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Analysis of hospitalisation of children at the Hospital Emergency Department in 2014 – own observations**

Analiza hospitalizacji dzieci w Szpitalnym Oddziale Ratunkowym w 2014 roku – obserwacje własne

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S u m m a r y

Introduction. The Hospital Emergency Department (ED) is the place of diagnostics and treatment within the scope necessary to stabilise vital functions in persons in the condition of sudden threat to life. Patients may report at the Hospital Emergency Department without a referral, which in the situation of lack of the definition of “a sudden threat to life” may result in overusing Hospital Emergency Departments.

Aim. The aim of the study was to analyse the hospitalisation of patients at the Hospital Emergency Department depending on the patients’ age, mode of admission and discharge, seasonality and time of admission.

Material and methods. The group consisted of 6373 children admitted to the Hospital Emergency Department of the Bieleński Hospital, Warsaw in 2014. The average age of the patients was 4.5 (5 days to 18 years old).

Results. 55% of the patients (3499/6373) were referred to hospital by their General Practitioner (GP), 13% (811/6373) by Emergency Medical Services (EMS), 1% (93/6373) by paediatric surgeons. 31% (1970/6373) of the patients came to the hospital without any referral. Hospitalisation turned out necessary in the case of 36.8% (2346/6373) patients. In 60.6% (3861/6373) of the cases there were no indications to perform hospital treatment. Among the patients who came to the hospital with a referral, 40.4% (1414/3499) required hospitalisation at the paediatrics department, 45% (365/811) of those brought by the EMS and 27.3% (538/1970) of those who came without a referral. The average time spent by patients at the Hospital Emergency Department amounted to 128 minutes (from 2 to 873 minutes). 21.2% (1349/6373) of the patients were examined between 6 p.m. and 9 p.m.

Conclusions. In both groups, with or without a referral to the hospital, fewer than half of the patients required hospitalisation (40.4 and 27.2%, respectively). During winter months, there are twice as many patients coming as during the summer. The majority of patients report at the Hospital Emergency Department right after the end of the working hours of the district clinics.

S t r e s z c z e n i e

Wstęp. W szpitalnym oddziale ratunkowym (SOR) ma miejsce wstępna diagnostyka oraz podejmowane jest leczenie w zakresie niezbędnym dla stabilizacji funkcji życiowych u osób, które znajdują się w stanie nagłego zagrożenia zdrowotnego. Pacjenci mogą zgłaszać się do SOR-u bez skierowania, co w sytuacji braku definicji „nagłego zagrożenia zdrowotnego” może powodować nadużywanie SOR-u.

Cel pracy. Celem pracy była analiza hospitalizacji pacjentów w SOR-ze w zależności od wieku pacjentów, sposobu zgłoszenia się i wypisu oraz sezonowości i godziny przyjęcia.

Materiał i metody. Grupę badaną stanowiło 6373 dzieci przyjętych w SOR-ze Szpitala Bieleńskiego w Warszawie w 2014 roku. Średni wiek pacjentów wynosił 4,5 roku (od 5 dni do 18 lat).

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Wyniki. 55% pacjentów (3499/6373) było skierowanych do szpitala przez lekarza rejonowego, 13% (811/6373) przez Pogotowie Ratunkowe (PR), 1% (93/6373) przez chirurga dziecięcego. 31% (1970/6373) zgłosiło się bez skierowania. Hospitalizacji wymagało 36,8% (2346/6373) wszystkich pacjentów. U 60,6% (3861/6373) nie stwierdzono wskazań do leczenia szpitalnego. Spośród pacjentów, którzy zgłosili się do szpitala ze skierowaniem, hospitalizacji w oddziale pediatrycznym wymagało 40,4% (1414/3499) dzieci przywiezionych przez PR 45% (365/811), a 27,3% (538/1970) zgłaszający się bez skierowania. Średni czas pobytu pacjentów w SOR-ze wynosił 128 minut (od 2 do 873 minut). 21,2% (1349/6373) pacjentów przyjmowano w godzinach 18-21.

Wnioski. Zarówno wśród skierowanych do szpitala, jak i zgłaszających się bez skierowania hospitalizacji wymaga mniej niż połowa (odpowiednio 40,4 i 27,2%) pacjentów. Dwukrotnie więcej pacjentów zgłasza się w miesiącach zimowych niż letnich. Najwięcej pacjentów zgłasza się do SOR-u tuż po zakończeniu pracy poradni rejonowej.

INTRODUCTION

Pursuant to the Regulation of the Minister of Health of 3 November 2011 (1) the Hospital Emergency Department (ED) is the place of diagnostics and treatment within the scope necessary to stabilise vital functions in persons in the condition of sudden threat to life. Hospital Emergency Departments are organised at hospitals equipped with – at least – General Surgery Department with traumatic part (and/or Child Surgery Department), Internal Medicine Department (and/or Paediatrics Department), Anaesthesiology Department and Intensive Care, Diagnostic Imaging Laboratory. Patients may report at the Hospital Emergency Department without a referral, which in the situation of lack of the definition of “a sudden threat to life” may result in overusing Hospital Emergency Departments in situations, when medical assistance could be obtained at Primary Care or Night Medical Advice.

At the Bielański Hospital in Warsaw, the Hospital Emergency Department has a separate part for children aged 0-18. In the case hospitalisation is necessary, children are admitted to one Paediatrics Department.

AIM

The objective of the paper is to analyse:

1. The number of patients requiring hospitalisation at the Paediatrics Department depending on the reasons for visiting the Hospital Emergency Department.
2. Period and seasonal nature of admitting to the Hospital Emergency Department.
3. Period of hospitalisation at the Hospital Emergency Department.

MATERIAL AND METHODS

Sample group comprised of 6373 patients, 48% were girls (3040/6373) and 52% were boys (3333/6373), to the age of 18, admitted to the Hospital Emergency Department of the Bielański Hospital in Warsaw from 1 January to 31 December 2014 (one calendar year). The average age of the patients amounted to 4.54 (5 days to 18 years old), median was 2.64. Figure 1 shows the number of patients in particular age groups. The majority – namely as many as 26.8% of the patients (1710/6373) were at the age of 1, and over half – namely 53.6% (3418/6373) up to the age of 3 (fig. 1).

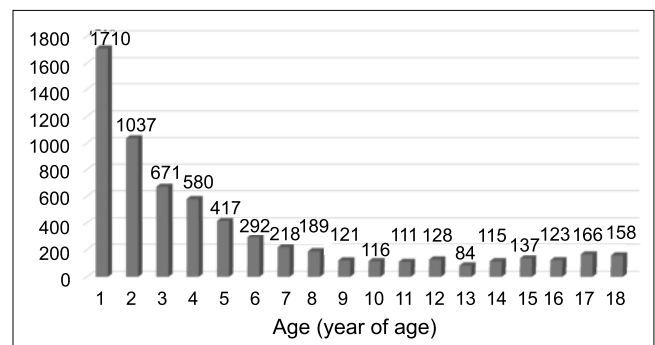


Fig. 1. Number of patients admitted to the Hospital Emergency Department depending on their age

The analysis covered all the medical histories of patients admitted to the Hospital Emergency Department. The age of the patients, mode of admission (referral, without a referral), time of admission (date and hour), period of stay at the Hospital Emergency Department and further procedures were analysed.

RESULTS

In the research group, 55% of the children (3499/6373) were referred to the hospital by a doctor, 31% (1970/6373) came to the Hospital Emergency Department without a referral, 13% (811/6373) were brought by the Emergency Medical Service (EMS) and 1% (93/6373) was referred to be consulted by a paediatric surgeon (fig. 2). The majority, 61% (1043/1710) of the patients referred to the hospital were in their first year of age, and the lowest number, 40% (116/289) at the age of 16 and 17. Emergency Medical Service brought from 8% (137/1710) to 31% (51/166) of the patients (in the first year of age and at the age of 17, respectively) (fig. 3).

Out of the whole group, hospitalisation was required in the case of 36.8% (2346/6373) of the patients and in 60.6% (3861/6373) no indications to hospitalisation were observed. In 2% (127/6373) of the cases, parents expressed no consent for hospitalisation, 0.6% (39/6373) of the children left the Hospital Emergency Department prior to the completion of medical procedures (fig. 4).

From among patients having a referral admitted to the Hospital Emergency Department, hospitalisation at the Paediatrics Department was required in the case of 40.4% (1414/3499) of the patients. 45% (365/811) of

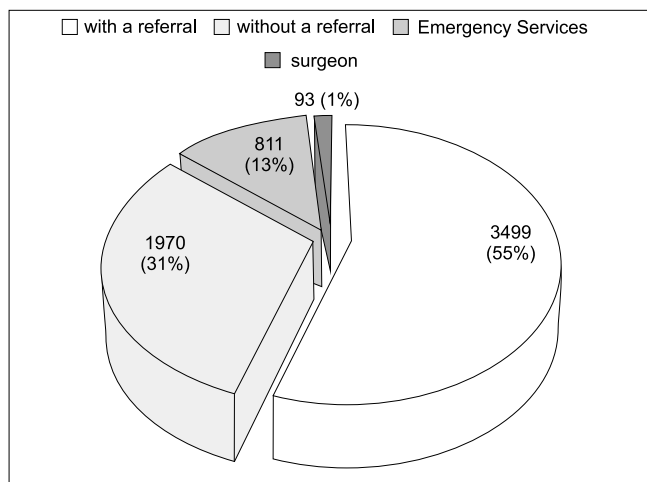


Fig. 2. Number of patients depending on the manner of reporting at the Hospital Emergency Department (N = 6,373)

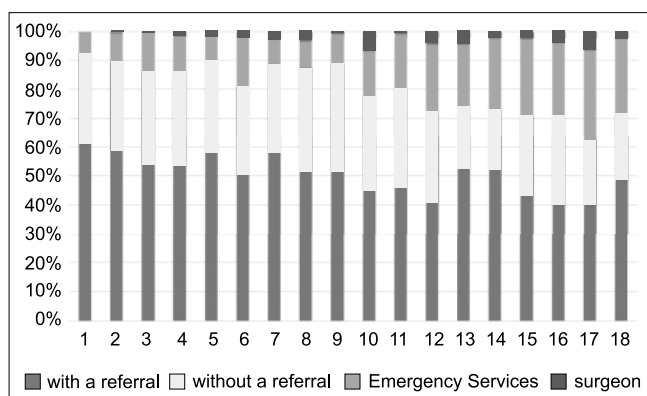


Fig. 3. Number of patients depending on the manner of being admitted to the Hospital Emergency Department, consecutive years of age

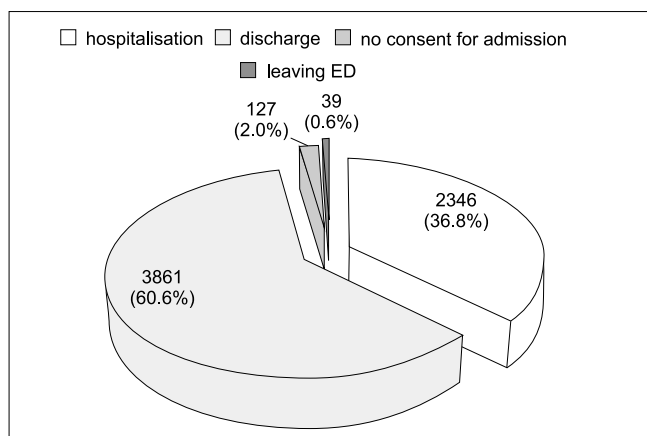


Fig. 4. Manner of patients' discharge from the Hospital Emergency Department

the patients from the ones brought by the Emergency Medical Service. Hospitalisation at the Paediatrics Department was required in the case of those admitted without a referral or directed for consultation by a paediatrician by the surgeon by 27.3% (538/1970) and 31% (29/93) of the patients, respectively (fig. 5).

The greatest number of patients underwent hospitalisation at the Hospital Emergency Department in winter months, the fewest in summer months. In Decem-

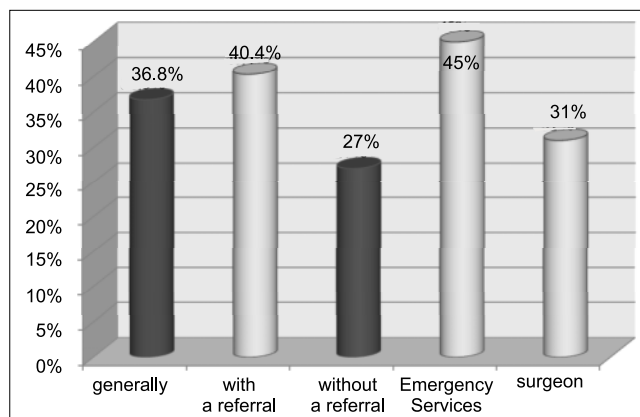


Fig. 5. Rate of children admitted to the Paediatrics Department depending on the mode of coming to the Hospital Emergency Department

ber and February these were 10.6% (674/6373) and 10% (638/6373) of the patients, respectively and in July and August 5.5% (351/6373) and 5.46% (348/6373) of the patients, respectively (fig. 6).

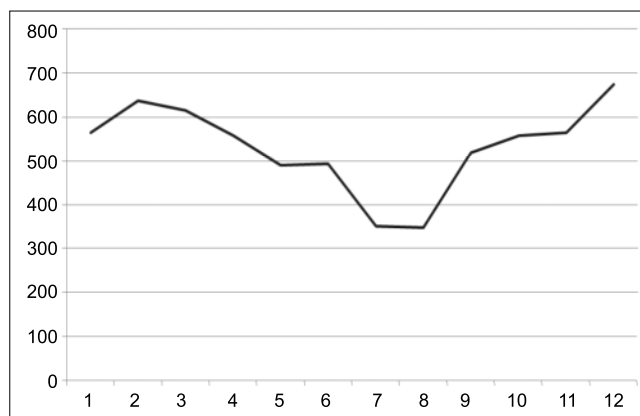


Fig. 6. Number of hospitalisation cases at the Hospital Emergency Department in consecutive months

Majority, namely 21.2% (1349/6373) of the children were hospitalised at the Hospital Emergency Department between 6 p.m. and 9 p.m. (fig. 7). These included patients having a referral (62.3%; 840/1349) and patients without a referral (37.7%; 509/1349). Figure 8 presents the number of those hospitalised depending on the manner of admission to the Hospital Emergency Department at particular hours. What is worth noting is the fact that 36% (1251/3472) of the patients come to the Hospital Emergency Department without a referral during clinic's opening hours (8 a.m.-6 p.m.).

Average time patients spent at the Hospital Emergency Department amounted to 128 minutes (2 to 873 minutes).

The most common diagnosis (according to ICD-10) in hospitalised patients without a referral was fever of other and unknown origin (R50) constituting 13.1% (414/3172) of all the visits. Next, these included: pneumonia, organism unspecified (J18) in 11.4% (363/3172), acute bronchitis (J20) in 8.8% (279/3172), nausea and vomiting (R11) in 6.1% (194/3172), medical observation and evalua-

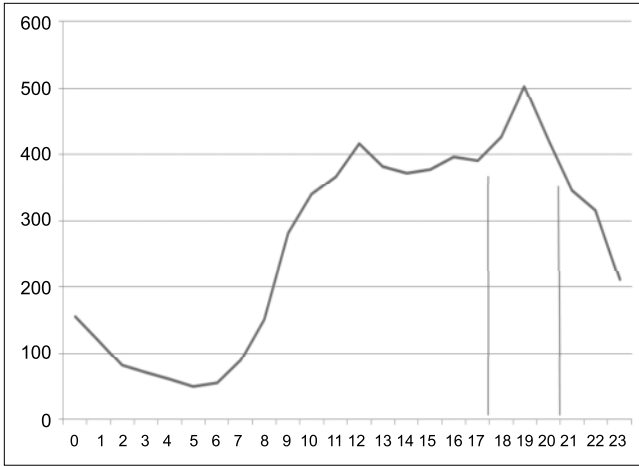


Fig. 7. Number of patients undergoing hospitalisation at the Hospital Emergency Department depending on the time of admission

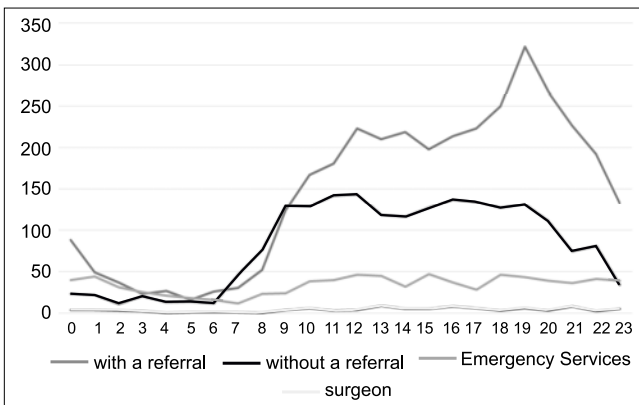


Fig. 8. Number of patients undergoing hospitalisation depending on the time and manner of being admitted to the Hospital Emergency Department

tion for suspected diseases and conditions (Z03) in 5.9% (187/3172), abdominal and pelvic pain (R10) in 5.2% (164/3172), other gastroenteritis and colitis of infectious and unspecified origin (A09) in 4.8% (153/3172), acute upper respiratory infections of multiple and unspecified sites (J06) in 4.3% (136/3172), other disorders of urinary system (N39) in 4.2% (132/3172) (fig. 9).

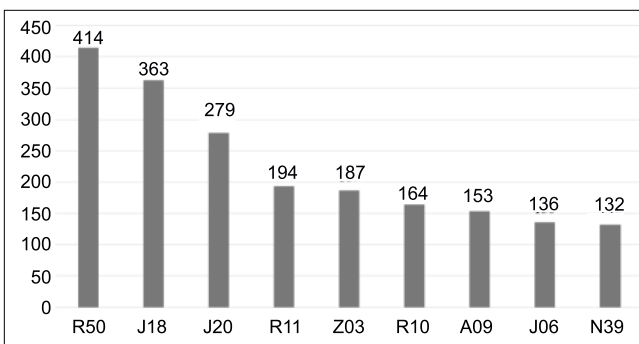


Fig. 9. Number of patients referred to the Paediatrics Department depending on the diagnosis pursuant to ICS-10 (10 most common referrals) (N = 2022/2346; 87%)

R50 – fever of other and unknown origin; J18 – pneumonia, organism unspecified; J20 – acute bronchitis; R11 – nausea and vomiting; Z03 – medical observation and evaluation for suspected diseases and conditions; R10 – abdominal and pelvic pain; A09 – other gastroenteritis and colitis of infectious and unspecified origin; J06 – acute upper respiratory infections of multiple and unspecified sites; N39 – other disorders of urinary system

DISCUSSION

Recently, more and more frequently bad organisation of work at the Hospital Emergency Departments is being discussed as well as too many patients coming without referrals, lack of indications to be hospitalised, or those requiring immediate help. Long story short, Hospital Emergency Departments in their current version are an addition to the working hours of clinics. The reasons may be various – on the one hand lack of doctors at clinics, especially paediatricians, lack of the possibility to access the clinic with the ill child the same day and, on the other hand, longer working time of the parents, who take care of their ill children after they finish work.

Polish papers lack the analysis of admission of children to the Hospital Emergency Department. However, publications from other countries are unfortunately hard to be compared owing to organisational differences in the field of health care. For instance, in Spain, parents see their doctor at the clinic the day following their sudden visit at the Hospital Emergency Department. In our country, it is becoming more and more common that a child has no permanent doctor at the clinic. Subsequent preventive visits, or visits when they are ill, are conducted by a different doctor.

In 2003, Giacalone et al. (2) published a study concerning admission to the Emergency Unit in Italy within one year of observation. Their conclusions are partly in phase with our results. The majority of patients came in February, 70% of whom required no hospitalisation and were directed for further outpatient treatment. The average age of those patients amounted to 3.9, in our material 4.54. The systematic overview of Ogilvie dated 2005 (3) stated that the rate of patients requiring no hospitalisation was in the range of 40 to 99% depending on the type of hospital. The study of Randall and Wiegand (4) dated 1997 analysed the data covering two years from the Emergency Department, where patients under the age of 3 constituted 43%, only 9.9% of the patients required hospitalisation. The majority of pieces of advice given (60%) took place in the period from 3 p.m. to 12 a.m.

In 2014, the paper of Akenroye et al. was published (5), evaluating admissions at 23 hospitals in the USA. It was established that hospitalisation was required only in the case of 12.1% of those admitted to the Hospital Emergency Department. That paper additionally included the analysis of re-visits and it was observed that 3.3% of the children returned to the Emergency Department within 72 hours, but only 19.7% of those re-visits were finalised with hospitalisation.

In our material, in the case of 60.6% no indications to be hospitalised were shown, and among those coming without a referral 72.7%. This is essential, since the Regulation of the Minister of Health, § 13 of 8 September 2015 on “General Conditions of Contracts on Health Care Services Provision” (Journal of Laws of 2015, item 1400), item 5 reads “Refusal to admit a child to the hospital requires prior consultation with

the department head the child would be admitted to, or their deputy, or the doctor managing the department pursuant to Article 49, par. 7 of the Act of 15 April 2011 on Medical Activities. The result of that consultation is recorded in the medical documentation". It means that 3861 patients, which is 10 patients a day, require to be consulted by the department head or their deputy, namely daily presence, 24 hours a day. There is no other possibility to document the results of consultation in the medical documentation than by examining the patient in person and giving appropriate diagnosis.

Despite divergent health care systems, the works cited indicate expressly that the majority of patients reporting at the Emergency Departments requires no hospitalisation.

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CONCLUSIONS

Only 36.8% of the patients admitted to the Hospital Emergency Department required further treatment at the Paediatrics Department. It applies both to patients with referrals (40.4%) and those coming without a referral (27.2%). Twice as many patients come in winter months (February, December) than summer (July, August). The greatest number of patients come to the Hospital Emergency Department between 6 p.m. and 9 p.m. (3 hours of the doctor's work), right after Primary Care clinics are closed.

The above analyses should be carried out by Hospital Emergency Departments at other hospitals in order to draw conclusions and change the organisation of work at the Hospital Emergency Departments, clinics as well as for the payer (National Health Fund).

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