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Research Article

Decreasing Falls Amongst Elderly

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Abstract

Background & Purpose: Falls amongst the elderly are a global problem in health care. Falls are the leading cause of fatal injury and the most common cause of non-fatal trauma-related hospital admissions among the elderly population. An assisted-living facility had continuously experienced falls amongst their elderly residents despite fall prevention measures that were already in place. An intervention was implemented with the purpose being to explore whether this evidence-based practice change project led to improved health outcomes of the elderly residents at the assisted-living facility by decreasing the fall-rate.

Methods: An Evidence-Based Practice (EBP) change project was conducted at an assisted-living facility over 10 weeks. The project consisted of teaching 26 nurses' aides at the facility how to perform an evidence-based Intervention Called: purposeful hourly rounding with the 4 Ps. The purposeful hourly rounding with the 4 Ps intervention involved checking on residents at regular intervals to deliver care while assessing their pain, personal needs, positioning, and placement.

Conclusions: Elderly falls are a common, yet preventable problem in health care. The EBP change project aimed at decreasing falls among the elderly population at the assisted-living facility was successfully implemented. Outcome findings were significant and the goals of decreasing the fall-rate at the facility and effectively educating the staff about the intervention transpired. Implementing the purposeful hourly rounding with the 4 Ps intervention was an effective method to translate evidence into practice in order to improve the health outcomes of the residents at the assisted-living facility.

Implications: Evidence indicated that hourly rounding is a safe, effective, and cost-efficient intervention to decrease falls amongst the elderly population. Purposeful hourly rounding using the 4 Ps established that the nurses' aides were proactively meeting the needs of each resident. There is vast potential cost-savings associated with sustaining the purposeful hourly rounding with the 4 Ps intervention.

Keywords: Assisted-living; Elderly; Falls; Fall interventions; Fall prevention; Geriatrics

Introduction

Falls amongst the elderly are a prevalent and widespread problem in many health care settings. The adverse health, social, and economic outcomes are detrimental to patients, their families, the staff, and the institutions involved. Falls have been reported to be associated with increased morbidity and mortality, diminished functionality, unnecessary hospitalizations, and untimely nursing home admissions. As baby-boomers age, the number of falls and the costs and outcomes associated with falls is expected to increase. In America each year, one in four people over age 65 suffers a fall; that number is expected to rise as the aging population increases

[1]. According to Gimm & Kitsantas [2], 15% of older adults who reside in assisted-living communities fall each year. Rapid identification of those that have an increased risk of falling is crucial, therefore a careful assessment of health and environment is necessary. It is imperative that fall prevention measures be implemented and tailored to meet each individual's specific needs.

Background

A patient fall is defined as "an unplanned descent to the floor with or without injury to the patient" [3]. There are three different types of falls identified in the medical literature: anticipated physiological falls, unanticipated physiological falls, and accidental falls [4]. Anticipated physiological falls are the most common type of falls and occur in patients that are already at an

increased risk of falling as determined by a fall risk assessment [4]. Unanticipated physiological falls occur from medical reasons that could not be predicted, such as seizures or syncope [4]. Accidental falls result from slipping, tripping, or other environmental factors [4]. Many factors place individuals at an increased risk of falls, therefore, health care providers must be able to identify and assess for risk factors. Intrinsic risk factors for falls include advanced age, poor vision, chronic health conditions, gait problems, and muscle weakness [5]. Extrinsic risk factors for falls include poor lighting, medications, clutter, throw-rugs, lack of grab-bars, lack of stair handrails, and improper use of assistive devices [5]. Research indicates that 1/3 of falls can be prevented [3]. Falls in the elderly, with or without injury, create a negative impact on the mental health of the individual. People that have experienced a fall often limit their social activities and engagements due to the fear associated with falling. This often leads to depression, social isolation, feelings of hopelessness, feelings of helplessness, and further physical and emotional decline [1].

Significance

Globally, falls are a major public health problem. According to the World Health Organization [6], 646,000 fatal falls occur each year, making it the second leading cause of unintentional injury death. In America each year, one in four people over age 65 suffers a fall; that number is expected to rise as the aging population increases [1]. According to Gimm & Kitsantas [2], fifteen percent of older adults who reside in assisted-living communities fall each year. Falls are the leading cause of fatal injury and the most common cause of non-fatal trauma-related hospital admissions among the elderly population [1]. In 2014, the total cost of fall injuries was \$31 billion and by 2020, the cost is expected to be \$67.7 billion [1]. Hip fractures from falls are very prevalent due to decreased bone density and decreased reaction time in the elderly. According to the American Academy of Orthopedic Surgeons [7], "Approximately 25% of hip fracture patients will make a full recovery; 40% will require nursing home admission; 50% will be dependent upon a cane or a walker; and 20% will die within one year of the fall." The direct medical cost to treat one fall is \$10,800; while the average 5.6 days to be hospitalized for the fall costs \$11,700 [1]. In addition to the direct medical costs associated with falls, there are significant costs related to follow-up care, medications, and rehabilitation.

Literature Methods and Summation

In an effort to find the most relevant evidence published, the databases that were accessed in the search for literature included: CINAHL, Health Business Elite, Academic Search, Science Direct, and Medline. Key words used to search the literature for effective interventions included: Falls, Fall Prevention, Geriatrics, Fall Interventions, Nursing-home, Assisted-living, and Elderly. Articles that were directly related to the clinical problem of falls were included. Studies that were not in English were excluded

as well as studies that focused on pediatric patients because that was not the population of interest. Only articles that were peer-reviewed were included in the search to ensure the quality of the research methods. Literature regarding fall prevention methods expands over seven decades. The articles chosen for review were restricted to no more than 10 years old in order to obtain data that were relevant to current health care.

After an extensive review of the literature for the best intervention to decrease fall-rates, it was discovered that purposeful hourly rounding scripted with the 4 Ps has demonstrated a cost-effective way to improve patient outcomes, increase patient safety, and increase patient satisfaction. An 8-week study by Saleh, et al. [8] utilizing hourly rounding significantly reduced the patient's use of the call-bell/light, decreased fall-rates, and increased patient satisfaction by 7.5%. In a large (N=4,418) quasi-experimental study by Olrich, et al. [9] the fall-rate decreased from 3.37 per 1,000 patient days to 2.6 per 1,000 patient days during the one-year study utilizing hourly rounds. In addition, a prospective pilot study done in two hospital nursing units engaged an interdisciplinary team in the implementation of purposeful hourly rounding that significantly reduced the fall-rates [10]. A team-based approach was often utilized in many studies which greatly contributes to the success of fall prevention methods in health care settings.

Institutional Review Board

In order to successfully implement the project, approval from the Assisted-Living Manager and the Director of Operations was obtained. They were considered the key stakeholders responsible for the daily affairs at the facility. Approval was given to discover and implement an intervention that would decrease the fall-rate after it was determined that falls continued to be an issue at the facility. Original research was not conducted in this project. The information collected and the intervention performed placed no risk to the participants; therefore, an exempt proposal was submitted and approved. There were no identified risks to resident care or resident safety by implementing purposeful hourly rounding using the 4 P's.

Population and Setting

The EBP change project of decreasing falls among the elderly took place at a 29-bed assisted-living facility in a suburb of Washington, D.C. The participants consisted of 26 nurses' aides that were employed at the assisted-living facility. Each employee participated in an educational PowerPoint presentation to gain knowledge about falls among the elderly and how to perform the purposeful hourly rounding with the 4 Ps intervention; including management. Any staff member under the age of 18, or that did not speak English were excluded from the project; however, no one under the age of 18 or non-English speaking was employed at the facility anyway. Demographic data were not collected on the 26 participants. Before the intervention began, the census at

the facility consisted of 27 residents. At the start of the purposeful hourly rounding with the 4 Ps intervention, the census consisted of 26 residents at the assisted-living facility that were the recipients of the intervention. The census of residents living at the facility compared with the staff participants pre- and post-intervention is displayed in (Table 1). Resident demographic information was not needed for the project.

Pre-Intervention		Post-Intervention	
Residents	27	Residents	26
Staff	26	Staff	26

Table 1: Pre- and post-intervention census of staff and residents.

Project Description

The EBP change project spanned over a duration of 10 weeks from recruitment until the completion of the intervention. During the first week of project implementation, the Project Implementer (PI) reviewed fall-related data. The data was presented to the PI by the manager of the facility that included when and where the fall occurred, and whether or not the fall was witnessed. The overall fall-rate was calculated for the previous eight weeks.

The first week of the EBP change project also consisted of recruiting the staff to participate in the purposeful hourly rounding with the 4 Ps intervention. The staff was invited to attend educational PowerPoint presentations with the purpose of educating them about falls, the purposeful hourly rounding with the 4 Ps intervention, and documentation procedures. Several educational PowerPoint presentations were given by the PI during Week-2 of project implementation. The PowerPoint presentations were given on each of the three shifts (7 a.m.- 3 p.m.), (3 p.m.- 11 p.m.), and (11 p.m.- 7 a.m.) to ensure that each employee was included in the education. The PowerPoint presentations educated the staff about falls, the purposeful hourly rounding with the 4 Ps intervention, and documentation procedures. Each of the 26 nurses' aides were expected to participate in the educational sessions to gain knowledge about falls among the elderly; whether they planned to participate in the intervention or not. Participation in the intervention was voluntary; however, the facility manager expected each of the nurses' aides to participate. Three staff members in management also participated in the educational sessions; though their inclusion in the pre- and post- educational surveys was not necessary. Their participation in the educational sessions was crucial to ensure the success of the project, as well as the sustainability of the intervention.

Before and after the PowerPoint presentations, the 26 nurses' aide participants completed a 10-question pre- and post-educational survey to determine if the educational sessions were effective. The pre-educational surveys were numbered 1-26; which coincided with a post-educational survey numbered 1-26. The scores of each question on the pre-and post-educational surveys were calculated to determine if there was a knowledge

increase. The survey participants remained anonymous. The PI was not present during the distribution, completion, or collection of the surveys.

After all staff members participated in the educational sessions, the purposeful hourly rounding with the 4 Ps intervention began on the first day of Week-3 of project implementation. Rounding was done every one-hour from 6 a.m. until 10 p.m. After 10 p.m., the rounding was done every two-hours until 6 a.m.; residents were not awakened if they were asleep. The self-developed hourly rounding documentation forms were placed on the facility manager's desk by the PI the night before the intervention was to begin. Each form was dated for every day of that week and listed with each resident's room number. The nurses' aides distributed the forms into each of their resident's charts for the week. At the end of each week, the PI analyzed the completed documentation forms that had been collected by the nurses' aides and placed in a box in the manager's office in order to monitor compliance. The purposeful hourly rounding with the 4 Ps intervention ensued for the following five weeks after its initiation at the beginning of Week-3. The PI was present at the assisted-living facility several times each week to provide motivation, encouragement, and reinforcement of education to the staff performing the intervention. (Table 2) demonstrates the timeline and processes of the evidence-based practice change project.

Week Number	Activity
One	Recruitment of participants.
Two	Education of staff. Pre- and post-educational surveys administered to 26 nurses' aides.
Three	Hourly Rounding with the 4 Ps intervention begins.
Four - Eight	Intervention continues.
Nine	Intervention is completed and data analysis begins.
Ten	Dissemination of results.

Table 2: Project timeline.

Evaluation of Outcomes

The main outcome of the project was to reduce the fall-rate at the assisted-living facility; with the benchmarked goal of experiencing at least 75% less falls during the eight weeks that the purposeful hourly rounding with the 4 Ps intervention ensued. The outcome of reduced falls was measured by calculating the fall-rate before and after the purposeful hourly rounding with the 4 Ps intervention. Fall calculations were performed according to the

Agency for Health care research and Quality's recommendations and consisted of "Counting the number of falls in the month and dividing the number of falls by the number of occupied patient bed days for the month; then multiplying by 1,000" [3].

A total of five falls were calculated in the eight weeks prior to the start of the intervention; therefore, the starting fall-rate calculated for the eight weeks prior to the staff being educated about the purposeful hourly rounding with the 4 Ps intervention was 18.5%. During implementation of the purposeful hourly rounding with the 4 Ps intervention, two falls were experienced in eight weeks. Therefore, the fall-rate for the eight weeks after the intervention started was 7.7%. The benchmarked goal of experiencing at least 75% less falls during the eight-week purposeful hourly rounding with the 4 Ps intervention was not met, as the fall-rate only decreased by 58.4%. The second outcome of the project was that the staff education would be effective as evidenced by an increase in knowledge after the PowerPoint presentations. In order to determine whether the staff education was effective, data to measure the staff's knowledge before and after the educational PowerPoint presentation was obtained. The mean scores from the 10-question pre- and post-educational knowledge survey were collected for a means comparison. The benchmark was set at the nurses' aides being 80% knowledgeable about falls amongst the elderly and the purposeful hourly rounding with the 4 Ps intervention. The benchmarked goal was met because the pre-educational survey was 85% correct responses to begin with, and the post-educational survey was 93% correct responses.

Discussion

Purposeful hourly rounding with the 4 Ps was an effective approach to keeping the residents safe as evidenced by a 58.4% decrease in the fall-rate. The staff's educational PowerPoint presentation demonstrated to be an effective method for teaching them about elderly falls and the hourly rounding process. The pre- and post-educational surveys that were given to the staff demonstrated an increase from 7.62 to an average of 8.41 ($z = 3.67, p < .001$); which reflected that they were prepared to deliver the intervention effectively. The hourly rounding documentation forms were monitored closely to ensure compliance with the intervention. The documentation forms indicated adherence with rounding procedures with the most common cause of not performing rounds being that the resident was either asleep, or out on leave. Incidentally, the staff reported an overall decrease in call bell/light usage during the project; which is attributed to the rounding intervention proactively meeting the resident's needs.

Limitations

The sample size of the project was small; a replication of the project will be needed using a larger sample size. The entire project spanned over 10 weeks. Therefore, a longer project of at least one

year would help to strengthen the rigor of the project. An additional limitation is that the facility is small and most of the residents are together in the same room throughout the day. The residents are usually gathered in the activity room, or the dining room during the day. Therefore, each aspect of hourly rounding may not have been performed with each round. For example, ensuring that the placement of frequently used items within reach of the residents should be done with each round; but wouldn't have been necessary when they were gathered in the activity room. The results of this practice change project cannot be generalized to all assisted-living facilities because of the previous mentioned limitations.

Implications

Falls are considered to be preventable. As of 2008, the Centers for Medicare & Medicaid Services (CMS) will no longer reimburse hospitals for injuries associated with falls [3]. CMS has transferred the financial burden of inpatient falls to the hospitals and reporting of patient falls now impacts both ranking and payment systems for health care organizations [10]. Accordingly, making safety a top priority by reducing the fall-rate is a huge incentive for facilities to be reimbursed.

The purposeful hourly rounding with the 4 Ps intervention has demonstrated to be an effective method at reducing the fall-rate among the elderly in an assisted-living population. The intervention is cost-effective and does not require additional staffing to complete. Hourly rounding fosters accountability among the staff and optimizes the utilization of the time spent during the shift. Written documentation of the hourly rounds ensures compliance with the intervention and is helpful in terms of litigation. Purposeful hourly rounding with the 4 Ps is a sustainable intervention that improves health outcomes. According to Ford [11], patients appreciate the attributes of hourly rounding including: reliability, responsiveness, and effective communication. The potential cost-savings of sustaining the purposeful hourly rounding with the 4 Ps is gargantuan. It was determined that any intervention that would prevent one fall for 1-year would save the facility \$6,200 [12]. Therefore, if 25 resident falls are prevented for 1-year using the purposeful hourly rounding with the 4 Ps intervention, the assisted-living facility would save \$155,000.

Conclusion

The health outcomes of the elderly population are top priority in health care today and in the future. Interventions that reduce and prevent falls are needed to ensure that elderly patients do not suffer from the negative consequences associated with falling. The purposeful hourly rounding with the 4 Ps intervention has demonstrated to be an effective method at reducing the fall-rate among the elderly in an assisted-living population. The intervention is cost-effective and does not require additional staffing to complete. Hourly rounding fosters accountability among the staff

and optimizes the utilization of the time spent during their shift. Written documentation of the hourly rounds ensures compliance with the intervention. Purposeful hourly rounding with the 4 Ps is a sustainable intervention that improves health outcomes.

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