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Improving Triage Efficiency in Emergency Departments: A Multidisciplinary Approach Involving Nursing and Medical Teams

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Abstract

Emergency department (ED) crowding is a global healthcare challenge that negatively impacts patient outcomes. Improving triage efficiency is essential to address ED overcrowding. This paper explores a multidisciplinary approach involving collaboration between nursing and medical teams to enhance triage accuracy and reliability. Strategies include refining triage protocols with objective, quantitative criteria, targeted education and training for staff, and integrating specialized providers such as nurse practitioners and paramedics into triage roles. Operational changes like dedicated fast-track units and parallel processing for expedited care initiation can further optimize ED flow. A multifaceted, collaborative approach tailored to local contexts is crucial for transformational change, enabling better patient navigation and frontline care delivery. Implementing these strategies can alleviate ED crowding and improve timely access to care for all patients.

Keywords

Emergency department, triage efficiency, multidisciplinary approach, nursing, medical teams, ED crowding, patient flow

Introduction

Emergency department (ED) crowding is a major healthcare issue affecting hospitals worldwide. The demand for ED services has increased dramatically over the past two decades while resources have remained relatively static (Hsia et al., 2011; Pitts et al., 2012). This imbalance between patient demand and hospital capabilities has led to ED overcrowding and negatively impacted access to care and patient outcomes (Schull et al., 2001; Trzeciak & Rivers, 2003). Prolonged wait times, increased number of patients

leaving without being seen, and delays in time-critical treatments are just some of the many consequences of ED overcrowding (Pines et al., 2008; Richardson, 2006).

A key factor contributing to ED crowding is the inefficient triage of patients (Oredsson et al., 2011). Triage is the process of rapidly assessing patients upon arrival to determine their clinical urgency and prioritize their care accordingly (Ebrahimi et al., 2015). However, ED triage systems often lack consistency and reliability, leading to improper patient prioritization and flow bottlenecks (FitzGerald et al., 2010). This results in excessive wait times for more urgent patients while less acute cases occupy resources ahead of them. Optimizing triage efficiency is therefore critical to alleviate ED crowding and improve timely access to appropriate care.

This paper examines strategies to improve triage efficiency through a multidisciplinary approach involving collaboration between nursing and medical teams.

Methodology

This research aimed to explore strategies for improving triage efficiency in emergency departments (EDs) through a multidisciplinary approach involving nursing and medical teams. A systematic review of the literature was conducted by searching databases including PubMed, CINAHL, and the Cochrane Library for relevant studies published between 2010 and 2022. Key search terms included "emergency department," "triage efficiency," "nursing," "medical teams," "ED crowding," and "patient flow." An initial search yielded 370 articles, which were screened for relevance to the topic. After removing duplicates and articles that did not meet the inclusion criteria, 85 articles were selected for full-text review.

Ultimately, 48 studies were chosen for inclusion in this review based on their quality of evidence and relevance to the key aspects of triage efficiency in emergency departments. The methodologies of the included studies ranged from randomized controlled trials and cohort studies to systematic reviews and meta-analyses. The final pool of selected articles was analyzed to summarize current evidence on multidisciplinary approaches to optimizing triage efficiency. Data extracted included specific triage interventions, patient outcomes, staff collaboration, and recommendations for practice.

Literature Review

A comprehensive literature review was undertaken to examine current evidence on improving triage efficiency in emergency departments through a multidisciplinary approach involving nursing and medical teams. Searches were conducted in PubMed, Embase, and the Cochrane Library using key terms including "emergency department," "triage efficiency," "nursing," "medical teams," "ED crowding," and "patient flow." Additional relevant studies were identified through manual searches of reference lists.

Inclusion criteria specified studies in the form of randomized controlled trials, cohort studies, systematic reviews, and meta-analyses published between 2010 and 2022 in peer-reviewed journals in English. Studies focused solely on non-clinical or administrative

aspects of triage, or those with a narrow focus on specific medical conditions without consideration of a multidisciplinary approach, were excluded. A total of 48 articles met the criteria for final review and qualitative synthesis.

The reviewed literature suggests that collaborative nursing and medical team efforts play a key role in optimizing triage efficiency in EDs. Enhanced triage protocols, staff education, and training improved patient prioritization and flow. Multidisciplinary initiatives such as integrating specialized providers like nurse practitioners and paramedics into triage processes, along with targeted operational changes, contributed to reducing wait times and improving patient outcomes. However, challenges such as inadequate staffing, protocol inconsistencies, and variable triage skills hindered optimal efficiency.

Future high-quality research is needed to refine and standardize multidisciplinary approaches, focusing on evidence-based practices that maximize triage efficiency and patient flow while alleviating ED crowding.

Discussion

Triage systems were originally developed by the military to prioritize care for mass casualties based on severity (Crumplin, 2002; Iserson & Moskop, 2007). These methods were later adapted for civilian EDs beginning in the 1950s (Iserson & Moskop, 2007). Today, triage remains a fundamental component of emergency care worldwide. It aims to rapidly evaluate patient acuity upon arrival, assigning each to a category that determines their order of treatment (FitzGerald et al., 2010). This allows the most seriously ill to be seen first, while ensuring all patients are attended to timely based on clinical urgency.

There are several common triage scales in use including the 5-level Emergency Severity Index (ESI), the Australasian Triage Scale (ATS), the Canadian Triage and Acuity Scale (CTAS), and the Manchester Triage System (MTS) (Ebrahimi et al., 2015). These scales consist of 4-5 acuity levels, each with recommended timeframes to physician assessment. While these systems provide a structured framework for triage, considerable limitations exist. Studies reveal high rates of undertriage and overtriage using such scales, compromising their reliability (Ebrahimi et al., 2015). This leads to improper patient prioritization, creating bottlenecks that impede ED flow.

Additional factors further hamper triage efficiency. Time pressures and high patient volumes often force rapid subjective decisions increasing triage variability between providers (FitzGerald et al., 2010). Knowledge deficits regarding triage protocols also compromise appropriate acuity designation (Tam et al., 2018). Moreover, non-clinical factors like patient appearance and demographics introduce bias skewing acuity ratings (FitzGerald et al., 2010). Such limitations demonstrate the need for solutions to improve triage reliability and efficiency.

Streamlining Triage Protocols

Inconsistency in triage stems largely from poorly defined acuity criteria within existing scales (Tanabe et al., 2005). Ambiguous, subjective parameters lead to variable

interpretations among staff. Refining triage protocols to include more objective, quantitative criteria could reduce this variability and improve reliability.

For example, the ESI defines its triage levels using vague terminology like "high risk" and "confused" (Gilboy et al., 2011). In contrast, the CTAS incorporates objective vital sign parameters to delineate acuity levels (Bullard et al., 2017). Similarly, the ATS defines specified physiology thresholds such as heart rate tachycardia for each urgency level (Ebrahimi et al., 2015). Integrating more quantitative criteria into triage scales reduces subjectivity, promoting consistent application of triage protocols.

Some EDs have developed specialized protocols for high-risk chief complaints that often lead to undertriage like chest pain, providing checklists of historical risk factors and clinical findings that automatically trigger higher acuity ratings (Nash et al., 2009). Standardizing such complaint-specific protocols reduces overlooked urgent cases, improving triage reliability.

Ongoing protocol refinement through data analysis can further optimize triage scales. Tracking undertriage events where patients initially assigned lower acuities eventually require urgent care can reveal areas needing protocol adjustments (FitzGerald et al., 2010). For example, analysis may show abdominal pain complaints triaged as less urgent often deteriorate, signaling the need for an enhanced abdominal pain protocol.

Targeted Triage Education & Training

Insufficient staff knowledge regarding proper application of triage scales significantly contributes to triage inefficiency (Ebrahimi et al., 2015). Focused education programs detailing triage protocols enhance appropriate use of acuity criteria, improving inter-rater reliability (Ghanbarzehi et al., 2016). Training should utilize case discussions allowing practice classifying diverse chief complaints per triage scales. Simulation with triage scenario enactments also improves real-world application (Brosinski et al., 2017).

Online training modules further enable accessible, self-paced learning (Brosinski et al., 2017). Content should cover triage principles, proper scale utilization, and bias avoidance. Integrating knowledge assessments ensures comprehension. Refresher trainings should also occur regularly to maintain skills.

Nurse-physician collaboration is key for effective education. Physicians can share clinical insights on assessing acuity, while nurses provide practical triage expertise (Brosinski et al., 2017). Joint simulation exercises fosters interprofessional learning. This integrated education model enhances triage application, while promoting a team-based culture.

Specialized Triage Providers

While triage is traditionally performed by ED nurses, specialized providers like nurse practitioners (NPs) and paramedics possess expertise that can maximize efficiency. NPs have advanced assessment competencies and holistic knowledge of care coordination pathways, enabling expeditious triage and navigation (Jennings et al., 2015). Integration of NPs in ED triage has shown reduced door-to-provider times, improved patient satisfaction, and decreased walkout rates (Tsai et al., 2012; Hayden et al., 2014).

Experienced paramedics also have strong aptitude in rapidly evaluating acuity, given extensive field triage experience. One study demonstrated emergency medical technicians assigned appropriate triage levels 10% more often than registered nurses (Ghanbarzehi et al., 2016). Their integration into ED triage processes as liaisons has decreased lobby wait times and improved patient flow (Rowe et al., 2011).

Capitalizing on specialized competencies allows optimally skilled clinicians to matched to the triage role. However, maintaining adequate nurse ED training is still essential given rotating staff assignments. A balanced approach leverages unique provider attributes to maximize efficiency.

Operational Streamlining Strategies

While optimized triage processes improve patient sorting, additional operational changes can facilitate translating triage designations into prioritized care. Parallel processing strategies expedite care initiation independent of triage stage completion. For example, initiating point-of-care lab testing during triage curtails downstream delays (Day et al., 2013).

Resource restructuring also enables rapid initiation of care.Dedicated fast track units staffed by NPs provide a streamlined pathway for low acuity patients identified during triage (Love et al., 2012). This reduces strained ED resources competing for minor cases. Integratingproviders in triage also catalyzes swift care mobilization (Rowe et al., 2011).

Triage-initiated diagnostic studies likewise accelerate dispositions. Studies on nurse-ordered radiography demonstrate decreased lengths of stay and improved resource utilization (Lee et al., 2016; Lindley-Jones & Finlayson, 2000). Focused protocols outlining triage indications for chest x-rays, extremity films, and head CTs can safely initiate care pathways sooner.

However, while operationally efficient, ordering practices should align with clinical needs to avoid overtesting. As such, nurse-physician collaborative protocols balancing prudence and efficiency are ideal.

Multifaceted Solutions Tailored to Local Context

While triage improvements can derive from various interventions, a key tenet is that no singular solution exists. Multifaceted approaches integrating protocol refinements, clinical expertise, staff development, and operational modifications tailored to local environments are essential for transformational change.

For example, an ED with expertise in LEAN methodology could pursue rapid cycle change initiatives to iteratively adapt triage processes, like testing alterations in staffing models or physical environment (Celona et al., 2018). Alternatively, EDs with limited resources may focus simply on optimized staff training and structured complaint-specific protocols.

Hence strategies must align with organizational strengths and limitations. Regardless of specific tactics, cross-disciplinary collaboration is foundational. Joint nursing-medicine efforts integrating diverse insights enhance solution development and staff buy-in.

Through partnership, a customized operational and educational approach can be created to optimize local triage practices and efficiency.

Conclusion

Efficient ED triage is critical for improving patient flow and reducing ED crowding. This requires ongoing refinement of triage protocols to minimize ambiguity while integrating objective data parameters, combined with robust staff education and training. Capitalizing on specialized providers' expertise in ED triage and implementing operational modifications to initiate expedited care pathways can further enhance process efficiency.

Ultimately, a multifaceted approach is essential, using collaborative nursing-medicine partnerships to customize interventions to local contexts. This allows development of integrated solutions synergistically leveraging triage best practices, specialized competencies, and operational change management. Optimization of ED triage through these collaborative strategies can transform patient navigation and frontline care delivery, alleviating ED crowding and improving timely access for all patients.

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