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Nurses' Role In Prevention Of Hospital Admissions Among Long-Term Care Patients: A Systematic Review Of The Literature

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NURSES' ROLE IN PREVENTION OF HOSPITAL ADMISSIONS AMONG LONG-TERM CARE PATIENTS: A SYSTEMATIC REVIEW OF THE LITERATURE

Honors Thesis

**Presented in Partial Fulfillment of the Requirements
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By

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Abstract

The number of Americans in long-term care (LTC) facilities is growing rapidly. The average lifespan is increasing, and the baby boomer generation is aging. This puts stress on both LTC facilities as well as hospitals (McAndrew, Grabowski, Dangi, & Young, 2015). In order for the healthcare system to run efficiently, all healthcare providers need to be aware of this issue. Methods to prevent potentially avoidable hospitalizations (PAH) should be available for nurses. This systematic review of the literature discusses the current literature about possible prevention methods. This review includes articles that identify the major causes of PAH as well as articles that explore different ways to minimize them.

Many LTC residents require care in a hospital setting from time to time, and some more frequently than others. The term "potentially avoidable hospitalization" is used to categorize a required hospitalization that could have been avoided (McAndrew et al., 2015). Whether from a fall, a medication error, an infectious process, or another avoidable cause, such hospitalizations have negative impacts on the patient and are a huge expense for healthcare (Walsh et al., 2012). Some LTC patients are admitted to the hospital repeatedly, and sometimes for the same problem.

Proper planning and care from nurses and other healthcare providers can lower the number of PAH this population experiences. This article reviews tools and techniques available for nurses so they will be aware of such methods. Additional research, including more randomized controlled trials, are needed since this is a rising issue in healthcare and there is currently no golden standard for nursing practice.

Key words: long term care, hospitalization, older adults, prevention

TABLE OF CONTENTS

Page

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Introduction

As the baby boomer generation ages, more and more Americans will reside in long-term care (LTC) facilities. Hospitals are already under stress as they try to accommodate for this increase in need for medical attention. Since over 15 percent of these individuals will require hospitalization in any six-month time frame (Grabowski, O'Malley, & Barhydt, 2007), they account for a large number of the patient population. Some of these hospitalizations could have been avoided or treated differently. It is estimated that potentially avoidable hospitalizations (PAH) account for approximately 40% of these admissions (Grabowski et al., 2007). Even older adults staying in LTC facilities for rehabilitation are at risk for requiring a potentially avoidable hospitalization.

When a PAH occurs, the individual is at risk of not only delirium and deterioration, but iatrogenic illness as well (Xing, Mukamel, & Tempkin-Greener, 2013). This creates a cycle of rehospitalization of the patient that not only has the potential to decrease patient's quality of life, but also puts an enormous strain on the health care system. Potentially avoidable hospitalizations cost $25 billion annually (Carew & Resnick, 2015). Reducing the number of PAH is an important task for the health care system.

Identifying the major causes of PAH and possible interventions to minimize their occurrences is more important than ever before. Nurses need tools and knowledge on how to minimize these hospitalizations and prevent future rehospitalizations. This systematic review examines the available literature and presents findings so that the research can move forward to decrease PAH of LTC patients. The purpose of this review was to identify factors involved in potentially avoidable hospitalizations

Methods

Data Sources and Search Strategy

Articles were selected through an online-search process to create a systematic review of the literature. The search engine used was CINAHL through EBSCO. The most recent search was conducted on October 6, 2017. Articles found through this date are included in this review. Only research articles that were published after 2006 and written in English with full text available were included. Articles that focused only on one specific diagnosis were excluded.

The EBSCO-CINAHL search terms were as follows: *hospitalization OR potentially avoidable hospitalization OR readmission AND nursing home* OR long-term care OR residential care*. Upon initial search, 1,994 articles were provided. After examining the titles and then abstracts of these articles, seven were chosen. Three additional articles were identified through references found in the original seven articles. These 10 articles were the only ones that met all search criteria and form the foundation of this systematic review (see figure 1).

Additional articles were included after examining references listed in the original articles. All articles focus on the 65+ population who live in nursing homes or long-term care facilities. The articles focus on this population's need for hospitalizations, especially those admissions to hospitals that could have potentially been avoided.

Data Extraction

Each article that was included in this review is listed (see Appendix)**.** A brief description of each article is included. The design, population, aims, results, limitations,

and nursing implications are presented. The summary of the articles gives an overview

of the literature behind this review.

Figure 1 Search Strategy
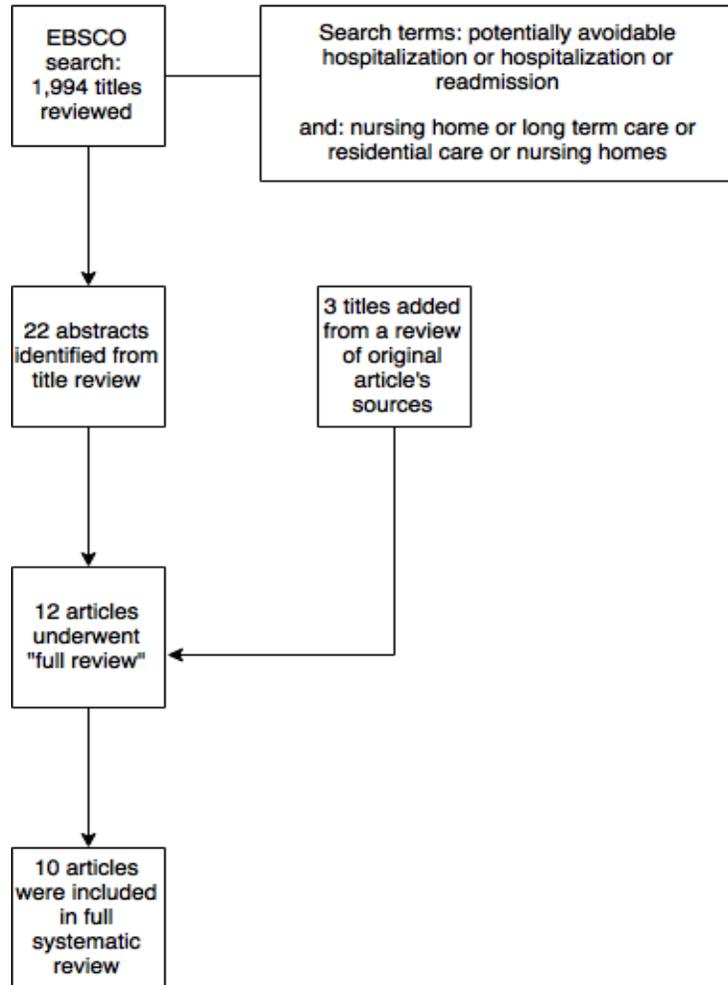
Results

The list of articles used in this review has a variety of outcomes. A few of the

articles explored the most common causes of avoidable hospitalizations. Many articles

also examined the cost of those admissions and its strain on the health care system.

Others were concerned with the effects on the patients themselves.

Some articles do however list which diagnoses are most common causes of hospitalizations and were included in the review. The articles that list diagnoses that are most common causes of PAH were also included. The articles examined vary from descriptive analyses, to randomized control trials, retrospective studies, as well as other systematic reviews.

This systematic review included 10 articles. The oldest article dates back to 2007. There was a wide variety of objectives, however the primary focus was examining PAH. Three articles focused on the prevalence and predictors of PAH, three examined possible interventions, two investigated the factors related to the LTC facilities, and two looked at transfers specifically. Within those categories, information was derived that identifies common causes of PAH and readmission. Suggestions for minimizing these rates were provided.

Prevalence and Predictors of Potentially Avoidable Hospitalizations

When Medicare reduced the length of stay for an acute hospitalization, it had some positive effects on some diagnoses, however it negatively impacted others. Patients with delirium, myocardial infarctions with complications, pressure ulcers, and comorbidities were all associated with increased readmission rates after this change (Yoo et al., 2015). In this study, patients who identify as black also had higher readmission rates.

One study identified the frequency of major diagnoses of LTC residents. According to the study, pneumonia accounted for just over half of all potentially avoidable hospitalizations (McAndrew et al., 2015). The other major causes were kidney infections or urinary tract infections, dehydration, and chronic obstructive pulmonary

disease. Of the patients observed in this study, almost 40% were hospitalized again (McAndrew et al., 2015).

When Medicare and Medicaid were incorporated into the equation, results stayed about the same. Dually eligible patients were admitted for the same five diagnoses mentioned by McAndrew et al. (2015). The study also showed PAH accounted for 40% of all admissions in this population (Walsh et al., 2012).

Interventions Within Long Term Care Facilities

Two of the articles focused on changes which could be made at the long-term care (LTC) facility level. Many factors impacted the rate of readmission and rate of admissions that could have been avoided. These factors included staff to patient ratio, staff level of skill and availability of services on-site. Other factors include whether it is nonprofit or for-profit, part of a chain, rural or urban, ratio of Medicare to Medicaid patients, or affiliated with a hospital (Xing et al., 2013).

One major finding focused on whether the patients were under the care of a Primary Care Physician (PCP). Residents who were under the care of a PCP who worked primarily in nursing homes were associated with lower risk of being admitted for a PAH. Residents not under such care had a 52% higher risk of PAH (Kuo et al., 2013). All of these changes could be incorporated into how care is delivered in order to decrease PAH in LTC settings.

Focusing on Transfers Between Facilities.

Transferring from long-term-care facilities to hospitals and vice versa poses a risk for miscommunication or disruption in the plan of care. Transfers are sometimes unnecessary, harmful to the patient, and expensive (Grabrowsi et al., 2007). It is not

uncommon for residents to be sent to hospitals when they should have been able to be cared for in their LTC facility and it is estimated that 40% of these transfers are inappropriate (Grabrowski et al., 2007).

Another study was done examining the difference between nursing home residents who transitioned back into the community compared to those who remained in the nursing home. It showed that those who transitioned out of the nursing home had a 40% increase in PAH (Wysocki et al., 2014). More planning for patients who transition out could help decrease this rate.

Interventional Studies

A few studies focused on individual interventions which included better transitional care programs, medication reconciliation, and advanced directives (LaMantia, Scheunemann, Viera, Busby-Whitehead, & Hanson, 2010). The study which focused on individual care plans showed a decrease in both emergency room visits as well as hospital admissions (Carew & Resnick, 2015).

A second study was done with the main priority of identifying high-risk patients in the emergency room. They were then followed after discharge and readmissions were tracked (Rosted, Poulsen, Hendriksen, Petersen, & Wagner, 2013). Although this study did not show a significant improvement in the number of PAH, it was a successful tool for identifying patients at risk of depression.

The third study which offered interventions was more successful. Many interventions were identified which decreased PAH in the LTC population. Medication reconciliation and advanced directives were identified as two major methods of decreasing PAH (LaMantia et al., 2010). Evaluating each patient's medication,

especially through a pharmacist, is the best method for preventing medication interaction errors. This will decrease PAH by enabling patients to receive the best medication options for them specifically. Advanced directives play a major role in the care a patient should receive and is especially important at end of life.

Understanding these risk factors and possible interventions can decrease PAH. This would be beneficial to the patients themselves and would save a tremendous amount in health care costs. Although some interventions would require more time and resources, some can be easily incorporated into the care given by nurses on a daily basis. Making these changes has the potential to improve patients' quality of life and should be a priority in our healthcare system since this problem is becoming so profound (LaMantia et al., 2010).

Discussion

This systematic review examined 10 articles which listed the most common reasons for PAH in LTC residents and explored methods which could possibly reduce them. Among the most common causes of PAH were pneumonia, urinary tract infections, and dehydration. Methods to reduce PAH included changes within the LTC facilitates themselves, careful transfers, medication reconciliation, and advanced directives. Although many suggestions were provided to possibly decrease these hospitalizations, there was not a method that was significantly better than the others.

There is no solution to this problem in the current literature. Making changes at the LTC facility level was the most promising method. Understanding the risk factors that are common causes of PAH at the level of the LTC facility could inform the best interventions according to this systematic review of the literature. More research still

needs to be done in order to discover the best interventions to keep LTC residents out of the hospital for avoidable causes. Ideally, nurses should be provided with a tool which will enable them to easily prevent avoidable hospitalizations for this population. It remains to be seen if the transition between hospitals and LTC facilities improves with the use of the same documentation software. Once a tool is developed, it could easily be incorporated into such software in order to potentially decrease PAH.

Limitations

The search strategy limited the articles that were included. This review is limited to studies published in English, and identified using one database. Another major limitation was that no two articles explored the same methods, therefore no direct comparisons could be made.

Another potential limitation is that not all studies reported whether the LTC facilities were operating under Medicare or Medicaid. The outcomes may be different if the two are compared separately. Another study would need to be done that investigates each of them separately.

Conclusion

This systematic review identifies areas of focus and problems relating to PAH in LTC residents. The literature provides nurses with a list of the most common causes of PAH. It also shows a few different interventions which have shown to decrease PAH. More studies need to be conducted to provide additional data in order to better evaluate which interventions were most beneficial. Further studies should be conducted to evaluate patients end of life wishes to determine if preparing advance directives would decrease the number of PAH as well. The research is moving in the right direction,

however there is still a lot that needs to be done before an effective tool for nurses is developed.

Preventative interventions need to be identified and implemented in order to provide LTC residents with the best care possible. Giving them the care they need will potentially prevent them from being admitted to the hospital for reasons which could have been avoided (Xing et al., 2013). Doing so will not only cut costs but can lead to improvement in the individual's quality of life. Preventing a PAH will eliminate the chance of the individual's overall health deteriorating while hospitalized. Many negative consequences are associated with hospitalizing the older adult and therefore hospitalization should be prevented when possible (Xing et al., 2013).

In conclusion, much more research is needed to properly address this growing concern. Developing a tool for nurses to effectively decrease PAH is a very complex task. It should be a top priority for the healthcare system, especially since this population is growing at such a high rate. Changes ranging from the level of the LTC facility through the discharge from the hospital need to be further evaluated to identify where the biggest impact can be made to improve the individuals within this population's quality of life. The goal is to prevent hospitalizations as much as possible. If an admission is deemed necessary, excellent quality care must be delivered so as to prevent the need for further hospitalization. Nurses have an opportunity to make a major positive impact on the aging population and should take full advantage of this to better the lives of many individuals.

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Appendix

Table 1: Summary of Studies

Citation Author(s)/ Year	Design	Target Population, Sample Size, Location	Type of Intervention	Outcomes/ Aims	Results	Limitations	Nursing Implications/ Gaps
Carew, Resneck, 2015	Descriptive analysis	Age 65+, poor, disabled; n=376; Maryland	Six different care models were evaluated	Examine association between admissions to hospitals vs. skilled nursing facilities	The addition of a care manager kept most of the participants out of hospitals and skilled nursing facilities	The follow up period was brief; small sample size	Shows importance of programs which try to decrease rehospitalization
Grabowski, O'Malley, & Barhydt, 2007	Descriptive analysis	690 nursing homes in NYC; Medicare patients	N/a	Evaluate the common causes of PAH and their impact on the health care system	Spending on hospitalizing LTC patients in NYC increased 29% from 1999 to 2004	Does not take into account the cost to treat these patients in a nursing home opposed to a hospital	Shows how much money is being spent on this issue but does not offer any suggestions to fix it
Kuo, Raji, Goodwin, 2013	Retrospective cohort study	Medicare pts age 65+ admitted to nursing home for first time; n=12,249; Texas	Cared for by provider who spent at least 85% of their time working for nursing homes	Show the relationship between potential avoidable hospitalizations and average Medicare costs (Kuo, 2013)	Those cared for by providers spending at least 85% of their time working in a NH had 1/3 fewer avoidable hospitalizations	Only the main provider was accounted for, not all members of the team	Shows potential issues with Medicare's cost effectiveness
LaManita, Scheunemann, Viera, et al., 2013	Systematic Review	Age 65+ being transferred between nursing homes and hospitals Study A: South Australia; n=110 B: New York City; n=168 C: North Carolina; n=420 D: Oregon; n=180 E: Indiana; n=65	Study A: pharmacist reviewed meds closely B: med reconciliation C: patient transfer sheet D: life-sustaining treatment transfer sheet E: one-page transfer sheet	Show importance of communication when patients are transferred	"A standardized patient transfer form may assist with the communication of advance directives and medication lists and that pharmacist-led review of medication lists may help identify omitted or indicated medications on transfer" (LaManita et al., 2010)	Only English-language articles were included; sustainability is unclear; effectiveness of interventions are unclear	Next step: randomized controlled trials performed in many different healthcare settings

McAndrew, Grabowski, Dangi, Young, 2015	Retrospective cohort study	Medicare recipients of any age who spent at least 120 days in a row in a nursing home; n=533 982; NY	Determine most frequent diagnoses that lead to PAH	Identify common causes and trends of PAH in LTC settings (McAndrew et al., 2015)	40% of participants experienced a potentially avoidable hospitalization	Pneumonia was included in the potentially avoidable list and it accounted for about 50% of the admissions (other studies do not include PNA)	Provides a list of most common PAH. Future research needs to be done to decrease the risk nursing home residents face when it comes to avoidable hospitalizations.
Rosted, Poulsen, Hendriksen, Petersen, Wagner, 2013	Randomized controlled study	Pts age 70+ who were discharged from an ED; n=271; Denmark	Nursing assessment within ED to screen for high risk pts; Determine most frequent diagnoses that lead to PAH	Focus on successful transition to and from the hospital in order to decrease readmission	The control group had twice as many readmissions than those at low risk after the 180-day follow up	Sample size was smaller than they thought it needed to be; possible Hawthorne effect; may not be true of all hospitals since only one was looked at	They accidentally discovered a decrease in risk of depression showing the importance of early screening to allow proper referral after discharge
Walsh, Wiener, Haber, et al, 2012	Retrospective	Dually eligible Medicare/Medicaid nursing facility residents age 65+; n= 1,571,920	N/a	Examine PAH and their adverse effects on elders quality of life	"Between 77,000 and 260,000 hospitalizations and between $625 million and $1.9 billion in expenditures could be avoided annually in this population." (Walsh et al, 2012)	Some states were omitted because their data was incomplete; conditions were not taken into account when determining if hospitalization was truly avoidable	Medicaid cannot use Medicare funds to place patients in long-term care settings which are associated with lower PAH rates
Wysocki, Kane, Dowd, et al., 2014	Retrospective matched cohort study	"Dually eligible fee-for-service beneficiaries aged 65 and older" (Wysocki et al., 2014); n= 2,338; Arkansas, Florida, Minnesota, New Mexico, Texas, Vermont, and Washington	Compare hospitalizations of nursing home residents who transitioned back into the community	Understand hospitalization of pts who move from nursing homes to the community or home.	Participants who moved out of the nursing homes had an increased risk of hospitalization (both potentially avoidable and not avoidable)	Only the first hospitalization mattered in this study (frequent flyer status was not evaluated); possible selection bias	"Planning for the medical needs of individuals who transition from an extended NH stay may improve their posttransition outcomes." (Wysocki et al., 2014)

Xing, Mukamel, Tempkin-Greener, 2013	Retrospective	Residents of long-term care facilities age 65+ who passed in 2007; n=274,774; US	N/a	"To examine the incidence of, variations in, and costs of potentially avoidable hospitalizations (PAH) of nursing home (NH) residents at the end of life and to identify the association between NH characteristics and a facility-level quality measure (QM) for PAH." (Xing et al., 2013)	"Almost 50% of hospital admissions for NH residents in their last year of life were for potentially avoidable conditions, costing Medicare $1 billion" (Xing et al., 2013)	Severity of conditions was not taken into account when determining if hospitalization was truly avoidable; omitted variable bias is possible	Shows how common potentially avoidable hospitalizations are and how expensive this is for Medicare
Yoo, Jabeen, Bajwa, et al., 2015	Systematic Review	Age 65+ admitted to nursing home or hospital in the United States; EBSCO search → 15 articles	Study A: improved communication between whole team Study B: effects of geriatric special services Determine most frequent diagnoses that lead to PAH	"Prevalence of all-cause hospital readmission in 30- and 90-day and 1-year periods were main outcomes. Cost of hospital readmission, predictors, and appropriateness of hospital readmission were secondary outcomes" (Yoo et al., 2015)	Study A reduced 30-day readmission from 18.9-10.2% Study B showed a decrease in readmissions when patient was placed in geriatric specialty service unit	All studies used were small scale; resident's perspectives were not examined; potential selection bias; articles ranged from 2005-2013	"Potentially avoidable conditions accounted for 40% of hospital readmissions from SNFs" (Yoo et al., 2015); 30-day readmissions increased from 18-24% in past decade