

Strategies For Enhancing the Quality of Pediatric Emergency Care: Addressing Overcrowding and Patients' Length of Stay

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Abstract

Background: High quality healthcare is an essential factor in maintaining and preserving the lives of people in Emergency departments. There are some factors that affect the level of care in the emergency departments, of which overcrowding and long Length of Stay (LOS) are prime causes Both these factors affect patients' satisfaction, cause delay in receiving the necessary treatment and cause the mortality rate to surge.

Aim: The current research aims to reveal how to address problems such as long length of stay and overcrowding in emergency departments. This was achieved through studying the literature and picking the appropriate solutions in evidence-based practice.

Methods: a review of the past literature to identify the strategies that can be used to overcome crowding and LOS in pediatric emergency departments. Scopus, Web of Science, Medline, PubMed, Science Direct, and Wiley online library were used. These databases were searched by the following key words "Emergency Department", "Emergency Room", "Crowding", "Overcrowding", "Length of Stay" and "Emergency Services". There were more than 100 articles that met the above-mentioned criteria. Papers that are theoretical or conceptual in nature, as well as comments, letters, and correspondence and observational study in which no intervention is used, were excluded.

Results: According to the ideal patient journey model, this model should be used, as mentioned in the literature section, in order to improve the level of health care in pediatric emergency departments. In our results, those strategies will be commented on in terms of their disadvantages and advantages according to our point of view.

Conclusion: Overcrowding in the emergency department is one of the current challenges, according to the studies mentioned, as in order to improve the care of children and patients, different strategies of high quality must be followed in order to reduce overcrowding and achieve effectiveness and efficiency.

Key words:

Quality, enhancement, strategies, pediatric, emergency, care

Introduction

There must be creative problems that mitigate overcrowding and long lengths of stay at our hospitals, especially public hospitals as they are more prone to these two factors than private ones. Rabin et al [1]. offered some solutions for the overcrowded conditions of patients and for improving the quality of care in the EDs; they include conducting studies to identify and / or project the gap between the real supply of health services and the existing demand; and establishing strategies to overcome the existing deficiencies in human resources, infrastructure, and equipment. The study also argued that some strategies must be designed, formulated, and implemented to optimize and increase the supply capacity of public hospitals. It is necessary to implement work plans aimed at optimizing the operational-benefit processes and to support the execution of the benefit processes that are carried out in the EDs, to guarantee the quality of care and safety of both patients and health and administrative personnel [2].

Any reduction of overcrowding in the emergency services will mainly benefit patients, as they will improve the healthcare quality. Mentzoni et al. [3] conducted a survey for healthcare personnel in charge of the emergency services and asked them about how to solve the problem of overcrowding. Faced with this, they indicated their desire for the emergency units to be able to efficiently and effectively attend to patients who are in real emergencies. The study also projected the idea of a differentiated cost since this can act as a negative incentive for potential patients and for unnecessary long LOS.

According to Barata, Brown, Fitzmaurice, Griffin, Snow, American Academy of Pediatrics Committee on Pediatric Emergency Medicine, & Emergency Nurses Association Pediatric Committee [4], employing best practices at all stages of the process can enhance emergency department treatment and flow. A number of factors can help to decrease emergency department crowding, enhance pediatric patient safety, and promote effective, efficient, timely, and patient-centered treatment. The 5-level triage system and nurse-initiated emergency care pathways at the point of initial assessment without delay in seeing a provider, fast tracking and cohorting of patients, clinical pathways, and responsive staffing as patients progress through the emergency department system are examples of these points of impact. While awaiting treatment for an emotional disease or a drug addiction problem, any patient may have specific plans in place. To develop and implement innovative ideas and techniques to both avoid and manage emergency department crowding, interdisciplinary collaboration research and education are required. All health care practitioners participating in the delivery of pediatric emergency care are actively involved in defining what pediatric quality care is and how to translate best practices into widely distributed and simple to follow recommendations [4].

Another study was conducted in 2013, under a title of "Challenges for the management of emergency care from the perspective of nurses" with the goal to look at the issues of managing care in a hospital emergency department from the perspective of nurses. They found that management of overcrowding, preserving quality of care, and using leadership as a management tool were the key concerns for nurses in managing care in emergency rooms. Reorganization of the health system to focus on emergencies, modifications in the flow of patient care, and introduction of nurse management training were all considered as solutions. This showed that the creation of new practices through collaborative and coordinated engagement with the emergency care network was aided by such challenges and tactics [5].

In addition to this, a study which focused on the influence of overcrowding in pediatric emergency rooms on patient and health-care system outcomes, and was conducted in 2019. It aimed to discover if there's a link between crowding and the risk of a variety of negative outcomes in children who visit a pediatric emergency room. The results showed, hospital admission within 7 days after an emergency department visit or death in children were not substantially linked to emergency room congestion. However, it was linked to higher hospital admissions for the sickest children at the index visit, as well as return trips to the emergency department for those who were not as ill. Over the 5-year research period, a total of 1 931,465 index visits occurred across study sites, with no variance in index visit hospital admission or median duration of stay. Hospital admission within seven days of release and 14-day mortality were also low across provinces (0.8% -1.5 % and <10 per 100 000 visits, respectively), and their relationship with mean departmental length of stay varied by triage categories and between locations but was not significant. At some sites, increasing departmental crowding increased the odds of hospital admission at the index visit among visits triaged to Canadian Triage and Acuity Scale (CTAS) score 1-2 (odds ratios [ORs] ranged from 1.01 to 1.08) and return visits among patients with a CTAS score of 4-5 discharged at the index visit (odds ratios [ORs] ranged from 1.00 to 1.06) [6].

Providers typically act as well-intentioned agents who recommend care only in the interest of patients. The demand on emergency care services is based on 4 factors; the first type of factor is related to the client (age, sex, education and occupation), the second is related to environmental factors (the social, physical and economic environment), the third is related to health care resources (supply, acceptability) and the fourth factor is related to payment (private insurance co., national health system, etc.).

CONCEPTUAL MODEL, THEORY, OR FRAMEWORK

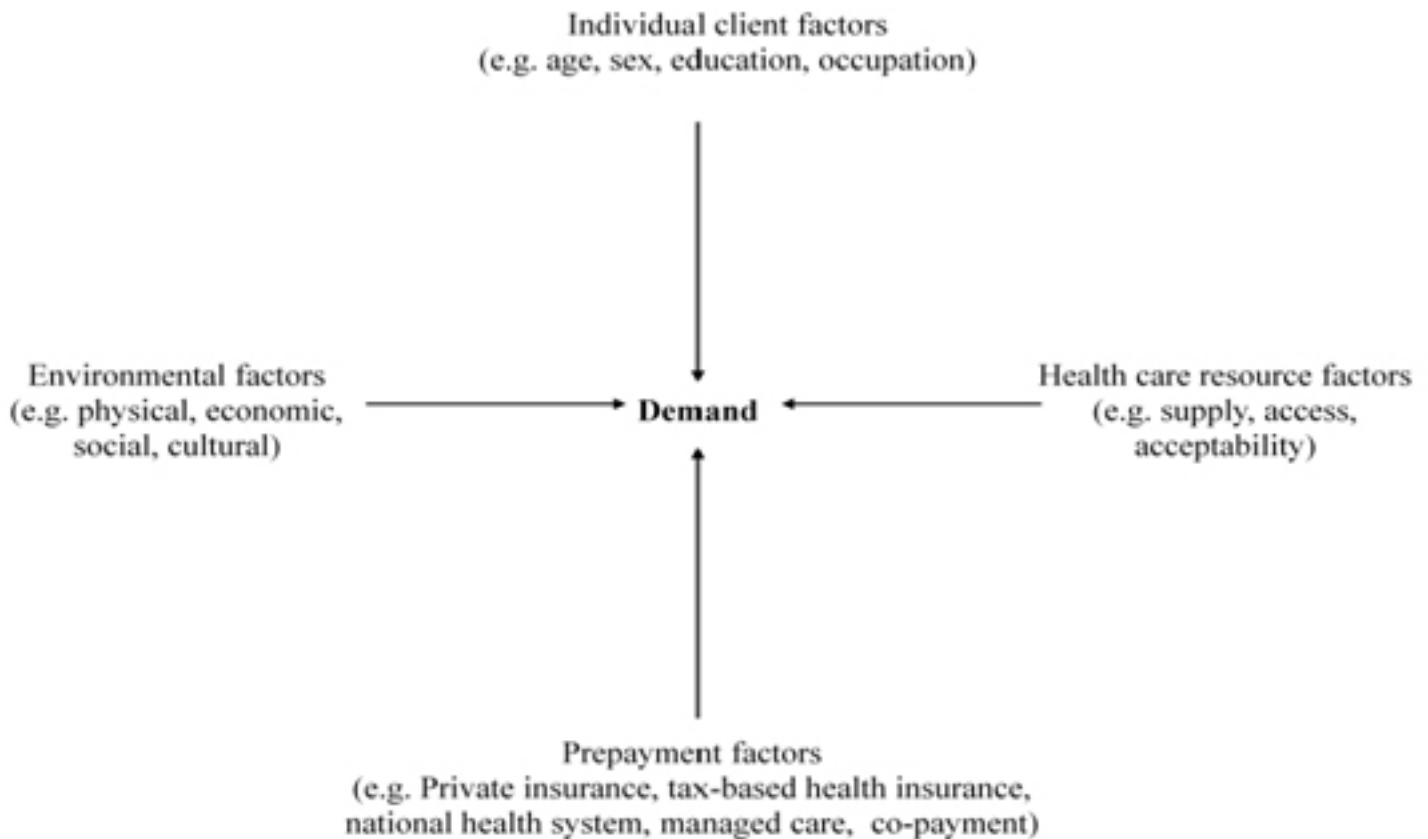


Figure 1: factors in the demand of health services

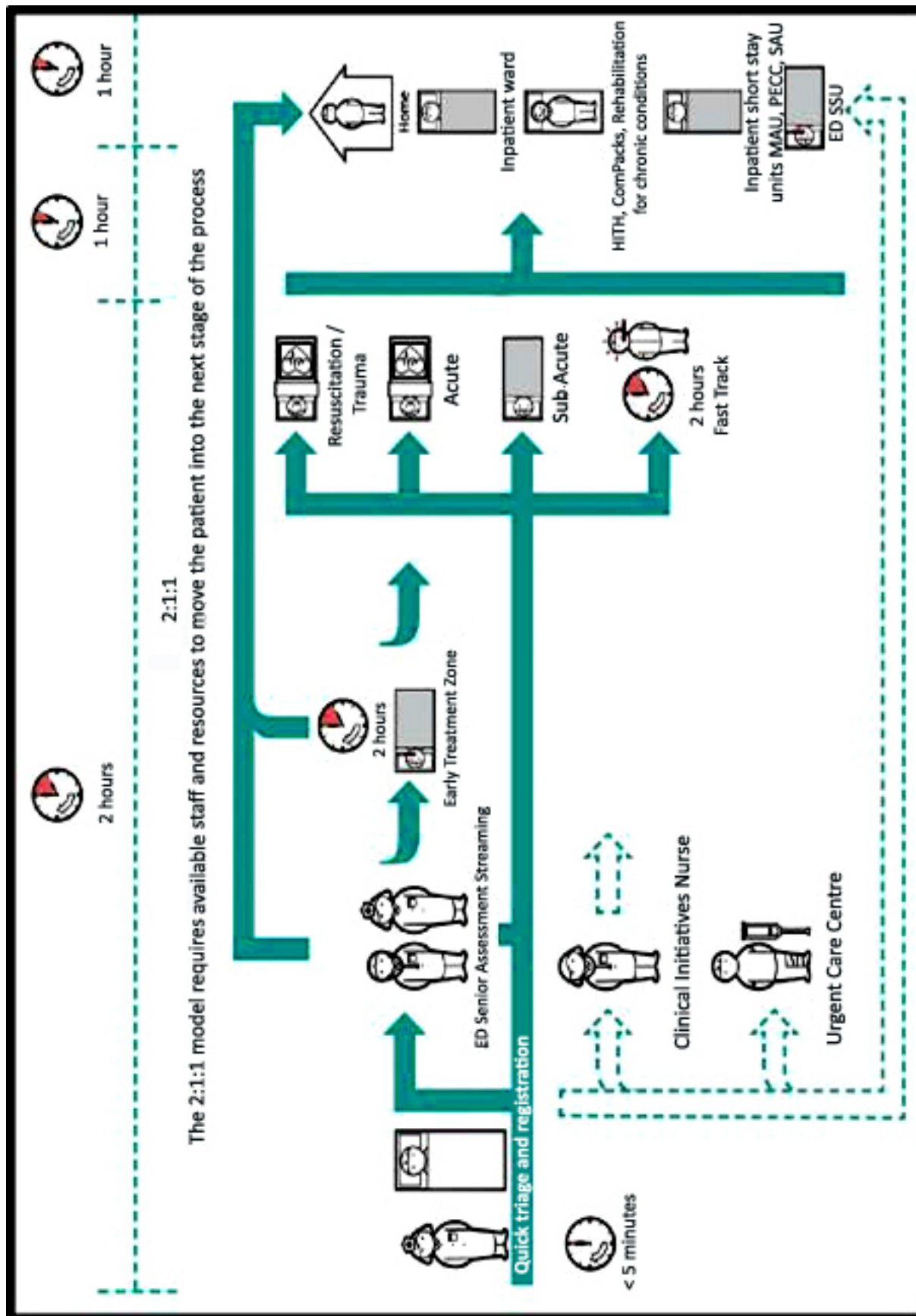
To improve the level of healthcare in the pediatric emergency departments, Ideal Patient Journey Model can be used. This model consists of the following strategies:

Strategy	Patient	Advantage
Streaming	Patient with minor injuries	Reducing crowding Improve the efficiency
Fast track	Non-emergency patients	Reducing the total number of patients
Team triage	Patients with complex situation	Increasing accuracy and efficiency in the initial process of patient evaluation
POC-US (Point of care ultrasonography)	High-risk patients	Improvement of nurses' ability to incorporate testing into their existing clinical care [7].

The procedures of Ideal Patient Journey Model include the following:

- Getting the right patient to the right place for their care that is supported by the right resources to ensure the smooth flow of patients through the ED.
- Early assessment and streaming to an appropriate MOC both within the ED and outside the ED. Designated specialty MOC for patient cohorts.
- A team approach to patient care.
- Ensuring tasks are performed by the provider who can most efficiently perform the task (where 'efficiency' balances quality, cost, and minimizing duplication of work).
- Coordinated patient care including between specialist consultants, diagnostics services and community care.
- Strong monitoring and evaluation measures.
- Adherence to the principles of the new models of care.

Figure 2: Ideal Patient Journey Model (2017)



Another way to improve pediatric emergency care through eliminating crowding and LOS is using reverse triage [8]. According to Pollaris et al. [9], Reverse triage is “a way to rapidly create inpatient surge capacity by identifying hospitalized patients who do not require major medical assistance for at least 96 hours and who only have a small risk for serious complications resulting from early discharge”.

Evaluation of evidence

The ideal patient journey model can be evaluated by ED leaders who can apply this model's strategies without deeply depending on external services. Both Ideal Patient Journey Model and Reverse Triage could be evaluated through experimental investigation. Both models were applied in past research and proved to be effective [7, 9].

Methodology

The study design was a review of the past literature to identify the strategies that can be used to overcome crowding and LOS at pediatric emergency departments. Scopus, Web of Science, Medline, PubMed, Science Direct, and Wiley online library were used. These databases were searched by the following key words “Emergency Department”, “Emergency Room”, “Crowding”, “Overcrowding”, “Length of Stay” and “Emergency Services”. There were more than 100 articles that met the above-mentioned criteria.

The following inclusion/exclusion criteria was applied:

- **Inclusion criteria**

- Studies Published between 2012-2021.
- Studies which were conducted in English.
- Research based on experimental or quasi-experimental studies or assessments of measures to avoid modern slavery, as well as observational studies that contain an intervention, that has been peer or non-peer reviewed. Cohort, longitudinal, case/control, cross-sectional studies/evaluations, qualitative studies or case studies (featuring interviews or focus groups), including post-evaluation only assessments and participatory approaches, are all examples of quantitative and qualitative observational research studies that are eligible for inclusion.

- **Exclusion criteria**

- Papers that are theoretical or conceptual in nature, as well as comments, letters, and correspondence.
- Observational study in which no intervention is used.

Data extraction

A reviewer looked through the databases and websites such as Scopus, Web of Science, Medline, PubMed, Science Direct, and Wiley online library. The reviewer examined downloaded titles and abstracts for possible inclusion in the Evidence Map after the first electronic search; the same reviewer also assessed the full text of possibly eligible studies against the inclusion criteria. We did not undertake duplicate screening of abstracts and full texts since reviewers individually examined abstracts

and full texts. A second reviewer evaluated reviewer study allocation at random to ensure uniformity of screening at the abstract stage. There were no noteworthy discrepancies discovered.

Data management

Abstracts from database searches were obtained, and the abstracts were de-duplicated. These submissions were evaluated to see if they should be included or not. Following the screening of all abstracts and the identification of relevant abstracts, the reviewer obtained the full text articles, which were then rescreened against the inclusion criteria.

Plan and implementation process

The used strategies depicted in the literature were surveyed and studied for identifying the best solutions for overcoming crowding and long LOS. A table depicting the advantages and disadvantages of each solution or strategy was charted.

Study limitations

- We could only include publicly available papers that could be accessed electronically, therefore internal hospital reports, older non-scanned hardcopies of documents like those in archives, and audio-visual materials were excluded.
- Different operational definitions of overcrowding and length of stay may have made it difficult to understand the results. We did not conduct our own assessments, instead relying on the authors' comments in their papers about emergency services.

Discussion

This systematic study attempted to give an overview of the studies related to the strategies used to improve the quality of pediatric emergency care by addressing overcrowding and length of patient stay.

These studies are almost identical with each other in terms of the challenges facing emergency departments and the strategies that are followed in order to improve effectiveness and efficiency and reduce overcrowding in order to achieve the safety of pediatric patients. Whereas, the study of Rabin et al. [1] emphasized the design of strategies and formulation of strategies from the deadline for their implementation with regard to improvement and increase in supply in public hospitals. This is done through the implementation of plans aimed at improving operational benefits processes in order to ensure quality [2]. This coincided in terms of the idea with another study conducted by Mentzoni et al [3], and emphasized how to solve the problem of overcrowding, as health care staff have a desire for emergency units to have the ability to care for patients efficiently and effectively.

According to Barata et al [4], indicating that the triage system consisting of 5 levels and emergency care pathways can be considered as the initial evaluation point because there is no delay in service delivery in addition to

Project Outcomes

Strategy	Advantage	Disadvantage
Streaming	Helps improve effectiveness and efficiency and reduces crowding	None
Fast track	This strategy helps to reduce the number of patients by following the correct course of the patient and following the fast course of treatment	None
Team triage	This helps to achieve accuracy and efficiency in patient assessment	Taking too much time
POC-US (Point of care ultrasonography)	Improvement of nurses' ability to incorporate testing into their existing clinical care (Yarmohammadian, 2017).	None

rapid tracking and grouping of patients, clinical pathways, and responsive staff as patients progress through the emergency department system. Where the study agreed with previous studies that were mentioned was in the same idea in terms of developing innovative techniques and ideas in order to avoid crowding in the emergency department, and distributed recommendations for the participation of all participating health care practitioners in order to provide child care [4]. The study by Kelen et al. [8] agreed with this study in terms of using reverse triage to improve pediatric care in the emergency department, and a study by Polaris et al. [9] concurred with this study. (2016), and considered reverse triage as a method for establishing patient capacity by identifying hospitalized patients who do not require medical assistance significantly for at least 96 hours and who have only a low risk of serious complications from early discharge. It was based on the study conducted in 2013, which agreed with the previously mentioned studies in terms of the importance of managing overcrowding, in addition to maintaining the quality of care [5].

Another study agreed with previous studies in terms of overcrowding in the emergency department and its impact, as the study showed that overcrowding in emergency rooms has an impact on the outcomes of patients and children (Dwan et al., 2019). In my view, it is necessary to take into account the results of previous studies in terms of adopting good strategies and practices in order to solve the problem of overcrowding and reduce overcrowding in the emergency department in order to maintain the care of patients and children.

Conclusions

Overcrowding in the emergency department is one of the current challenges, according to the studies mentioned, as in order to improve the care of children and patients, different strategies of high quality must be followed in order to reduce overcrowding and achieve effectiveness and efficiency. Studies have proven the effectiveness of reverse triage, and the ideal patient journey is one of the good strategies in reducing crowding and overcrowding and achieving optimum patient care.

Implications for Nursing

Nursing and the health care team are among the teams that support the process of developing high quality strategies through their experience in practices in emergency departments. The training of nurses and giving them the opportunity to develop executive procedures in order to achieve high health care and reduce overcrowding in emergency rooms to maintain the safety of patients and children, leads to the development of implementation strategies based on education and experience.

Recommendations

Our study recommends adopting educational executive procedures in order to achieve effective practices in reducing overcrowding and achieving high quality in emergency departments for children and patients. Training of the health care team helps them to think of innovative techniques in terms of making effective strategies to achieve the effectiveness and efficiency of emergency departments and reduce overcrowding, in addition to improving patient care.

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