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Review

The impact of geriatric focused nurse assessment and intervention in the emergency department: A systematic review

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ABSTRACT

Background: Nursing assessment of elderly patients is imperative in Emergency Departments (ED) while providing interventions that increase independence facilitating discharge to primary healthcare.
Aims: To systematically review the impact of geriatric focused nurse assessment and intervention in the ED on hospital utilisation in terms of admission rate, ED revisits and length of hospital stay (LOHS).
Methods: Search strategy used following databases; Cochrane, Medline, CINAHL, Embase, Scopus and Web of Knowledge; And terms; geriatric nurse assessment, nurse discharge planning, geriatric nurse specialist, nurse intervention, emergency department, accident and emergency, patient outcomes, discharge, admissions, readmissions, hospital utilization, hospitalization, length of stay/hospital stay.
Results: Nine studies were included: seven RCTs and two prospective pre/post-intervention designed studies. Geriatric focused nursing assessment and interventions did not have a statistical impact on hospitalization, readmissions, LOHS and ED revisits. Risk screening and comprehensive geriatric assessment extending into primary care may reduce readmission rates but not affect hospitalization. An increase in ED visits in the intervention group at 30 days post-intervention was noted.
Conclusion: Inconsistencies in assessment and interventions for the older person in ED are apparent. Further research evaluating a standardised risk assessment tool and innovative interventions extending into primary healthcare is required.

1. Introduction

Increasing life expectancy is a global phenomenon with the elderly accounting for the fastest growing population in society. It is estimated that people ≥60 years are set to rise from 19% in 2000 to 34% by 2050 [1]. In Ireland people ≥65 years are projected to double between 2011 and 2031 while people ≥80 years are projected to increase by 250% [2]. An aging population presents a challenging issue for healthcare systems and countries will have to address age related matters in coming years.

A changing demographic has resulted in a 34% increase in elderly presenting to the emergency department (ED) with a substantial impact on delivery of healthcare, causing overcrowding and increased hospital admissions [3–5]. Additionally, elderly patients represent a complex, vulnerable cohort, with atypical symptoms compounded with multiple co-morbidities and psychosocial problems that complicate diagnosis and care [6,7]. Post ED visit there is an increased risk of adverse outcomes such as representation to ED's with subsequent hospital admission, functional and cognitive decline, admission to a long-term care facility and increased morbidity and mortality [8–10].

ED nurses are confronted with major challenges with an increasing cohort of elderly patients [11,12]. Inconsistencies in treatment and poor quality of care currently exist, highlighting the need for a patient centred approach to improve quality of care. Attendance at EDs affords an opportune time for nurses to conduct early assessment and interventions in terms of risk screening for health problems aimed at preventative and transitional care with prompt community follow up [11,12].

2. Background/literature

Characteristics of an ED based geriatric case model may comprise of eight components, including an evidenced-based practice model, leadership, high risk screening, intensive geriatric assessment, initiation of

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care and disposition planning, inter-professional work practices, discharge follow up, monitoring and evaluating [13]. Geriatric focused nurse assessment and referral interventions have shown to improve physical function in the frail elderly and reduce overall service use [12–14]. Geriatric focused nurse assessment and interventions" have been defined as independent nurse led assessments and interventions or nurse interventions and assessments that were performed within the scope of nursing practice as part of a mutli-disciplinary team (MDT) geriatric case model. Comprehensive geriatric assessments (CGA) were the nurse assessment and interventions are conducted as part of an MDT in ED demonstrated its efficiency for decreasing ED readmission, functional decline and nursing home (NH) admission [9,15]. More comprehensive assessments have revealed an increase in service use due to identification of previously undetected illness [16,17]. Some hospital based interventions with short assessments and liaison services had minimal effect on ED utilisation though outpatients and/or primary care setting interventions, such as geriatric assessment and case management proved beneficial in reducing ED utilisation [17].

Prior reviews have focused on efficacy of geriatric intervention in terms of hospital utilisation and outcomes. Nursing focused geriatric interventions are performed to improve delivery of care to older patients in ED, though the most appropriate choice of intervention remains unclear [14]. A SR ascertaining the impact of geriatric nurse assessment and subsequent interventions in terms of admission rate, ED revisits and length of hospital stay (LOHS) is warranted. A critical aspect of healthcare is that hospitalisation of the elderly patient can adversely affect them from iatrogenic complications and other medically related events. Developing an effective assessment and intervention protocol in the ED that optimises older patient care by improving their independence, functional ability and quality of life is imperative [18,19]. ED implemented interventions should accentuate and integrate appropriate primary care and community services contacts [20].

This SR aims to appraise the impact of geriatric focused nurse assessment and interventions in the ED in terms of admission rate, ED revisits and length of hospital stay (LOHS).

3. Methods

SRs are a comprehensive way of combining results from several studies or trials and forming a conclusion [21]. A SR involves searching, selecting, appraisal, synthesis and reporting of evidence on a question [22,23]. The primary outcome of interest was to determine the impact of geriatric focused nurse assessment and interventions on hospital admission rates. Secondary outcomes included readmission rate, LOHS and ED revisits.

3.1. Search strategy

The following databases were searched; Cochrane, Medline, CINAHL, Embase, Scopus and Web of Knowledge. The search terms used were geriatric nurse assessment, nurse discharge planning, geriatric nurse specialist, nurse intervention, emergency department, accident and emergency, patient outcomes, discharge, admissions, readmissions, hospital utilisation, hospitalisation, length of stay/hospital stay. The search was confined to English language and limited to publications from 1990 to 2016 due to time constraints and lack of resources. A manual search was conducted on reference lists of articles retrieved. The date last searched was May 2016.

3.2. Inclusion/exclusion criteria

Studies included were those that reported geriatric focused interventions and assessments undertaken independently by a lone nurse or as part of a MDT, conducted within ED and/or those that highlighted admission or discharge from the ED for early community assessment within 24 h. Age limit was patient's ≥65 years presenting to the ED. Quantitative research consisting of randomized control trials (RCTs), multicenter and observational studies were included.

Studies excluded were those evaluating interventions and assessments on inpatients, in the community, NH and where the nurse was not conducting the assessment and intervention. Studies primarily assessing functional decline, patients ≤65 years, non-English studies, non-RCT, or descriptive, case studies, expert opinions and qualitative research were excluded.

3.3. Data extraction

Data was extracted and presented in tabular summaries with reference to: 1) authors, 2) publication dates, 3) study aims, 4) study design, 5) setting, 6) population, 7) outcome measures, 8) type of nurse intervention(s) and 9) findings.

3.4. Data analysis

Studies included were narratively summarised giving an overview of study design, setting, population, outcomes measures, type of nurse intervention(s) and findings. Meta-analysis was conducted on studies exploring identical outcome measures and entered into RevMan 5.2 [24]. Results for dichotomous variables were presented as risk ratios (RR) with 95% confidence interval (CI). Results for continuous variables are presented as a mean difference with a 95% CI. Heterogeneity was measured using the I^2 statistic test scoring heterogeneity from 0% to 100%. A percentage of 25%, 50% and 75% are considered as low, moderate and high heterogeneity respectively [24]. Meta-analysis results are presented in Forest plots. A narrative synthesis was conducted on data considered to be unsuitable for meta-analysis

Evidence based Librarianship (EBL) critical appraisal tool [25] was used to evaluate before and after prospective studies, determining their overall validity with reference to population and selection, data collection, study design and presentation of findings. If overall validity of study (yes/total) is > 75% or (no + unclear/Total) is < 25% then study is valid. Risk of bias tool on Revman 5.2 software was used to assess the risk of bias of RCTs as high, low or unclear and appropriate reasons were specified (Table 1) [26].

4. Results

4.1. Search outcomes

Results from our search yielded 1097 citations. Following initial screening, 908 articles were removed that did not meet inclusion criteria. Thirty-eight duplicates were removed leaving 160 articles. A full review of title and abstracts conducted by two independent reviewers (MM & LN) resulted in 16 studies selected for comprehensive screening for eligibility against selection criteria. PRISMA four phase diagram [27] was used as a visual aid when selecting and screening articles (Fig. 1). Additionally, 3 studies were sourced by a manual search of reference list of the final 16 articles applicable to the SR. Following a more comprehensive full article screen, 7 studies were removed. Finally, 9 studies were selected for inclusion by MM and LN.

4.2. Overview of included studies

4.2.1. Study design

Of included studies; seven were RCTs [7,8,28–32], one a prospective pre/post-intervention study [33] and one a before and after intervention study [34].

4.2.2. Geographical location

Studies were conducted in Canada [29,32,33], Australia [30,31,34], Denmark [7], Scotland [28] and United States of America [8].