

RESEARCH ARTICLE

Assessment of Common Pediatric Cases at Emergency Ward in Kirkuk City

Rahel Ahmed Nasih^{1*}, Hawraa Hussein Ghafel²

1. ^{1*} MScN, Academic Nurse, Department of Pediatric Nursing, College of Nursing, University of Baghdad, Baghdad, Iraq. Email: Ra.Heel1204a@conursing.uobaghdad.edu.iq
2. ² Assist. Prof. Doctor, Maternal and Neonate Nursing Department, College of Nursing, University of Baghdad, Baghdad, Iraq. Email: hawraah@conursing.uobaghdad.edu.iq

Corresponding author: **Rahel Ahmed Nasih**

Email: Ra.Heel1204a@conursing.uobaghdad.edu.iq

ABSTRACT

Background: The death of a child at the emergency ward is one of the most difficult problems that the clinicians of these wards must deal with. At the international level, important progress has been made in reducing infantile mortality mostly in children under five years old.

Objective(s): This study aims to assess the common pediatric cases at emergency ward in Kirkuk City.

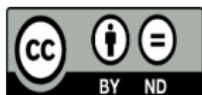
Methodology: A descriptive (cross sectional) study design was carried out in Kirkuk city the sample of this study is convenience consist of (1140) Child who admitted to emergency department in Pediatric Hospital of Kirkuk during time March 3rd to 1st June, 2022.

Results: The study results display that more than a half of children admitted to the pediatric emergency department age 0-5-years (n = 609; 53.4%), followed by those who age 6-10-years (n = 351; 30.8%), and those who age 11-15-years (n = 180; 15.8%). Concerning the gender, most are females (n = 689; 60.4%) compared to males (n = 451; 39.6%). Regarding the place of residence, most have been living in urban areas (n = 739; 64.8%) compared to those who live in rural areas (n = 401; 35.2%). And the study results display that the most urgent case in the pediatric emergency department is difficult breathing (n = 580; 50.8%), followed by diarrhea (n = 340; 29.8%), seizure (n = 130; 11.4%), and poisoning (n = 90; 7.8%).

Conclusion: Children who age <5 years old was most age group who visit emergency unit, and respiratory difficulties were the most common cases admitted to the pediatric emergency department.

Recommendations: Ineffective Breathing Pattern need to avoid using cough suppressants because it's crucial to raise any collected sputum and supporting respiratory function through rest, humidification, hydration, and symptomatic care. And Hospitals needs to have monitor on every bed to follow up breathing issue.

Keywords: Urgent Care, Common Pediatric Cases, Emergency Ward.



This work is licensed under a Creative Commons Attribution Non-Commercial 4.0 International License.

Received: 3 July 2022, Accepted: 16 September 2022, Available online: 28 January 2023

INTRODUCTION

The most urgent case in the pediatric emergency department is difficult breathing which constitutes more than a half of such cases, followed by diarrhea, seizure, and poisoning respectively. This finding could be attributed to many factors including the relatively cold weather of the geographical areas from which the aforementioned cases were admitted to the pediatric emergency department. One more explanation is the age factor where the respiratory system would be not well-developed in early age which makes children susceptible to respiratory ailments.

Assessment of children is sometimes difficult as the signs and symptoms of illness may not be as marked or as readily expressed as those in adults. Also, normal value of vital signs vary with age, thus their interpretation requires discrete knowledge of age appropriate values. It is crucial to identify the disease's site when a child complains of breathing problems, whether it affects the upper airways (oropharynx, nasopharynx, larynx), lower airways (trachea, bronchi, bronchioles), lung parenchyma, central breathing control, or a combination of these. Respiratory failure results when the respiratory effort is insufficient to maintain the efficient gas exchange (oxygenation and CO₂ elimination). The final stage of respiratory distress is respiratory failure, which necessitates quick action to prevent a worsening into cardiac arrest⁽¹⁾.

Children account for approximately (20%) to (25%) of all emergency department (ED) visits in the United States. In 2010, 25 million children <18 years of age were evaluated in EDs, comprising (20%) of the 128 million total ED visits. The vast majority of children (96%) were treated and discharged from the ED. Younger children have the highest utilization rate; although infants <1-year-old represent just (5%) of the pediatric population, they comprised (12%) of treat-and-release ED visits and almost (23%) of inpatient admission. Children 1 to 4 years of age comprise (22%) of this population, but account for (32.8%) of all pediatric treat-and-release ED visits and (26.3%) inpatient admissions. Approximately (5%) of children will have severe illness. Over the past decades, as the application of new medical knowledge has eradicated many diseases and rendered others curable, trauma has emerged as the leading cause of morbidity and mortality⁽²⁾.

According to the Annual Statistical Report (2020), the neonatal mortality rate per 1000 live births in Iraq was 14.7 and Kirkuk Governorate was 15.9. For the under 5-year mortality rate per

1000 live births, it was 24.2 in Iraq and 21.4 in Kirkuk Governorate. The infant mortality rate per 1000 live births for children less than 1-year in Kirkuk was 19.5 at 2020. While the under-5-years mortality rate per 1000 live births in Kirkuk was 21.4 at 2020.⁽³⁾

The early childhood condition known as febrile seizures is characterized by generalized tonic-clonic seizures accompanied by a fever but without any signs of a known infection or dysfunction of the central nervous system. Simple or complex febrile seizures might occur. Complex seizures last 15 minutes or longer, are accompanied by focal neurological symptoms, or recur within 24 hours⁽⁴⁾.

Diarrhea is characterized by either an increase in bowel movements or a change in stool consistency. Children's diarrhea can be either acute or persistent. The most common cause of death for children globally continues to be acute infectious diarrhea (gastroenteritis). Every year, approximately 3.5 million infants in the US experience diarrhea, resulting in over 500,000 doctor visits and 55,000 hospital admissions⁽⁵⁾.

Young children's typical actions, which involve exploring their surroundings, put them at danger for ingesting foreign substances. Nearly one-third of all unintended home injuries are caused by poisonings, which are also the second most common cause of unintentional home injury mortality. Annually, over 2 million calls are made for human ingestions to poison control centers, 80% for children under 6 years of age. About 130,000 visits to emergency departments occur, and over 800 children die from poisoning⁽⁶⁾.

Respiratory failure is the most common cause of death for children admitted to pediatric intensive care units (PICUs)⁽⁷⁾.

Preterm babies are born before their lungs are fully developed and ready to function as effective gas exchange organs. This seems to have been a key element in the growth of RDS. The effects of lung immaturity are exacerbated by the chest wall's higher compliance due to the presence of more cartilage, which causes the wall to collapse inward in reaction to less compliant (stiffer) lung tissue. Fetal respiratory activity before birth has been demonstrated. The alveoli drain fluid, and the lungs perform weak respiratory motions. Preterm infants are born with many underdeveloped and many un-inflatable alveoli because the final unfolding of the alveolar septa, which increases the surface area of the lungs, happens during the last trimester of pregnancy. The alveolar epithelium

secretes surfactant, a phospholipid with surface activity. This chemical, which functions somewhat like a detergent, lowers the surface tension of the fluids that line the alveoli and respiratory passageways, causing uniform expansion and maintaining lung expansion at low intra alveolar pressure. Alveoli inspiration inflation and end expiration inflation are not equivalent due to insufficient surfactant synthesis. Infants require a lot of work to expand the alveoli with each breath because they cannot maintain lung inflation without surfactant. With increasing exhaustion, infants are able to open fewer and fewer alveoli. This inability to maintain lung expansion produces widespread atelectasis⁽⁸⁾.

According to the World Health Organization (WHO), diarrhea is the occurrence of bowel movements with a more fluid consistency than usual, with a frequency of three or more times in a 24-hour period. Diarrhea is an environmental-based disease caused by infection with microorganisms including bacteria, viruses, parasites, protozoa, and fecal oral transmission. Diarrhea can affect all age groups, both toddlers, children and adults with various social groups. Diarrhea is the second leading cause of death in children under five years old, and is responsible for killing around 525 000 children every year.⁽⁹⁾

Childhood diarrhea, even though it is a preventable and treatable disease, remains a major cause of consultations, hospitalizations, emergency care and deaths in children under five years old. It is estimated that 2.5 billion cases in children of this age group occur annually, leading to 57 deaths per 100,000 inhabitants and accounting for the second largest cause of global morbidity and mortality in children in developing countries⁽¹⁰⁾.

The etiology of diarrhea includes infections caused by bacteria, salmonella, E-collie. The malabsorption that occurs include malabsorption of carbohydrates, disaccharides. The source can be toxic, spoiled, or allergic foods. During the author's assessment, it turns out that the cause of diarrhea in children N is due to bacterial infection. Children are at risk for diarrhea caused by bacteria. Clinical manifestations of diarrhea are diarrhea, nausea, vomiting, abdominal pain, fever, dry mucous membranes of the lips, decreased skin turgor, tachycardia (rapid pulse rate), abdominal cramps, weight loss⁽¹¹⁾.

Based on the results of a survey of 2 Indonesian health demographics, the child mortality rate in the last five years was obtained as follows: the neonatal mortality rate at 15 per

thousand live births, the infant mortality rate at 24 per thousand live births, and the under-five mortality rate at 32 per thousand live births. Based on the survey results, the high mortality rate of children under five is caused by a number of diseases, one of which is diarrhea. Handling diarrhea for toddlers is the worst. Because, out of 2,328 toddlers with diarrhea, only 74% of them have received treatment⁽¹²⁾.

METHOD

Design of the Study

A descriptive (cross sectional) study design was carried out in Kirkuk city the sample of this study is convenience consist of (1140) Child who admitted to emergency department in Pediatric Hospital of Kirkuk during time March 3rd to 1st June, 2022.

The Administrative Arrangements

Prior to initiation of the actual collection of data, formal administrative approval has been obtained to conduct the study from the following institutions: An official permission is obtained from Ministry of Planning / Center of Statistical Organization (CSO), which is accepted the study instrument. An official permission is obtained from Kirkuk health Directorate, regarding (Pediatric, Maternal and pediatric Hospitals) ideal training health care centers.

Ethical Considerations

After receiving the approval of the College of Nursing, University of Baghdad for the study, the student researcher discussed study details with officials at Pediatric Hospital and Maternity and Children Hospital.

The Setting of the Study

The study was carried out at Kirkuk city at Pediatric Hospital & Maternity and Children Hospital in Kirkuk City, Pediatric Hospital receives patients from the age of 0 day to 15 years and the hospital was established in 1964, It contains 140 beds, 14 of them are in the emergency department, it receives Internal pathology diseases only. The Maternal and pediatric Hospital receives pregnant women and pediatric patients up to the age 14 years, the hospital was established in 2019. It contains 157 beds. 16 of them are in the emergency department.

Sample of the Study

Non-probability (Convenience sample) consists of (1140) Child who admitted to Children Hospital &

Maternal and pediatric Hospital, for receiving treatment and health maintenance.

Data Collection Methods

Data were collected from statistics department at Children Hospital & Maternal and pediatric Hospital for the period from March 3rd to 1st June, 2022.

Statistical Data Analysis

The statistical package for social sciences (SPSS) for Windows, version 26, Chicago, IL, was used to analyze the data. The descriptive statistical measures of frequency, percent, mean, and standard deviation were used to child's socio-demographic characteristics.

RESULTS

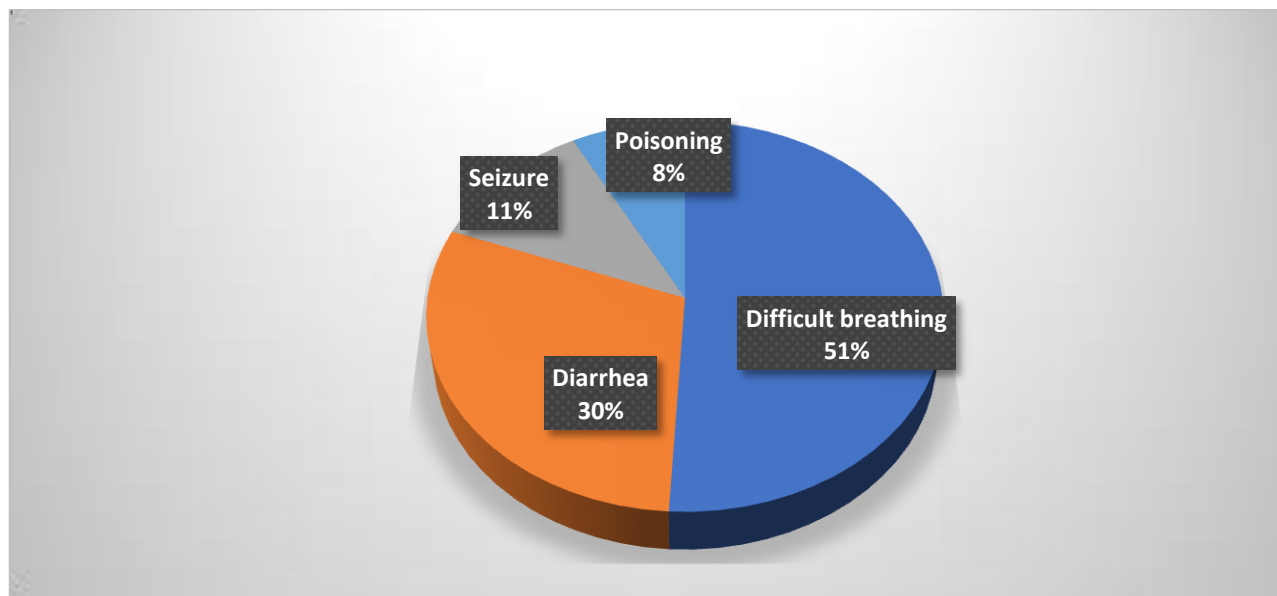
Table 1. Child's socio-demographic characteristics (N = 1140)

Variables	Frequency	Percent
Age (Years)		
0-5	609	53.4
6-10	351	30.8
11-15	180	15.8
Total	1140	100
Gender		
Male	451	39.6
Female	689	60.4
Total	1140	100
Place of Residence		
Urban	739	64.8
Rural	401	35.2
Total	1140	100

Table 2. Assessment of most common pediatric cases that admitted to emergency ward

List	Items	Frequency	Percent
1.	Difficult breathing	580	50.8
2.	Diarrhea	340	29.8
3.	Seizure	130	11.4
4.	Poisoning	90	7.8
Total		1140	

Figure 1. Assessment of most common pediatric urgent cases that admitted to emergency ward



DISCUSSION

The study results display that more than a half of children admitted to the pediatric emergency department age 0-5-years ($n = 609$; 53.4%), followed by those who age 6-10-years ($n = 351$; 30.8%), and those who age 11-15-years ($n = 180$; 15.8%). Concerning the gender, most are females ($n = 689$; 60.4%) compared to males ($n = 451$; 39.6%). Regarding the place of residence, most have been living in urban areas ($n = 739$; 64.8%) compared to those who live in rural areas ($n = 401$; 35.2%).

The study results display that the most urgent case in the pediatric emergency department is difficult breathing ($n = 580$; 50.8%), followed by diarrhea ($n = 340$; 29.8%), seizure ($n = 130$; 11.4%), and poisoning ($n = 90$; 7.8%).

The study shows that most hospital emergency admissions are from children less than five years old, the reason is likely that the newborns need more care after birth because of the immaturity of organs such as the liver and lungs, so they may need oxygen or incubation. Toddler are more likely to be admitted to the hospital emergency because of the parents' lack of experience in managing the child needs, and protecting him from diseases, or neglect by the parents, and exposure child to diseases, and other reasons such as the child not receiving the required vaccinations and the child's immunity system immature at this age. This finding incongruent with that of ⁽¹³⁾ who found that Infants and children aged <5 years, representing 25.5 percent of all children in the U.S. population, accounted for more than 40 percent of pediatric ED visits in 2015.

The study also showed that the majority of pediatric patients are females by 60% to 40%, due to the large number of female births during this year and previous years. The study also showed that most of the visitors to the hospital emergency are from inside the city due to the proximity of the hospital, the greater awareness from the rural people and the difficulty road and remoteness of the rural people from the hospitals.

The study shows in table 2, most pediatric admitted to the hospital emergency unit during the study period is difficult of breathing 580 case from 1140 of all cases and the main causes is lungs immaturity, asthma and parents' behavior during pregnancy such as smoking or sitting of living contaminated and premature delivery.

Acute lower respiratory infection (ALRI) remains one of the leading causes of morbidity and mortality in children younger than 5 years. Human respiratory syncytial virus (RSV) is the most common viral pathogen identified in children with ALRI ⁽¹⁴⁾. Preterm babies are born before their lungs are fully developed and ready to function as effective gas exchange organs. This seems to have been a key element in the growth of RDS ⁽¹⁵⁾. WHO data show that almost all of the global population (99%) breathe air that exceeds WHO guideline limits and contains high levels of pollutants, with low- and middle-income countries suffering from the highest exposures.

A 512 children participated in a study aimed at determining the proportion of ARIs and identifying some related risk factors in children under 5 years attending the Bamenda Regional Hospital. A high proportion of ARI of 54.7% was probably because this study was carried out during the peak of the dry season which is characterized by dry, cold and dusty harm winds.

Though high, this result is lower than 69.7% obtained by (Sikoilia et al 2002). The proportion of ARIs in children under 5 years in the BRH was 54.7% (280 children) with a 95% CI of 50.3%-59.0%. Using IMCI guidelines, a total of 166/280 (59%) were mild ARIs (No Pneumonia), 69/ 280 (25%) were moderate ARI (Pneumonia) and 45/ 280 (16%) were severe ARI (Severe Pneumonia) and the study found that children who were inadequately breastfed and those who were inadequately immunized did not have a significant difference. Proportion of acute respiratory infections when compared to those who were exclusively breastfed and immunized. Environmental factors such as exposure to wood smoke, cigarette smoke, and contact or living with someone who had a cough were found to significantly increase the proportion of ARIs⁽¹⁶⁾.

CONCLUSION

Child with age <5 years old and difficult breathing were the most common cases admitted to the pediatric emergency department.

ETHICAL CONSIDERATIONS COMPLIANCE WITH ETHICAL GUIDELINES

This study was completed following obtaining consent from the University of Baghdad.

FUNDING

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

AUTHOR'S CONTRIBUTIONS

Study concept, Writing, Reviewing the final edition by all authors.

DISCLOSURE STATEMENT:

The authors report no conflict of interest.

REFERENCES

Mehra, B., & Gupta, S. (2018). Common pediatric medical emergencies in office practice. *The Indian Journal of Pediatrics*, 85(1), 35-43.

<https://link.springer.com/article/10.1007/s12098-017-2370-9>

Farah, R., Bleier, J., Gilbey, P., & Khamisy-Farah, R. (2017). Common Laboratory Parameters for Differentiating Between Community-Acquired and Healthcare-Associated Pneumonia. *Journal of clinical laboratory analysis*, 31(1), e22016.

<https://doi.org/10.1002/jcla.22016>

Iraqi Ministry of Health. (2021). *Annual statistical report 2020*. Baghdad: Iraqi Ministry of Health. Retrieved March 12, 2022.

Smith, D. K., Sadler, K. P., & Benedum, M. (2019). Febrile seizures: Risks, evaluation, and prognosis. *American Family Physician*, 99(7), 445-450.

Tablang, M. V., Grupka, M. J., & Wu, G. (2009). *Gastroenteritis, viral*. Retrieved February 24, 2022.

Bronstein, A. C., Spyker, D. A., Cantilena Jr, L. R., Rumack, B. H., & Dart, R. C. (2012). 2011 annual report of the American Association of Poison Control Centers' National Poison data system (NPDS): 29th annual report. *Clinical toxicology*, 50(10), 911-1164.

Burns JP, Sellers DE, Meyer EC. (2014). Epidemiology of death in the PICU at five U.S. teaching hospitals. *Crit CareMed* 2014; 42:2101-2108.

Hockenberry, M. J., & Wilson, D. (2018). *Wong's nursing care of infants and children-E-book*. Elsevier Health Sciences

World Health Organization, 2 May 2017.

United Nations Children's Fund (UNICEF). Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation. United Nations: UNICEF; 2017. [cited Jun 27, 2018]. Available from: http://www.crianca.mppr.mp.br/arquivos/File/publi/unicef_relatorios/child_mortality_report_unicef_2017.pdf

www.crianca.mppr.mp.br/arquivos/File/publi/unicef_relatorios/child_mortality_report_unicef_2017.pdf

Prabowo PA, Sulistyorini L, Juliningrum PP (2020). Gambaran balance cairan pada anak diare setelah diberikan pemenuhan kebutuhan cairan di Rumah Sakit Kaliwates Jember (Overview of fluid balance in children with diarrhea after being given fluid needs at Kaliwates Jember Hospital). *Pustaka Kesehatan*. 8(3): 147. doi: 10.19184/pk.v8i3.18945.

Kemenkes RI. (2018). Hasil Riset Kesehatan Dasar Tahun 2018. Kementerian Kesehatan RI, 53(9), 1689-1699.

McDermott, K. W., Stocks, C., & Freeman, W. J. (201

8). Overview of pediatric emergency department visits, 2015: *Statistical Brief# 242*.

Shi, T., McAllister, D. A., O'Brien, K. L., Simoes, E. A., Madhi, S. A., Gessner, B. D., ... & Network, R. G. E. (2017). Global, regional, and national disease burden estimates of acute lower respiratory infections due to respiratory syncytial virus in young children in 2015: a systematic review and modelling study. *The Lancet*, 390(10098), 946-958

Hockenberry, M. J., & Wilson, D. (2018). *Wong's nursing care of infants and children-E-book*. Elsevier Health Sciences.

Tazinya, A. A., Halle-Ekane, G. E., Mbuagbaw, L. T., Abanda, M., Atashili, J., & Obama, M. T. (2018). Risk factors for acute respiratory infections in children under five years attending the Bamenda Regional Hospital in Cameroon. *BMC pulmonary medicine*, 18(1), 1