The Impact Of Early Intervention Protocols On Patient Outcomes In Emergency Medicine

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Abstract

Emergency departments (EDs) might benefit from specialized health and social care Practitioner (HSCP) teams to enhance patient and procedure results. This systematic review summarizes all information on how early evaluation and management by HSCP teams affects ED quality, safety, and efficacy. A systematic literature search in April 2019 investigated the effectiveness of ED-based HSCP teams serving adults aged ≥ 18 years old with two or more of the subsequent fields: occupational therapist, physiotherapist, medical social worker, clinical pharmacist, or speech and language a professional therapist Two individuals independently extracted and assessed each study's quality. The study includes six studies (n = 273,886) on multidisciplinary care management Teams (CCTs) for persons aged ≥ 65. On average, CCT care reduced hospital stays by 2% (three studies), enhanced fall recommendations to social services (one study), increased staff and patient satisfaction (two investigations) with release security and workload shipping, and enhanced health-related quality of care. Two trials found no statistically significant variations among the control and intervention groups in ED re-visits (0.2%–3%), hospital duration of stay (1 hour difference), or death (0.5% difference). One research found 13.9% more unexpected hospitalizations after the intervention. The studies were diverse in methodology. We found little and varied

evidence that HSCP teams in the ED reduces hospital admissions and increase satisfaction among patients and staff. More thorough cost-effectiveness studies are required.

Keywords: Emergency department, nurse, multidisciplinary care management Teams, health and social care Practitioner.

1. Introduction

The frequency of trips to the emergency department (ED) is rising at a pace that surpasses the increase of the population [1]. According to the Input-Throughput-Output model [2], there are several variables both within and outside of the acute care system that may contribute to increased attendance in the emergency department (ED). These factors can occur before, during, and after a patient's admission to the ED. Extrinsic variables include population aging and the subsequent rise in multimorbidity, challenges within primary care organizations, patients' subjective views of disease severity, accessibility and quality of healthcare services, and a lack of understanding about costs [3]. Insufficient hospital resources may result in delayed patient flow and congestion in the emergency department, which has been associated with bad patient and process outcomes [4–6]. Although the reasons for the increased number of ED visits are complicated and difficult to tackle, several quality improvement measures have been introduced in the ED to improve patient flow, such as patient triage and streaming [3,7]. However, it is still uncertain how effective these initiatives are [8]. Staffing in the Emergency Department (ED) has been examined from several angles, including the allocation of resources, the definition of roles, and the extent of practice [9].

Emergency departments (EDs) have historically been staffed by physicians and nurses, with physicians being seen as the primary decision-makers in matters relating to referral, admission, and release. Health and social care professionals (HSCPs), including physiotherapists, occupational therapists, speech and language therapists, medical social workers, and clinical pharmacists, were summoned to the emergency department (ED) for consultation as needed. These HSCPs have expanded their range of responsibilities to include working in the Emergency Department (ED) [10]: Physiotherapists provide

prompt treatment for emergency department (ED) patients with non-urgent musculoskeletal disorders, which improves both the cost-effectiveness of the ED and the health outcomes of patients [11,12].

ED-based clinical pharmacists contribute positively to the quality, safety, and cost-effectiveness of ED treatment by offering many services, including medication reconciliation and management [13]. Occupational therapists and medical social workers in the ED have effectively decreased needless hospital stays, especially for elderly patients, by evaluating their functional and social requirements [14,15]. Research has shown that speech and language therapists have played a crucial role in enhancing screening processes, namely in the area of swallow evaluation, in the emergency department [16]. However, it should be noted that the available data on this topic is still limited [10]. The presence of allied health workers in the emergency department (ED) differs throughout research and locales.

Saxon et al [10] conducted a review on HSCPs in the ED and primarily focused on ED-based physiotherapists. A recent study discovered that physiotherapists, social workers, and clinical pharmacists make up the majority of HSCPs (approximately 70%) in Australian EDs [17]. In contrast, the types of allied health services in the UK's EDs differ depending on the specific clinical needs [18]. In recent times, there has been an increasing amount of original research data that supports the adoption of a more multidisciplinary approach to managing patients in the emergency department [19–21]. Currently, there has been no comprehensive analysis that has investigated all the available information about the effects of multidisciplinary emergency department (ED) teams that comprise healthcare professionals (HSCPs), with or without conventional ED personnel like physicians or nurses, on the quality, safety, and cost-effectiveness of treatment. Moreover, it is uncertain as to whether particular target groups get greater advantages from this care approach.

This review seeks to examine the effects of early assessment or intervention carried out by interdisciplinary teams consisting of two or more healthcare professionals (HSCP) in the emergency department (ED). The review aims to assess the impact of such teams on the quality, safety, and cost-effectiveness of care for adult patients in the ED. Additionally, the review aims to define the specific

components of the assessment or intervention provided by the HSCP team.

2. Methodology

2.1. Data Collection

This study was done in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) criteria [22].

2.2. Requirements For Eligibility

The studies were chosen based on the Population, Interventions, Comparators, Outcomes, and Study designs (PICOS) criteria, which are as follows:

Population: Individuals who are at least 18 years old and need medical attention in the emergency department.

Intervention: Prompt evaluation or actions carried out in the Emergency Department by multidisciplinary teams consisting of one or more Health and Social Care Professionals (HSCP) members. 'Early assessment and intervention' in this context refers to the proactive evaluation and treatment conducted by the HSCP team immediately after triage at the emergency department, with or without prior assessment by a medical expert. According to the description provided by Naylor and colleagues [20,24], we have defined a "team" as a group of two or more healthcare professionals from different disciplines that work together with patients to achieve common objectives and provide excellent treatment in the emergency department. Consequently, the review only considered studies that met the following criteria: ○. The interdisciplinary team consisted of two or more health and social care professionals, including a physiotherapist (PT), occupational therapist (OT), medical social worker (MSW), clinical pharmacist (CP), and speech and language therapist (SLT). The team worked only inside the Emergency Department (ED), meaning that studies were not included if patients were sent to a Health and Social Care Professional (HSCP) who was part of a team in a different department than the ED.

3. Results

All of the studies detailed the services offered by a care coordination team (CCT) consisting of at least one occupational therapist (OT), one physical therapist (PT), and one medical

social worker (MSW). According to one research, Speech and Language Therapists (SLTs) and nurses were consistently part of the Critical Care Team (CCT) [32]. In three other studies, SLTs, nurses, and Emergency Department (ED) doctors were brought in as required [1,30,31].

In the three studies conducted by Arendts and colleagues [1,30,31], a member of the Comprehensive Care Team (CCT) conducted a thorough evaluation of the older patient's functional abilities, which included assessing their risk of falling, ability to perform daily activities, cognitive function, and discharge requirements. This evaluation played a crucial role in determining whether the patient should be discharged to the community or admitted to the hospital from the Emergency Department (ED). Additionally, the CCT members provided specific services tailored to the patient's needs that were identified during the evaluation. Furthermore, the CCT coordinated the implementation of post-discharge services in the community. Corbett et al. [32] characterized the CCT as primarily responsible for case management and coordination of community services for elderly patients after their discharge. Patients in the ED were also given services, however the specific details were not revealed.

In the study conducted by Moss et al. [33], the Comprehensive Care Team (CCT) conducted a thorough evaluation upon discharge and made appropriate referrals to either internal or community-based care providers. Finally, in the study conducted by Waldron et al. [34], the Comprehensive Care Team (CCT) implemented a recently developed referral process that incorporated an evaluation of the likelihood of falling in the community for elderly patients who visited the Emergency Department (ED) after experiencing a fall. This referral process included a variety of interventions after discharge, such as occupational therapy home visits and physical therapy, which addressed multiple factors or focused on a single factor.

4. Efficacy Of Evaluation And Intervention

Not a single study included in the analysis examined the duration of hospital stay or the cost-effectiveness of the treatment for erectile dysfunction. The studies reported various outcomes, including the frequency of hospital admission [1,32,33], the duration of hospital stay [31] after the initial visit to the emergency department (ED), the rates of

returning to the ED and/or hospital [30,33], the effectiveness of community referrals [34], mortality rates [30], patient and staff satisfaction [32,33], and the impact on health-related quality of life [32].

5. **Medical Admission/Duration Of Hospitalization**

Three studies examining the deployment of ED-based CCTs [1,32,33] evaluated the rates of hospital admission from the ED. Two studies [1,32] observed a decrease of about 2% in the incidence of hospital admission in the intervention groups relative to the usual care group (n = 180,665). Arendts et al. [1] found that older patients with musculoskeletal disorders had significantly reduced chances of being admitted to the hospital from the emergency department (OR = 0.67, 95% CI = 0.49–0.93, p = 0.01). Similarly, older patients with angina also had significantly lower odds of hospital admissions (OR = 0.71, 95% CI = 0.53–0.93, p = 0.01). Moss et al. [33] reported a 1.7% reduction in hospital admissions when comparing the year after the implementation of the CCT with the year before (chi2 = 27.7, p<0.001).

Furthermore, Arendts and colleagues [31] found no significant disparities in hospital length of stay following admission from the emergency department (ED) when comparing ED-based comprehensive geriatric assessment (CGA) of older patients to standard medical assessment. The median length of stay was 88 hours in the intervention group and 87 hours in the control group, with an incidence rate ratio (IRR) of 0.97 and a p-value of 0.32. However, in contrast to the positive result mentioned earlier, Arendts [30] discovered that the CCT intervention group had a greater rate of unplanned hospitalization after one year compared to the control group (43.4% vs 29.5%, p<0.5, n = 2196).

6. Revisiting The Emergency Department Or Hospital

Two studies investigated variations in emergency department re-attendance across the groups [30,33]. Arendts et al. [30] found that 17.9% of older patients who underwent CCT assessment and 14.8% of those in a matched control group returned to the emergency department (ED) within 28 days. The difference between the two groups was 3% and was almost statistically significant (p = 0.05). However, patients in the intervention group had higher rates of unplanned hospitalizations compared to the control group at the one-year follow-up (43.4% vs. 29.5%, p < 0.001). Moss et al. [33]

observed that there were no significant differences in the number of 12-month emergency department (ED) re-visits before and after the implementation of a Critical Care Team (CCT) in the ED. The number of re-visits after the implementation was 3744 (8.6%), whereas before the implementation it was 3856 (8.8%). The p-value for this comparison was 0.28.

7. Community Referrals

Moss et al. [33] found that 81.5% of older persons who received ED-based CCT were sent home, whereas 15.4% were hospitalized. However, the authors did not compare this outcome to a control group. According to Waldron and colleagues [34], there was a 17.2% rise in the number of referrals to community-based multifactorial interventions after the implementation of a new referral pathway by the CCT team in the ED. This increase was compared to a historical control group. Additionally, there was a 75% improvement in the quality of care, as evaluated by an external audit. Arendts [30] discovered that older patients who were released from the emergency department after completing CCT evaluation had comparable death rates to a control group that received standard treatment, both after 28 days (1.3% vs 1.4%, p = 0.85) and at one year follow-up (10.2% vs 10.7%, p = 0.66).

8. Patient Satisfaction

Patient satisfaction was evaluated using questionnaire/survey in two studies [32,33], with only a limited number of patients from the intervention group (n = 11 and n = 40 respectively) participating and providing responses: Participants evaluated the Comprehensive Care Team (CCT) as beneficial in providing a secure discharge to their homes, and expressed their endorsement of it as an effective care approach. Prior to the implementation of the CCT, no patients were evaluated for this particular outcome. Furthermore, Corbett et al. [32] conducted a study comparing the health-related quality of life in older adults before and 28 days after undergoing CCT assessment. They used the Assessment of Quality of Life (AQoL) questionnaire and discovered slight but significant improvements in various aspects. These improvements included independent living (0.61 vs. 0.79, p = 0.04), social relationships (0.61 vs. 0.87, p = 0.009), physical senses (0.76 vs. 0.87, p = 0.04), psychological wellbeing (0.65 vs. 0.92, p = 0.003), and overall utility score (0.27 vs. 0.58, p = 0.006).

However, there was no significant improvement in terms of reducing illness (0.32 vs. 0.38, p = 0.14).

Corbett [32] and Moss [33] also conducted a study to assess the degree of satisfaction among ED personnel using surveys or focus groups. They found that the staff had good views. According to Corbett et al. [32], the ED personnel evaluated the treatments as reducing burden and improving the performance of the ED team. In the study conducted by Moss et al. [33], it was shown that more than 92% of the 68 emergency department (ED) staff members who participated in a satisfaction survey assessed the Critical Care Team (CCT) as delivering high-quality patient care, having a beneficial effect on patient discharge, being readily accessible, boosting staff morale, and being worth recommending to other EDs.

9. Summary

This review uncovered data indicating that when HSCPs collaborate in teams, it may lead to higher quality of treatment in the Emergency Department (ED). This improvement is reflected in lower rates of hospital admissions, as well as increased satisfaction among both patients and staff. Nevertheless, the scarcity of research and the existence of variations in methodology across these studies emphasize the need for more inquiries into the clinical and cost efficacy of this care model utilizing rigorous study designs and methodologies.

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