

Differences in Financing of Admission Rooms (ARs) and Hospital Emergency Rooms (ERs) Between the Years 2013 and 2014, Using an Example of a Lodz Municipal Hospital

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Abstract. The goal of the article is to compare methods of financing ARs and ERs based on the data from the 1st half of 2013 and 1st half of 2014 from the K. Jonscher 3rd Municipal Hospital in Lodz. All the stays in the AR/ER in the 1st half of 2013 and the 1st half of 2014 were analysed. Based on the presented data, it can be clearly seen that the new method of financing AR/ER services proposed by the NFZ will beyond doubt have negative outcomes, and will certainly not improve the financial situation of hospitals.

Introduction

Service in a hospital admission room (AR) or emergency room (ER) is a health care service provided in an urgent manner to a person at an immediate health risk – for an ER ending with a discharge, for an AR not ending in a hospitalisation at the service provider. It also includes services, which due to the patient's health, require immediate diagnostic and treatment actions and may not be performed by service providers who provide other kinds of services at this time. If necessary, providing transport in order to maintain a continuity of treatment is also included (Regulation no. 89/2013/DSOZ, 2013).

That is why the specifics and special character of the aforementioned organisational cells, and mainly the complexity and variability of performed activities, mean that the correct operation of the AR/ER presents many problems. The necessity of taking immediate action in situations of risk to a patient's health or life, combined with diagnostics based on available and frequently rudimentary information, means that there is a significant diversification of procedures. The simplest and cheapest services do not generate

significant costs. The problem starts only when there is a large number of services, or when more complicated, and thus more expensive examinations begin (e.g. CAT, MRI). That is why the method of financing ARs and ERs by the NFZ is one of the most important issues. It can enable their correct operation, and treatment of patients without limits and barriers.

The changes introduced by the President of the NFZ in the methods of AR/ER financing since 1 January 2014 are, in the opinion of many hospital directors, disadvantageous and will result in a financial collapse, and thus in the closing of ERs at many entities.

The aim of the study was to compare methods of financing the AR/ER based on the data from the 1st half of 2013 and 1st half of 2014 from the K. Jonscher 3rd Municipal Hospital in Lodz.

Material and Methods

All visits to the AR/ER in the 1st half of 2013 and the 1st half of 2014 were analysed. In accordance with the NFZ President's Regulation, which established the conditions of establishing and performing hospital treatment contracts, each medical entity that has an AR/ER within its structure is required to provide the appropriate Department of the National Health Fund with a report on activities conducted. In 2013, in accordance with the provisions of article 18 of the Regulation No. 72/2011/DSOZ (2011):

- Calculation of an AR or ER settlement unit price for the next year is performed, taking into account technical conditions, the number of personnel and the average number and weight of the services provided in the given reporting period.
- In accordance with the regulation, the accepted reporting period, which forms the basis for establishing the lump sum amount for the next year, includes data from a full six months, starting from the January of the previous year.
- Financing of services provided in the AR or ER is based on a daily lump sum amount (LS), the amount of which is the sum of two components using the following formula:

$$LS = LS_s + LS_f$$

where:

LS – the amount of daily lump sum,

LS_s – the structural component of the lump sum,

LS_f – the functional component of the lump sum

- The structural component of the lump sum is equal to the daily value of the base rate for ER or AR service established by the Fund Department manager.
- The service provider in the case of an ER is required to meet the requirements established in the current regulation of the Minister of Health concerning hospital emergency rooms, and in the case of an AR, in the current regulation of the Minister of Health on the guaranteed hospital treatment services.
- The total number of points assumed for establishing the function component, based on data from a previous reporting period, is the average of the daily number of patients treated in the AR or ER and the average point weight of performed activities, not to exceed, however, the values established in the patient's characteristics, used to establish a monetary value (a value of: 1 point = PLN 30 is assumed) (Table 1).

Table 1. Patient characteristics

Patient characteristics			
Category	Activities in ER/AR	Total activity weights	Category weight
I	basic diagnostics, medical advice	1–2	1
II	consultation, extended diagnostics	3–4	3
III	observation and treatment in ER/AR, extended diagnostics	5–6	5
IV	risk to life, resuscitation, extended diagnostics	7–9	8
V	obtaining > 9 pts or treatment in ER for at least one day	> 9	10

The function component of the lump sum is established using the following formula:

$$LS_f = \frac{a}{N_d} \times \sum_{i=1}^5 P_i \times W_i$$

where:

- a – rate for a point (the value of: 1 point = PLN 30 is assumed),
- N_d – number of days in the period assumed for calculation
- P_i – the number of patients assigned to an appropriate category in the characteristic,
- W_i – weight of the appropriate category in the characteristic

Activities performed in the ER and AR (e.g.):

- Activity weight 1 – medical advice/medical examination; consultation/specialists' consultations; basic diagnostics (blood morphology, general urine examination, blood electrolytes, serum sugar, ECG); placing a vein infusion line – surface veins, umbilical vein; non-invasive monitoring of the circulatory system,
- Activity weight 2 – extended laboratory diagnostics; image diagnostics; USG/radiological examination; initial debridement and treatment of wounds, burns and small injuries; immobilization of the spine, limb fractures; repair of a hernia, proctoptosis, decompressions of phimosis and paraphimosis; ensuring and maintaining airway patency (endotracheal intubation, tracheotomy, coniotomy); pain treatment, analgesation,
- Activity weight 3 – repositioning of joint dislocation; removal of a foreign body; ventilation and respiration monitoring, using manual and mechanical ventilators; performing the full scope of early diagnostics and initial treatment of injuries; cardiac electrotherapy; decompressing puncture of the pericardium/pleural cavity, drainage of the pleural cavity,
- Activity weight 4 – placing a vein infusion line – venesection, conducting fluid resuscitation; puncture and artery catheterization; general, intravenous, subarachnoid, epidural anaesthesia; nasal cavity packing, correcting nasal septum break; invasive monitoring of circulatory system; acute obstetric-gynaecological risks; acute nephrological risks,
- Activity weight 5 – image diagnostics, CAT/MRI examination; placing central venous lines, conducting fluid resuscitation; endoscopic removal of a foreign body; tamponade of bleeding from oesophageal varices; performing injury-related resuscitation.

Later regulations of the President of the NFZ, No.: 39/2012/DSOZ (Regulation no. 39/2012/DSOZ, 2012) and 48/2012/DSOZ (Regulation no. 48/2012/DSOZ, 2012) did not make any significant amendments. Thus, the method for calculating the lump sum in force in 2014 included all the procedures performed at an ER/AR and a rate for readiness (the procedures add up, which is why they were all important for the service settlement procedure).

Since the 1st of January 2014, the lump sum calculation algorithm is based on a directory of procedures, divided into 5 categories with specific weights, and only one (of the highest category) is used to establish the rate. The aforementioned change reduces the amount of financed procedures, since they do not add up. In accordance with the regulation of the

NFZ President – no. 89/2013/DSOZ (2013) of 19 December 2013 – in setting the conditions of establishing and performing hospital treatment contracts, the functional component of the lump sum is fixed using the following formula, taking into account the number of patients assigned to an appropriate patient health category, based on the medical procedures performed and weights of individual categories given in Table 2:

$$LS_f = \frac{a}{N_d} \times \sum_{i=1}^5 P_i \times W_i$$

where:

- a – rate for a point (the value of: 1 point = PLN 30 is assumed),
- N_d – number of days in the period assumed for calculation,
- P_i – the number of patients assigned to an appropriate patient health category,
- W_i – weight of the appropriate category

Table 2. Patients' health categories in ER/AR

Category	Scope of services provided to the patient	Category weight
I	Basic diagnostics, medical advice	1
II	Extended diagnostics, consultation, small treatments	3
III	Observation/monitoring of basic vital signs, treatment in ER/AR, extended diagnostics (endoscopic)	5
IV	Actions related to life support, resuscitation, extended imagery diagnostics (CAT or MRI), conducting vein infusions	8
V	Treatment at the ER for at least one day, or cerebral cardio-pulmonary resuscitation at an intensive care station	10

At the same time, when multiple procedures are performed on the patient, the highest category procedures form the basis for assigning the patient to an appropriate health category. Additionally, performing at least three category IV medical procedures for a patient qualifies the patient to category V, on the condition that the procedures belong to different main categories in accordance with ICD-9 classification. The list of selected ICD-9 medical procedures performed in the hospital emergency room and hospital admission room contains:

- Category I – Potassium (K) and Sodium (Na) levels blood test; Medical advice, medical examination; Nurse or midwife care; Neurological examination; Gynaecological examination,

- Category II – Suturing a nose wound; Suturing a lip wound; Vein catheterisation – other; Coned-down x-ray of a larynx, without contrast dye; Lateral projection X-ray of a skull; USG examination of thyroid and parathyroid; Doppler echocardiography of neck veins; Replacement of another fixation device; Replacement of packing or draining a wound; Removal of sutures from the head or neck; Removal of sutures from the chest,
- Category III – Suturing a tongue wound; Suturing of an oral cavity – other; Suturing a palate wound; Abscess drainage (through the oral cavity) (through the neck): peripharyngeal; Abscess drainage (through the oral cavity) (through the neck): peritonsillar; Closed reduction of ankle dislocation; Closed reduction of dislocation of foot and toes; Closed reduction of dislocation of another specific joint,
- Category IV – Surgical debridement of an open fracture – foot phalanges; Head CAT with and without contrast dye; MRI of abdominal cavity or pelvis minor, with and without contrast dye; Continuous monitoring of artery blood gases using an intra-arterial sensor,
- Category V – Patient monitoring and treatment in ER for at least one day; Performing cardiopulmonary cerebral resuscitation at an intensive care station; Providing air transport.

Results

Based on the collected data information on services provided in the AR/ER, divided into categories during the 1st half of 2014, the results illustrated in Table 3 were obtained.

Table 3. A list of ICD-9 medical procedures performed in the hospital emergency room and hospital admission room for the 1st half of 2014

Weight	Procedure name	monthly average for the 1 st half	January	February	March	April	May	June
1	Activity category I	5 054.3	4 626	4 716	5 483	5 553	5 202	4 746
3	Activity category II	1 991.0	1 731	1 830	2 174	2 115	2 164	1 932
5	Activity category III	51.5	73	34	41	46	57	58
8	Activity category IV	391.8	399	354	414	340	434	410
10	Activity category V	11.5	4	14	11	12	15	13
Total number of categories		7 150.0	6 833	6 948	8 123	8 066	7 872	7 159
Total of category weights		13 932.33	13 416	13 348	15 632	14 968	15 601	14 242

Table 4. Settlement of AR/ER services in the 1st half of 2014 compared to the 1st half of 2013

Settlement of AR/ER services in 2014		monthly average for the 1st half of 2014	January	February	March	April	May	June	monthly average for 1st half of 2013
	rate for a point	PLN 30	PLN 30	PLN 30	PLN 30	PLN 30	PLN 30	PLN 30	PLN 30
	number of days	30	31	28	31	30	30	30	30.2
<i>Weight</i>	<i>Number of patients:</i>	1 250,5	1 325	1 093	1 326	1 283	1 274	1 238	1 248,83
0	<i>patients without procedures</i>	27,3	21	23	30	28	33	29	
1	number of Cat. I patients	314,8	337	224	348	348	329	303	
3	number of Cat. II patients	562,7	596	534	590	583	540	533	
5	number of Cat. III patients	34,7	53	27	29	29	27	43	
8	number of Cat. IV patients	299,8	303	268	315	277	323	313	
10	number of Cat. V patients	17,2	15	17	14	18	22	17	
The total of products acc. to performance (points) for calculations		4 747	4 964	4 275	4 923	4 638	4 888	4 791	6 249,83
performed number of points		13 932,33	13 416	13 348	15 632	14 968	15 601	14 242	7 004,50
share of paid to generally performed		34%	37%	32%	31%	31%	31%	34%	89,23%
Number of points (weight) per day		158,14	160,13	152,68	158,81	154,6	162,93	159,7	207,2
structural component of the lump sum (base rate) Rs		PLN 4 500,00	PLN 4 000,00	PLN 4 500,00	PLN 4 500,00	PLN 4 500,00	PLN 4 500,00	PLN 4 500,00	PLN 4 500,00
functional component of the lump sum Rf performance		PLN 4 744,24	PLN 4 803,87	PLN 4 580,36	PLN 4 764,19	PLN 4 638,00	PLN 4 888,00	PLN 4 791,00	PLN 6 215,30
The amount of daily lump sum R=Rs+Rf		PLN 9 244,24	PLN 9 303,87	PLN 9 080,36	PLN 9 264,19	PLN 9 138,00	PLN 9 388,00	PLN 9 291,00	PLN 10 715,30
Total acc. to contract performance		277 395,00	288 420,00	254 250,00	287 190,00	274 140,00	281 640,00	278 730,00	323 244,88
Daily rate in force		PLN 10 923,43	PLN 10 923,43	PLN 10 923,40	PLN 10 923,43	PLN 10 923,43	PLN 10 923,43	PLN 10 923,43	PLN 9 752,00
Total contract amount for the product		PLN 327 702,90	PLN 338 626,33	PLN 305 856,04	PLN 338 626,33	PLN 327 702,90	PLN 327 702,90	PLN 327 702,90	PLN 294 185,33
Difference: contract performance-contract amount		PLN -50 308	PLN -50 206	PLN -51 606	PLN -51 436	PLN -53 563	PLN -46 063	PLN -48 973	

By examining the number of patients in the months of January to June, it can be clearly seen that the largest number of performed procedures belongs to category I – that with the lowest financing. The highest category – category V – was assigned to only a minimal number of stays (a hospital without a helicopter pad has a restricted possibility of indicating category V). At the same time, in January the number of patients assigned to category III was highest. During this month, snowfall occurred and a significant number of patients with fractured limbs were noted.

The 1st half of 2014 was also compared to average values according to data for the 1st half of 2013 (Table 4). They are almost identical. Then, based on the formulas indicated in the “Material and methods” the following were calculated: base rate, functional component of the lump sum and finally the daily lump sum amount. In 2013, it amounted to PLN 1 0715.30 and in 2014, according to data for the 1st half, to PLN 9 197.70. Knowing the contract value for the product, it was easy to establish the difference between AR/ER financing in 2013 and in 2014. Unfortunately, for each reporting month in the 1st half 2014, a loss was recorded when compared to 2013 (Table 4).

The last element of the study was a presentation of the share of performed medical procedures in the process of settlement between patients and the NFZ. The obtained results are shown in Table 5.

Table 5. Comparing the share of services paid by NFZ to all performed

	monthly averages, 1st half of 2013	monthly averages, 1st half of 2014
Number of points for calculating the rate	6249.8	4747
Number of performed points	7004.5	13932.3
Share of paid to generally performed	89.2%	34%
Number of patients	1248	1257

The obtained results show unequivocally that the method of AR/ER financing in force since the 1st of January 2014 is disadvantageous to hospitals. The daily rate calculated pursuant to the new guidelines is much lower than in 2013.

Discussion

Currently, regardless of the number of performed procedures, only the one in the highest category is important. Thus, providing, for example, 10 category I procedures and 1 category II procedure will assign the pa-

tient to category II. Category I services have no impact on financing and will not raise the AR/ER rate. For settlement purposes, it could be possible to indicate only the procedure that assigns the patient to the highest appropriate category. The rest could be considered unimportant. That is why hospitals that realised that have commenced a battle with the NFZ. The reported remarks, doubts and questions have resulted in the following, in accordance with the information provided by the NFZ spokesperson, Mr. Andrzej Troszyński on 25.04.2014:

On the 14th of April of this year, president Wiesława Kłos appointed a team for preparing systemic solutions for the financing of hospital emergency rooms and admission rooms. The team included, among others, the president of the Polish Society for Emergency Medicine, professor Juliusz Jakubaszko, and national consultant for emergency medicine, professor Jerzy Robert Ładny. The most important task of the Team is to prepare an algorithm for calculating daily lump sum rates, taking into account the criteria enabling the differentiation of daily lump sum rates – the number of patients, conducted expensive procedures, qualifications of medical personnel and possessed medical equipment. The team is also tasked with conducting a simulation and assessment of financial results of implementing the prepared solution proposals (Troszyński, April 25, 2014).

On the same day, the Health Care Services Department ŁOW NFZ stated that the conditions of financing the aforementioned scopes in the 2nd half of 2014 will be established at the level of the 1st half of 2014 (NFZ ŁOW, April 25, 2014).

The ER and AR are separate parts of hospitals that specialise in “acute” treatment of patients, open 24 hours a day, 7 days a week and 365 days a year. Logistically, an ER usually has 4 to 20 beds. According to the available literature, the most frequent diagnoses made at the ER include: chest pains, heart failure and asthma (Baugh et al., 2011).

The Centers for Disease Control and Prevention (CDC) states that in 2012 in the United States there were 136 100 000 visits, from which approximately 20 million patients arrived by ambulance. At the same time, approximately 43% of all hospitalisations were performed in an AR (Fay, n.d.).

It is estimated that from almost 1/3 to even 50% of all stays in the AR/ER do not require “urgent” care. The main reason for this is the organisation of the entire health care system, that is, the requirement to provide care to all patients contacting this organisational cell, regardless of their financial means and their eligibility for public services. Patients frequently use this fact by treating the ER/AR as the equivalent of a GP or specialised ambulatory care.

It is estimated that annually, in the United States alone, over 18 billion dollars could be saved by eliminating such cases (Fay, n.d.). In a report published last year, the Supreme Audit Office (NIK, 2012) also confirmed the fact that ERs accept mostly patients who do not require immediate aid. In its assessment, up to 80 percent of patients attending ERs should be provided with care by clinics and consulting rooms of primary health care, a specialist clinic, or night and holiday medical aid (Lisowska, June 24, 2014). That is why the correct operation and method of financing the AR/ER is so important for the entire health care protection system.

Conclusions

Based on the presented data, it can be clearly seen that the new method of financing AR/ER services proposed by the NFZ will beyond doubt have negative outcomes, and will certainly not improve the financial situation of hospitals. Everyone with the future of ER/AR and the good of patients at heart is hoping for a change in algorithm that will enable ER/AR services to be financed at an appropriate level and will guarantee their correct operation in the future.

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Regulation no. 72/2011/DSOZ by the National Health Fund President of 20 October 2011 on establishing the conditions of signing and performing of contracts for: hospital treatment.

Regulation no. 39/2012/DSOZ by the National Health Fund President of 6 July 2012 amending the regulation on establishing the conditions of signing and performing of contracts for: hospital treatment.

Regulation no. 48/2012/DSOZ by the National Health Fund President of 2 August 2012 amending the regulation on establishing the conditions of signing and performing of contracts for: hospital treatment.

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