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Emergency unscheduled revisit among children with fever: Causes and recommendations for improvement

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Abstract
This study investigates the reasons behind unscheduled revisits to the Emergency Department (ED) among pediatric patients presenting with fever in King Saud Medical City, Riyadh. A retrospective analysis of 142 cases from October to December 2018 was conducted. The findings revealed a revisit rate of 61%, with most children returning within 48 hours. Educational interventions showed limited effectiveness in preventing revisits. These results highlight the importance of enhanced discharge education and the role of primary healthcare in reducing tertiary ED burden.

Keywords: Pediatric emergency, fever, emergency department revisit, patient education, Saudi Arabia

Introduction

Fever is one of the most common causes of pediatric emergency visits worldwide. In Saudi Arabia, repeated visits to the Emergency Department (ED) due to fever represent a burden on healthcare services and reflect possible gaps in parental understanding and outpatient care. Several studies report revisit rates ranging from 2.5% to 5.2%, often due to fever-related concerns. This study aims to evaluate unscheduled ED revisits within 72 hours among pediatric patients with fever, identify contributing factors, and assess the role of education at discharge in reducing revisit rates Returning to Emergency Department after initial assessment and management may be attributed to the natural progression of the disease, but care quality provided to the hospital visited and the national health-care system guidelines may play a role in improving patients 'experience and management. Among the etiologies causing revisit to the Emergency Department, Fever found by Ishmine *et al* to be the most common reason for visits and revisits to the US pediatric departments. (3) Fever is one of the most common symptoms prompting pediatric visits to healthcare facilities. It is defined as a temporary increase in body temperature, often due to an underlying infection. In children, fever can be caused by viral or bacterial illnesses, and while it is usually benign and self-limiting, it can lead to significant parental concern and increased healthcare utilization.

We did a retrospective analysis of patients who have revisited the department of emergency of King Saud medical city between Oct-Dec 2018 for the complaint of fever. Inclusion criteria: All patients aged between 0 to 14 years. All patients who visited and revisited Emergency Department for the complaint of fever alone as the main complaint during 72 hours from the first visit. Exclusion criteria: all patients who their first visit complain is not fever All patients who their first visit is a different hospital All patients who are above 14 years of age Sitting: All patients included in this study were seen at King Saud medical city, Kingdom of Saudi Arabia, Riyadh. Sample size & Sampling technique All the patients meeting the criteria will be included. (Convenient sampling) Add the total at the end was 142 participants Data collection methods Through patient education sessions and we have established four main structures to ensure information delivery to the patient and their families and those were as the following: disease core explanation, expected prognosis, when to return to the ER, then and open question about their understanding of the information given and them enquires. Educational delivery was then varied from verbal and written. Data analysis plan SPSS Statistics version 19-year 2010 will be used and suitable statistical techniques. * Ethical considerations: All patients 'data collected will be held under strict confidentiality, we will not include any patients 'identifiable data, and medical record numbers will be coded, and the code sheet will be stored separately in PI office and secured with key and lock to protect the confidentiality of the patients. No incentives or rewards are given to the participants. The IRB regulations will abide throughout the study.

In this study the total number of patients included was 142, female patients were 57% (n. 81), patients who were the first baby born to their family were 22.5 % (n. 32). Patients under the age of 4 years were 16 % (n. 23), from 4-9 years were 4% (n. 7), and from 10- 14 were 2.8% (n. 4). Families with either one of the parents having a high educational level were 25% (n. 36), 65.4% (n. 93) were at a high-school or below, and 9.8% (n. 14) never entered school. Patients with married parents were 91.5% (n. 130), 1.4% (n. 2) of patients had divorced parents, and 6.3% (n. 9) had a missing one parents from care giving. All of the patients 'first visits to the ER had fever as one of the reasons, but the total number is divided as the following: fever alone 56.3% (n. 80), with respiratory symptoms 23.9% (n.34), with gastrointestinal symptoms 7.7% (n. 11), with genitourinary symptoms.007% (n. 1), with ear-nose-throat symptoms 3.5% (n. 5), with musculoskeletal symptoms 3.5% (n. 5), with central nervous symptoms 1.4% (n. 2), with other symptoms 6.3% (n. 9). Investigation done in 83% (n. 118), and medications given to 83% (n. 118). Number of patients received education sessions related to the disease diagnosed were 62.6% (n. 89), 59.1% of them were provided by physicians, 1.4% (n. 2) by nurses and 1.4% (n.2) by special educators, and the rest are by other members. 54.9% (n. 78)

of these instructions are given verbally, and 4.9 % (n. 7) given as a written instruction. The majority of the patients (92%, n. 132) have visited another hospital prior KSMC for the same complaint. In considering fever, parents who brought their child for a temperature more than 38c were 57.7% (n. 82) and less than 38c were 4.2% (n. 6), but 10.5 % (n.15) subjectively measured it by hand. Of those visiting the ER, 71.1% (n.101) were discharged, 14.7% (n. 21) were admitted, and 2.8% (n. 4) were observed in the ER prior to decide. 66.9% (n. 95) were prescribed medications, 53.9% (n. 78) received educational session, 93.5% (n. 73) of these educational sessions were conducted by a physician, 5.1% (n. 4) by a nurse, and 2.5% (n. 2) by an educator. The tool used to educate patients and parents were given verbally in 89.7% (n. 70) and with written instructions in the remaining. When inquiring about parent's perception and expectations, they were asked if they believe they might need to revisit the ER again in the next 72 hours, 33.8% (n. 48) said yes, and when asked why 25.8% (n.23 out of 89) said either they don't trust the primary health care services or they choose KSMC as for its proximity to their accommodation, 4.4% (n.4 out of 89) believe no PHC is close to their accommodation, 3.3% (n.3 out of 89) believe their child's condition requires higher center like KSMC, and the remaining parents are employees in the hospital. Patients who actually came back to the ER for a second visit were 61% (n.88) of the total, 36.6% (n. 52) came the first day after discharge, 36.6 % came the second day, and 16.9% (n.24) came the third day. 38% (n.34) were due to fever and respiratory symptoms, 6.3% (n.9) for GI symptoms with fever. These revisiting patients were categorized as triage level 4 in 59% (n.84) of the cases, 20.4% (n. 29) as level 3, 6.3% (n. 9) as level 2, and 2.8% (n.4) as level Phone calls to the parents asking if they have visited a hospital after discharge showed 11.9% (n.17) have had, and 70% (n. 12) of them went to a private hospital.

among the families received post discharge education, we asked them if they still think they might return to the ER even with no red flags symptoms shown in their child, and 33.8 % still believed yes, no enough data gathered explaining why. with the education given, 61% came back to the ER seeking medical attention within 72 hours, it was hard to keep track of how many of them have actually received education due to medical staff changes, that number seems very alarming when compared to paper published by Goldman, et. Al. stating only 5% returned. (9). This result shines a light on the importance of implementing a strategic post discharge patient education, Auger, *et al* conducted a systematic review, and their finding were that patients with chronic diseases are the ones benefitted the most from the education and it significantly reduced hospital returns, but would that mean educational interventions would not be effective to acutely diseased patients visiting the ER? Of those came back to the ER, the majority returned on the first two days after discharge and the majority were categorized as level 4, indicating in a way that no disease progression happened. The data we have was inconclusive of what exactly made them come back and we encourage new researches to cover this gap. Moreover, the role primary health care facilities play in reducing the demand over the ER visits to the tertiary care centers is impertinent, shifting those families to the primary health care clinics distributed among Riyadh was not convincing enough for the families as the majority expressed an unexplained worry that their children might need a tertiary care hospital. 1. Akenroye AT, Thurm CW, Neuman MI, Alpern ER, Srivastava G, Spencer SP, *et al*. Prevalence and predictors of return visits to pediatric emergency departments. Journal of hospital medicine. 2014;9(12):779-87. 2. American Academy of P, Committee on Pediatric Emergency M, American College of Emergency P, Pediatric C, Emergency Nurses Association Pediatric C. Joint policy statement--guidelines for care of children in the Emergency Department. Pediatrics. 2009;124(4):1233-43. 3. Ishimine P. Fever without source in children 0 to 36 months of age. Pediatric clinics of North America. 2006;53(2):167-94. 4. Adekoya N. Patients seen in emergency departments who had a prior visit within the previous 72 h-National Hospital Ambulatory Medical Care Survey, 2002. Public health. 2005;119(10):914-8. 5. Klein-Kremer A, Goldman RD. Return visits to the Emergency Department among febrile children 3 to 36 months of age. Pediatric emergency care. 2011;27(12):1126-9. 6. Purssell E, Collin J. Fever phobia: The impact of time and mortality--a systematic review and meta-analysis. International journal of nursing studies. 2016; 56:81-9. 7. Ahmed AE, BI AL, Alrajhi MN, Almazroa HR, AlBuraikan DA, Albaijan MA, *et al*. Emergency Department 72-hour revisits among children with chronic diseases: a Saudi Arabian study. BMC pediatrics. 2018;18(1):205. 8. Tsai IT, Sun CK, Chang CS, Lee KH, Liang CY, Hsu CW. Characteristics and outcomes of patients with Emergency Department revisits within 72 hours and subsequent admission to the intensive care unit. Ci ji yi xue za zhi = Tzu-chi medical journal. 2016;28(4):151-6. 9. Goldman RD, Ong M, Macpherson A. Unscheduled return visits to the pediatric Emergency Department-one-year experience. Pediatric emergency care. 2006;22(8):545-9. 10. Auger KA, Kenyon CC, Feudtner C, Davis MM. Pediatric hospital discharge interventions to reduce subsequent utilization: a systematic review. Journal of hospital medicine. 2014;9(4):251-60.

(Worldwide)Children Emergency Department revisits in US was reported with rate of 2.5% to 5.2% (4, 5).(,), and Ishmine *et al* found that the most common reasons for revisits to the pediatric emergency departments in the United States (US) is due to fever. Kremer *et al*. have linked revisits rates proportionally to the longer duration and higher degree of temperature recorded at home. (5) fever phobia is common and has not significantly declined over time. (Locally) Emergency Department revisits that can be managed in primary health clinic may lead to overcrowdness in Emergency Department, which is associated with infection exposure, time consuming of staff and patient, financial burden so those reason could be one of the indicators for quality of patient safety. We analyzed unscheduled revisit pediatric Emergency Department over 3-month period (JuneAugust 2018). Fever was the most common cause in our pediatric Emergency Department of unscheduled revisit 93/167 (56%), while cough 53/167 (11%) and nausea / vomiting33/165(7%) shortness of breath 23/165 (5%) those are the most common cause over 3 months period in our KSMC pediatric Emergency Department. The reason of revisit is multifactorial as type of disease, local culture, sociodemographic and psychosocial factor also, we don't deny the medical and health system issues as mismanagement and medical errors (8). The main

objective of the study was to identify patient's knowledge and attitude toward fever.

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