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## REVIEW

## PROVIDING A DISEASE MANAGEMENT PLAN UPON PATIENT DISCHARGE FROM HOSPITAL. A LITERATURE REVIEW

Georgios Palaiologos Narliotis<sup>1</sup>, Garifalia Chatzina<sup>2</sup>, Vlasia Katsavochristou<sup>2</sup>, Panagiota Manthou<sup>3</sup>

1. RN, MSc, Resident Nurse at Emergency and Intensive Care Nursing Speciality, General Hospital of Thoracic Diseases "Sotiria", Athens
2. RN, Resident Nurse at Emergency and Intensive Care Nursing Speciality, General Hospital of Thoracic Diseases "Sotiria", Athens
3. Infection Preventionist, Msc, PhD, Deputy Coordinator of Emergency and Intensive Care Nursing Speciality, Academic Fellow at University of West Attica, Greece

**Abstract**

**Background:** Providing a post-hospital disease management plan is an important nursing approach for some patient groups in the elderly population. However, the features and needs of persons after hospitalization impact the effectiveness of care offered after they return home. This review examines the effectiveness of illness management plans during patient discharge.

**Method and Material:** The review encompassed relevant studies published between 2017 and 2021, identified via targeted keyword searches in international databases (PubMed, Scopus, Evidence-Based Nursing, Clinical Evidence) and focused on previously hospitalized individuals aged 65 and above.

**Results:** The results indicated that the majority of individuals over 65 discharged from healthcare institutions face adaptation issues upon returning home, due to specific characteristics developed or observed during hospitalization and the immediate post-hospital period. Notable examples include severe cognitive decline in 45.4%, lack of family support in 55.8% and social isolation in 48%. Implementing post-hospital disease management plans appears effective for patients with mild disorders (while 23.7% of individuals with severe disorders prefer standard nursing care). Additionally, these interventions, models, and designs can reduce readmission rates by 1.7% within 30 days of discharge and improve end-of-life care content (after six months, an improvement in the agreement rate between patients and family regarding end-of-life decisions was recorded).

**Conclusions:** The disparity in treatment for the elderly population between healthcare facilities and the community highlights the necessity of establishing post-hospital disease management strategies to mitigate unexpected readmissions and improve end-of-life care.

**Keywords:** Nursing planning, post-hospital care, quality of life, health status, elderly, home care needs.

**Corresponding Author:** Manthou Panagiota, Karpenisiou 21, Ilion, Athens Tel: +306982682320 Email: [nagiamanthou@gmail.com](mailto:nagiamanthou@gmail.com)

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## INTRODUCTION

The health status of individuals discharged from healthcare facilities is frequently compromised by poor care transitions and insufficient post-discharge planning.<sup>1</sup> This situation results in inadequate coverage of care needs, particularly among the geriatric population, who often experience cognitive decline and low levels of independence when performing activities of daily living<sup>1,2</sup> the level of independence and participation in everyday roles are key areas in which the outcomes of a Disease Management Plan (DMP) following hospital discharge may either prove beneficial or raise concerns.<sup>2</sup>

Due to their distinct physical, psychological, and social characteristics, older adults represent a heterogeneous at-risk group, facing increased challenges in recovery and reintegration from clinical settings back into the home environment.<sup>2</sup> These problems, which can happen or be noticed while in the hospital and right after leaving—like difficulty taking care of oneself, trouble focusing, and lack of family or community help—greatly increase the chances of being readmitted to the hospital unexpectedly.<sup>3</sup>

To solve these problems, nursing care planning when patients leave the hospital can be effectively done using methods like the Transitional Care Model (TCM), the Re-Engineered Discharge (RED) protocol, and the HOME intervention, which is a new home healthcare plan run by occupational therapists and a well-organized hospital team. These approaches aim to gradually support patients in clarifying their personal values, goals, and preferences within a defined time frame.<sup>1,2</sup> A similar design for nursing care can also be applied during the pre-terminal post-discharge period, thus improving family relationships and enhancing both participation and compliance with treatment.<sup>4</sup>

## AIM

The aim of this study was to conduct a literature review on the effectiveness and implementation of disease management plans in the form of interventions, models, and frameworks applied at the point of patient discharge from the hospital.

## METHODOLOGY

A literature review and study search were carried out from 2017

to 2021 across international databases, including PubMed, Scopus, Evidence-Based Nursing, and Clinical Evidence. Keywords were used in both Greek and English. The initial search included terms and combinations such as "discharge nursing planning, care, aged, quality of life, and health status. The search was later refined using more specific terms such as "after hospital care, needs, and homecare.

### Inclusion criteria

Selected studies had to be published within the past five years, including randomized controlled trials, reviews, or meta-analyses with full-text availability. The sample had to consist of individuals over 65 years of age, regardless of gender, with a history of hospitalization. The studies' measurement tools had to be valid and reliable, and the publications had to be in Greek or English.

Based on the inclusion criteria, a total of 14 publications were reviewed. Of these, 5 were randomized controlled trials (RCTs), while the remaining comprised 3 narrative reviews, 2 meta-analyses/systematic reviews, 1 standalone meta-analysis, 1 concept analysis, 1 systematic review, and 1 protocol. The primary studies informing the analysis in this paper were the first four referenced sources.

## RESULTS

### PATIENT CHARACTERISTICS

#### Challenges

The demographic challenge of global population ageing presents a significant burden for national health systems, particularly in the context of secondary care delivery, length of stay, and discharge planning.<sup>5</sup> One consequence is the disruption in continuity of care following hospital discharge, which has been widely observed among patients over 65 years old living with cardiovascular, neurological, and psychiatric conditions.<sup>1</sup>

According to multiple studies employing validated assessment tools, key findings include: reduced mobility capacity (FIM) at 46.6%, high comorbidity (aged-adjusted CCI) at 53.9%, cognitive instability and memory impairment at 87.5%, attentional deficits at 100%, loneliness at 48%, and inadequate family support at 55.8%. These physical, psychological, and social characteristics are prevalent in the elderly population and increase the risk of

adverse outcomes post-discharge.<sup>1,2</sup>

#### Level of Independence

Hospitalization, regardless of duration, often does not lead to significant improvements in psychological well-being, independence, or the resolution of cognitive deficits.<sup>1,2,3</sup> Using tools such as the ADLHS, IADL, and NEADL, independence in daily activities is assessed not only through basic functional tasks but also through factors such as comorbidities, toileting, self-care, mobility, and feeding abilities.<sup>1,2</sup>

Research by Urbietè et al. showed that for 64.4% of the sample, independence levels remained unchanged during hospitalization, while 9.9% experienced a decline.<sup>1</sup>

#### Cognitive Function and Home Care

Post-discharge, only 11.2% of participants retained decision-making autonomy, while the same percentage exhibited significant cognitive impairment. This was linked to an increased need for continuous home-based nursing care, particularly among the 32.9% of patients who lived alone.<sup>1</sup>

Despite the existence of needs and challenges in everyday decision-making, InterRAI Home Care assessment data showed that a substantial proportion of patients received no support from their families or social services to implement a disease management plan.<sup>1,4</sup>

Approximately 57.9% of participants recognized the importance of permanent post-discharge nursing services due to special needs, while 76.3% expressed a preference for home care. This was perceived as offering more appropriate and timely assessment within a familiar environment, in contrast to institutional secondary care services (preferred by only 23.7%).<sup>1</sup>

Unlike psychological condition and independence—which tend to remain stable or change minimally—most patients exhibited cognitive deterioration ranging from mild to severe in 45.4% of cases after discharge.<sup>1</sup> Tasks that require cognitive ability, such as medication management, financial planning, and household organization, were particularly impacted.<sup>1,6</sup>

Based on the SPMSQ and LLDI scales, individuals with mild or no cognitive impairment, those recovering from pulmonary disease

or rehabilitation after trauma, were shown to benefit from disease management interventions. In contrast, those with cardiovascular disease or dementia showed limited benefit.<sup>2,6</sup> Nonetheless, the overall efficacy of disease management plans in cases of chronic or acute illness remains debatable.<sup>6,7</sup>

#### DISEASE MANAGEMENT

A Disease Management Plan (DMP) establishes the foundation for measurable and recordable improvements in patient outcomes.<sup>2,8</sup> The fundamental pillars of a DMP include disease recognition, assessment, goal-setting, implementation, and collaboration.<sup>8</sup> Essentially, each DMP is shaped by the individual's values and encompasses a variety of interventions that are planned and implemented accordingly.<sup>5,6</sup> A characteristic example includes both pre- and post-hospitalization assessments, as well as structured educational sessions delivered within defined timeframes.<sup>5</sup>

Additionally, preparation of the individual for symptom and medication management, self-care skills training, encouragement of decision-making in daily life, enhancement of the therapeutic relationship, and home visits are all considered essential nursing interventions that may be carried out both during and following discharge from hospital care.<sup>2,5,9</sup> Self-care education, delivered through structured learning techniques, is intrinsically linked to prioritizing the individual's needs—regardless of the specific illness.<sup>10</sup>

#### HOME Intervention and the TCM Model

The HOME intervention facilitates the transition from hospital to home through logistical support and enables post-discharge monitoring via regular telephone follow-ups and in-person home visits.<sup>2,9</sup> The intervention unfolds in four stages: first, the establishment of a therapeutic relationship between patient and healthcare professional; second, pre- and post-hospitalization assessments to serve as reference points; and finally, ongoing face-to-face follow-up visits.<sup>2,5,9</sup>

A noted limitation of the HOME intervention is its inability to correlate with improved outcomes in reduced mobility or comorbidities.<sup>2</sup> Moreover, for patients with low levels of independence, home-based assessments may not yield the desired

positive outcomes.<sup>2,6,7</sup> According to the findings of Provencher et al., following implementation of the HOME intervention, the rate of unplanned readmissions for individuals with mild cognitive impairment decreased to 7.6% within three months—compared to 28.8% for those with severe cognitive conditions such as dementia.

Similar results were observed with the Transitional Care Model (TCM). Among all patients to whom the TCM was applied, 36% were readmitted, compared with 51% in the group receiving standard care.<sup>2</sup> The only notable distinction between TCM and the HOME intervention lies in the functional improvement outcomes, which were found to be more favorable under the HOME model.<sup>2,11</sup>

#### RED Program

By proactively improving daily functioning through DMP-related interventions, it becomes possible to identify high-risk patients, enhance their quality of life, and reduce the likelihood of hospital readmission.<sup>2,12</sup> Contributing factors to unplanned readmissions include impaired communication in the therapeutic relationship (often due to dysarthria and attention deficits), limited self-care ability, and a lack of familial and community support.<sup>3</sup> According to research by Gardner et al., implementing a structured nursing care plan improves patients' self-management and strengthens linkages with support services. Their study demonstrated that the nursing discharge care planning, when guided by the Re-Engineered Discharge (RED) program, could reduce readmissions by 0.9% within 30 days post-discharge, 2% within 60 days, and 0.8% within 90 days. These results were observed in patients discharged from skilled nursing facilities (SNFs) and followed up at home.<sup>3,13</sup>

Data derived from national information systems—including FFS, LTCFocus, MDS, and CASPER—confirmed that readmission rates declined by 1.7% within 30 days post-discharge. Additionally, between the intervention group (former SNF residents) and the control group (previously hospitalized patients without structured follow-up), there were 20 fewer readmissions recorded during the follow-up period among those in the intervention arm.<sup>3,13</sup>

#### PRE-MORTEM CARE

Simultaneously, the concept of pre-mortem care (PMC) is also significant for patients who have been discharged from a healthcare facility and are aware that the end of their life is approaching. Specifically, the study by Chan, Sheung-Ching et al. revealed that through PMC, better collaboration can be achieved with the help of a mediator between patients and family members. This process facilitates early prevention, aids in decision-making regarding the care provided, and ensures that decisions are in line with the patient's wishes until the end of life.<sup>14</sup> Through the use of technological tools, such as video projections, healthcare professionals can identify the preferences of sensitive individuals during pre-mortem care.<sup>14</sup>

More specifically, the study involved individuals with advanced-stage general conditions, alongside a family member, forming an initial group of 239 pairs (later reduced to 216). This created an intervention group (with 107 individuals) and a control group (with 109 individuals).<sup>4</sup> The intervention consisted of three weekly visits, during which a family member was present. During the first and second visits, participants shared their experiences and personal values regarding their illnesses. In the final visit, they discussed their private wishes for the end of life, expressed concerns, and shared any information they felt was important.<sup>4,14</sup> The measurements of the tool "The Geriatric Screening for Functional Performance Independence Guide" (TGSFPIG) showed that only 14.6% of patients had previously discussed death-related issues with their family members, while only 2.6% had heard anything about legal documents such as wills. Ultimately, after assessments conducted at the 1st and 6th month, significant differences were observed between the two groups, with the intervention group achieving better results in terms of family relationship agreement and the free expression of individual preferences.

#### DISCUSSION

Through this study, it becomes evident that the issues of post-hospital care in today's era are real and require particular attention and future research.<sup>1</sup> The absence of Greek studies on the provision of post-hospital care services and the existence of post-hospital care needs for individuals highlight the insufficient

exploration of this scientific field and the inability to address the difficulties faced by certain demographic groups, such as those over 65 years old, after their discharge from a healthcare facility. The lack of continuity in care between healthcare institutions and the community creates an urgent need for the organization of secondary health services through models, interventions, and planning.<sup>1,2,3</sup> The enhancement of home care services through research into the post-hospital care needs of the elderly appears to serve as a valuable means of bridging the care gap between healthcare institutions and the community.

These conclusions are fully aligned with the international literature, which highlights that the lack of continuity in care increases the risk of readmission, complications, and poor quality of life for the patient.<sup>4,5</sup> According to Shepperd et al., home care after discharge plays a crucial role in reducing readmissions and improving patient outcomes.<sup>4</sup> Additionally, as noted by Verhaegh et al., guidance and support for patients upon discharge are key tools in post-hospital care.<sup>5</sup>

Moreover, the lack of Greek research data, as emphasized by Mastrogianni et al., underscores the inability to create a national strategy for supporting individuals after hospital discharge, especially the elderly. In contrast, other European countries have already invested in intersectoral collaboration and home care structures supported by specialized staff.<sup>7</sup>

Finally, the need for intervention planning and the creation of care standards, as proposed by Coleman et al., is fundamental to bridging the gap between hospital care and community-based care.<sup>8</sup> The development of such models within the Greek context could support continuity of care and ensure a better quality of life for those being served.

Furthermore, of particular interest is the connection between post-hospital care and the concept of holistic and person-centered care, which has been strongly promoted in international practice.<sup>9</sup> Care services should not focus solely on the biomedical aspects of patients but should also consider psychosocial factors, family dynamics, and the individual's ability to self-manage. Home care, in this context, can function as a mechanism to empower patients, enhancing their autonomy and reducing dependence on the hospital system.<sup>10</sup>

Therefore, the future research and policy agenda should focus

not only on mapping needs and services but also on creating integrated and sustainable care models that combine clinical effectiveness, human-centered approaches, and social justice.<sup>11</sup> The Greek healthcare system is in dire need of such reforms, which will be based on evidence-based practices and respond to the needs of vulnerable groups, particularly the elderly.

## CONCLUSIONS

Characteristics of individuals, such as reduced independence, changes in psychological status, and cognitive decline observed during the hospitalization and post-hospitalization period, hinder their transition from a clinical setting to daily activities. Most patients prefer home care services during the rehabilitation phase because they seem to holistically meet their needs. Specifically, providing a disease management plan post-hospitalization proves beneficial for certain groups of patients with primarily mild disorders, while the opposite is observed in individuals with dementia, cardiovascular problems, or those suffering from acute illnesses and injuries. Notable examples of such disease management plans include the HOME intervention, the TCM model, and the RED design, all of which significantly reduce unplanned readmission rates. Lastly, the implementation of disease management plans can also take place in patients during pre-mortem care, as the presence of a mediator between the patient and the rest of the family members supports the sharing of information and the importance of prevention.

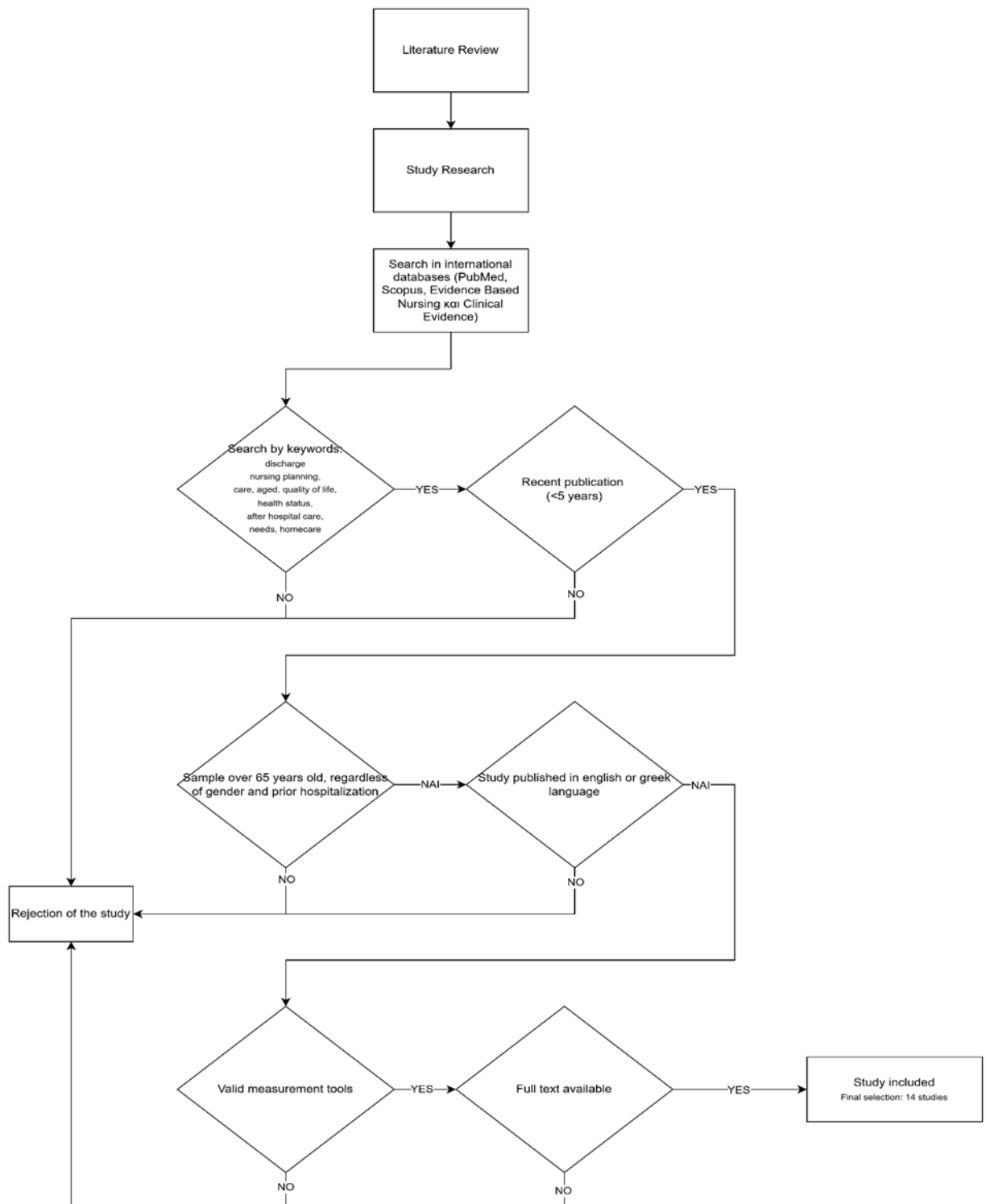
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## ANNEX

FIGURE 1. Flow chart of the literature review



**TABLE 1.** Measurement tools utilised

<b>Measurement Tools Utilised</b>					
	<b>Assessment forms</b>	<b>Questionnaires</b>	<b>Scales</b>	<b>Monitoring tools</b>	<b>Databases</b>
	the InterRAI Home Care assessment form	Activities of Daily Living Hierarchy Scale (ADLHS)	the aged-adjusted Charlson Comorbidity Index (CCI)	the Gold Standards Framework Prognostic Indicator Guidance (GSF-PIG)	Medicare Fee-for-Service (FFS)
		Nottingham Extended Activities of Daily Living (NEADL)	the Short Portable Mental Status Questionnaire (SPMSQ)		Long Term Care Focus (LTC Focus)
		The Late Life Disability Index (LLDL)	the Functional Independence Measure (FIM)		the Minimum Data Set (MDS)
		Instrumental Activities of Daily Living (IADL)			the Certification and Survey Provider Enhanced Reporting (CASPER)