hospital in Denmark carried out in 2010, described the implementation of an ultra-short hospitalization programme for women with breast cancer. In this new model, quality of care and psychosocial support were not jeopardised by an early discharge because new procedures and quality standards were discussed among nurses and a set of criteria for discharge was established.<sup>16</sup>

Table 1 - Nursing resources and innovations, type of study and level of evidence. São Carlos, SP, 2013

Level of evidence	Type of study	Resources and innovations
II	Randomized controlled trial <sup>17-18</sup>	Nurse educator, written educational material and audio tapes
III	Quasi-experimental study <sup>19</sup>	Case management
IV	Cohort study <sup>20</sup>	Discharge liaison nurse at intensive care
VI	Descriptive study <sup>22</sup>	Checklist; post-discharge follow-up telephone calls, written educational material, booklet with phones, web sites of community services

Among these criteria we highlight the use of “written information” – as a complement to “spoken information” - with guidelines on early discharge, wound care, pain management, counselling and psychosocial support. Another strategy used by the nurses and considered as a resource in this study was giving the patient the telephone number of the nurse in charge of care during hospitalization and postoperative for him to use when necessary. A telephone call from the nurse three or four days after discharge and a visit on the seventh or eighth day were implemented.<sup>16</sup>

Regarding innovations, it is worth mentioning a cohort study (level of evidence IV) carried out in Australia in 2006, which implemented nurse liaison discharge at Intensive Care Unit (ICU). The authors considered it an innovation that reduces discharge delays, since delays decrease the number of beds available and affect the service.<sup>20</sup>

According to the description, the purpose of this new procedure was to dispose of a professional able to supervise care delivery. It was his/her responsibility to ensure interaction of the multidisciplinary team, to mediate communications between services involved in the discharge process and to instruct patient and family.

In Brazil, a descriptive study carried out in 2007 identified the demand and the potential responsibilities of a liaison nurse in a hospital. The authors argue that a nurse liaison meets the needs of coordination of primary care and hospital care. The benefits of implementing such innovation are continuity of care in an ambulatory clinic or in the home; implementation of health promotion actions; the prevention of risks to the patient's functional capacity; and the prevention of readmissions.<sup>24</sup>

The authors pointed out that interaction between the healthcare professional who works in the hospital and those working in primary care promote exchanges that could strengthen knowledge mutually built to accomplish the same collective project.<sup>24</sup>

Experiences like these have also been identified in other studies classified under *general resources* and referred to as “nurse discharge facilitator”<sup>12</sup> and “discharge coordinator”.<sup>19</sup> The authors emphasize that this new *modus operandi* of nurses promotes a positive hospital experience for patients<sup>12</sup>, as well as offers professional and institutional visibility to improvements in the planning of health actions.<sup>24</sup>

Regarding other resources focused on the structuring of the multidisciplinary team work in discharge planning, discharge protocols<sup>15</sup> and discharge management planning<sup>13</sup> have been presented as basis for the continuity of care (during and after hospitalization), once they favour the detailed assessment of patients' needs and influence positively the team work by providing integrated care and planning of health actions.

The use of a whiteboard in the wards<sup>13,14</sup> was also mentioned as a tool that promotes participation of the multidisciplinary

team in the planning of patient care. It can be used by all team members; the patient's health information can be discussed, improving communication and reducing delays in examinations, referrals and discharge. However, the placement of the whiteboard should allow for patient privacy.<sup>14</sup> Furthermore, the team has to pay attention to its content.

Resources used for health education are essential to proper health care management and patient's recovery. In this sense, through written educational materials<sup>15,18,22</sup>, audiotapes<sup>18</sup> and post-discharge follow-up telephone calls<sup>15-16,22</sup>, nurses teach and emphasize care needed for the recovery and/or maintenance of health after hospital discharge.

The authors think that all forms of patient discharge training need effective communication between staff, patient and family; adjustment to the education level of the learner; a quiet and distraction-free environment; and respect for patient and family who wish no training.<sup>11</sup>

Among the studies with a level of evidence and dealing with activities on discharge education we highlight an experimental study (level of evidence II) carried out in the United States<sup>18</sup> in 2008. It tested an educational-behavioural intervention, in which information in audio tapes and written materials on health education were given to mothers of premature babies after hospital discharge. Mothers answered questions to assess stress level, anxiety, depression and beliefs about prematurity and mother's role during hospitalization. A chart for the assessment of mother-infant interaction, filled by observers, was also used. The research demonstrated that educational interventions expand knowledge and promote behavioural changes that trigger positive health outcomes reflected in the emotional state of mothers caring for a premature baby.

Another experimental study (level of evidence II), also carried out in the United States<sup>17</sup> in 2012 evaluated the change in the performance in patients with heart failure before and after hospital discharge education. Through a group intervention, the nurse educator had a one hour one to one session about the disease, its management and diet. The study concluded that the introduction of individual sessions with a nurse educator improved patients' knowledge and reduced readmissions.

Regarding a safe patient-centred discharge planning that enables interaction between the multidisciplinary team, researchers identified the coordination between primary care, specialized care, social services and discharge, as well as the implementation of electronic health records (electronic medical records)<sup>13</sup> and printed care plans.<sup>13,16,19</sup> Thus, health professionals and community may access relevant patient information in order to ensure a safe discharge and continuity of care via a network-connected system.

Besides the coordination of services, lack of health professionals' participation and little understanding of discharge planning

should be addressed. Further education programmes<sup>15</sup> may ensure constant updating of basic and specific skills, as well as of management competences involved in the quality of discharge planning.

Case management for elderly patients was a resource identified in a quasi-experimental study (level of evidence III) carried out in Belgium<sup>19</sup> in 2006. It was implemented in six hospitals. In this case, the discharge planning focused on individualized care planned by an interdisciplinary team led by a discharge coordinator. The experience was deemed effective, since hospitalizations decreased.

Given the amount of resources used in case management, the optimized and collective use of administrative, materials and human resources, the authors noticed that positive outcomes increased.

We agree with authors who argue that managers and health professionals need to recognize the importance of discharge planning, effective communication and multidisciplinary teamwork: these combined strategies avoid delays and lack of clarity of tests, referrals and care needs.<sup>25</sup>

## CONCLUSION

According to the present study, features and innovations have been reported as discharge process facilitators, since they improve the quality and increase the efficiency of the services and, therefore, benefit the patient.

Resources identified were as: integration between primary care and specialized social services during discharge; discharge management plan; case management (level of evidence III); post-discharge follow-up telephone call (level of evidence VI); phone number of nurse in charge of care during hospitalization and postoperative; discharge protocols; checklist (level of evidence VI); whiteboard; electronic health record; printed care plan; written information; audio tapes (level of evidence II); written educational materials (level of evidence II); booklet with phone numbers and web sites of community services (level of evidence VI); multidisciplinary teamwork; further education of health professionals; discharge coordinator; discharge nurse-facilitator; and nurse educator (level of evidence II).

Regarding innovations those identified were: checklist, ultra-short hospitalization programme and discharge liaison nurse at Intensive Care Unit (level of evidence IV).

The use of administrative resources is essential for the development, implementation and maintenance of discharge since they prioritize effectiveness of health and organizational outcomes. They establish the institutional commitment to care, assist in the management of services and professionals to ensure the organization of their health care interventions.

Material resources assist professionals in promptly meeting patients' needs. The use of such resources reduces delays in

tests and, consequently, in patients' discharge; they support the coordination of health actions by means of individualized care plans implemented by a multidisciplinary team, as well as promote changes of behaviour patterns through health education.

As per human resources, personnel training programmes foster interaction between professionals and prepare them for patients and families' involvement in health care decisions about after discharge.

We highlight that all resources identified within the categories created are often interrelated and interdependent and all contribute to promote the patient's safety, satisfaction and quality of care.

The discharge resources and innovations identified can help managers and health professionals to provide inputs for the improvement of the discharge process.

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