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Healthcare financing in Poland in scope of Medical Rescue

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Abstract

This article discusses the financing and organizational structure of the State Emergency Medical Services in Poland (PRM) relating to fundamental documents as stated on February 2019. It presents a historical outline of the formation and organization of this part of the medical domain which are Emergency Medical Services treated as a part of the National Health system. The article sums up with a thesis, that medical activity in scope of financing and organizational structure in Poland can be classified as well-functioning, however without proper correlation with other parts of the services we might expect issues with cooperation.

To mitigate this risk, we must stop diversification of medical activities and focus on complexation of services in large medical entities, modifying it accordingly to the principles of the evolution without introducing irrational changes, at the same time modernizing and following science development effects. Only a well-functioning health system with Emergency Medical Services being a part of it, not a separated, efficient company, will result in a significant improvement for those in need.

Key words: State Medical Rescue, Poland, financing, organization.

1. Introduction

It happens that mass media inform us that a patient was transported by an Emergency Medical Team from one hospital to another. He died without getting help in an ambulance or in a waiting room of an Hospital Emergency Department.

The general opinion of the decision makers governing medical activities is that Medical Emergency Services are well financed, but the hospitals that manage such teams transfer surplus from this type of activity to other basic hospital activities and by doing this they "rob" the Medical Rescue. This thesis is completely wrong. The Pareto law is ubiquitous in the nature as well as in management or finances.

The Constitutional duty of the Polish State is to have appropriate system solutions, ensuring security, assistance and protection for a Polish citizen, particularly healthcare offered as a part of the medical domain. Following things should be taken into account first: the appropriately established law (fundamental documents), the proper organizational structure and financing of medical activities in the full scope of functioning without diversification of better and less valued spheres.

Illnesses and injuries have always accompanied to man and there were always attempts to find methods of preventing from them.

The most important task of the state is taking measures to ensure safety to the health or life threatened people, adequate to their needs.

The main subject responsible for prehospital care has become the system including: State Medical Rescue (PRM), including Hospital Emergency Departments (SOR) and Hospital departments which have to be considered as the entirety of a security system and financed from a single source such as the State Budget.

2. History of Medical Rescue in Poland

The prototype of the first ambulance service in Poland was the Emergency Ambulance Service established in 1883. The first Polish ambulance service began its activity in Cracow 1891. The Krakow ambulance service was located in the building of the Fire Brigade, where in the assigned premises it had an ambulatory, a waiting room and a room for students of the Faculty of Medicine of the Jagiellonian University, who were on call. The Krakow Volunteer Life Insurance Association had one ambulance harnessed by horses. The symbol of the company was a white cross on a blue background. Since 1904 the first paid duties for volunteers have been introduced, however, doctors were also included in this starting with 1911. In 1908 the service has already had four ambulances. The Krakow Volunteer Life Insurance Association terminated its activity in the Fire Brigade in 1950, to settle down in the Health House a few months later, until 1977. when it changed its location again, to its own building, where it has been functioning to this day. Almost in parallel with Krakow, emergency rescue units were established in Lviv in 1893, Warsaw (1897), and in subsequent years in Łódź (1899), Lublin (1917) and Poznań (1928). It is worth to mention that these institutions were independent, they had legal personality, they were financed from social contributions, social insurance fees, donations, own funds and municipal subsidies. After regaining independence in 1919 the Polish Society of the Red Cross (PTCK) was created [2]. In the years 1948-1951, the healthcare infrastructure was made up of 30 hospitals, 280 health clinics and 177 ambulance stations. They were taken over by the government from the Polish Red Cross and handed over to the Ministry of Health.

Rescue stations were divided into: city, county and voivodship, in which outgoing teams were operating, as well as stationary outpatient clinics. In 1951, the Minister of Health issued the first document after the war in which the principles of operation of the sanitary transport were defined. After the administrative reform of the country in 1976 a new instruction on the framework organization of the so-called Provincial Sanitary Transport Columns (WKTS). Established as independent budgetary units in each province, were managed by the competent voivode. Soon, the Ministry of Health purchased 80 modern ambulances, which were transferred free of charge to WKTS in individual provinces. Until the end of the second millennium, WKTS were still organizational units of a budgetary nature and voivodeship coverage. The process of creating the Emergency Medical System in Poland took place in several stages. The current concept of the system comes from the 1990s and it is based on the experience of other countries. In 1999, the health policy program "Integrated Medical Rescue" was introduced, which was planned for implementation in the years 1999-2003. The most important goals of the program were: preparation of qualified medical personnel and infrastructure, development of procedures for the proper functioning of the emergency medical system throughout the country. In 2001, the program was divided into six task packages, which were focused on creation of emergency call centers (CPR), hospital emergency departments or emergency ambulance networks. A breakthrough in the creation of the State Medical Rescue system was the first act on State Medical Rescue, passed on July 25, 2001. This Act initiated a new stage in the development of emergency medical services in Poland. Bearing in mind its incompleteness, work on new solutions was immediately undertaken. Work on the amendment of the act lasted for the next five years and on October 12, 2006, the Polish President signed the law on emergency medical services. According to the Act on State Emergency Medical Services, this subsystem consists of emergency medical teams (ZRM) - using the land road (ambulances), air (Air ambulance service - LPR / HEMS) [13] and water, as well as hospital emergency departments (SOR). Emergency medical services in Poland have been subject to dynamic changes over the years.

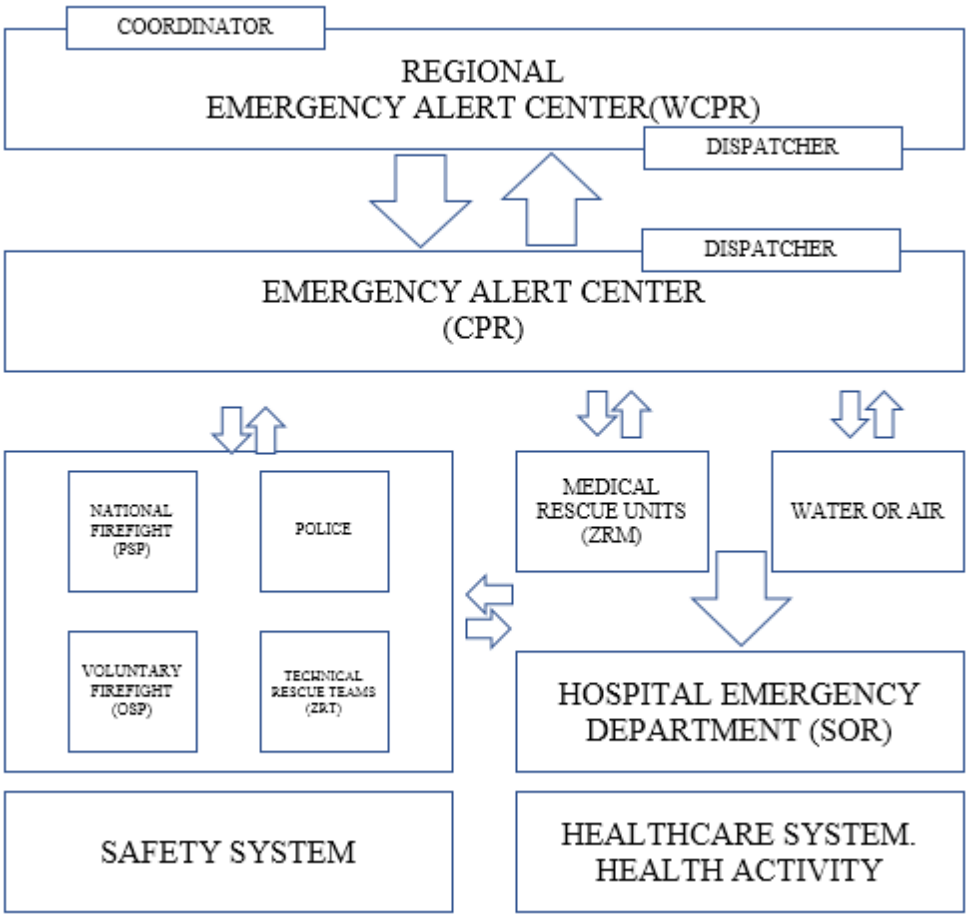
3. Subsystem of the State Emergency Medical Services in the System of State Security Organization

To understand the system, first of all it is necessary to acquire knowledge about the purpose for which it was created. The healthcare system is being created and improved in order to fulfill the mission of protecting the health of all its users. Therefore, the healthcare system must be treated as a whole, composed of many different elements that are related to dependencies and complex relationships, implementing health-related goals. One of the elements of the healthcare system is a subsystem of

medical emergency [7], [8]. It should be treated as part of the whole, not a complete system. Its purpose is to provide medical care in sudden health or life threatening situation, offering pre-hospital care in cooperation with other services. Due to the role of the PRM system in ensuring the health safety of citizens, they were included in the National Fire and Rescue System. This system is an integral part of the state security organization, whose activities include saving life, health, property or the environment, forecasting, identifying and combating fires, natural disasters or other local threats. This is a unified and coherent system, bringing together rescue entities so together they can take effective action [1]. Other units cooperating with the PRM system include social rescue organizations, such as TOPR, GOPR, WOPR, which strengthen the readiness to conduct rescue operations. To ensure the integration of activities, a rescue notification system was created [11]. The tasks of the emergency notification system are carried out in the voivodeship by the Emergency Notification Centers and Voivodship Emergency Notification Centers as well as the positions of the PSP and the Police. CPR are the core of the rescue system, as they are responsible for the circulation of information between individual elements of the system.

The State Emergency Medical Services system operates on the basis of the Act of 8 September 2006 on State Emergency Medical Services. Dz.U.2017.2195 of 28/11/2017 [9]

Table 1. Safety organization in scope of emergency rescue

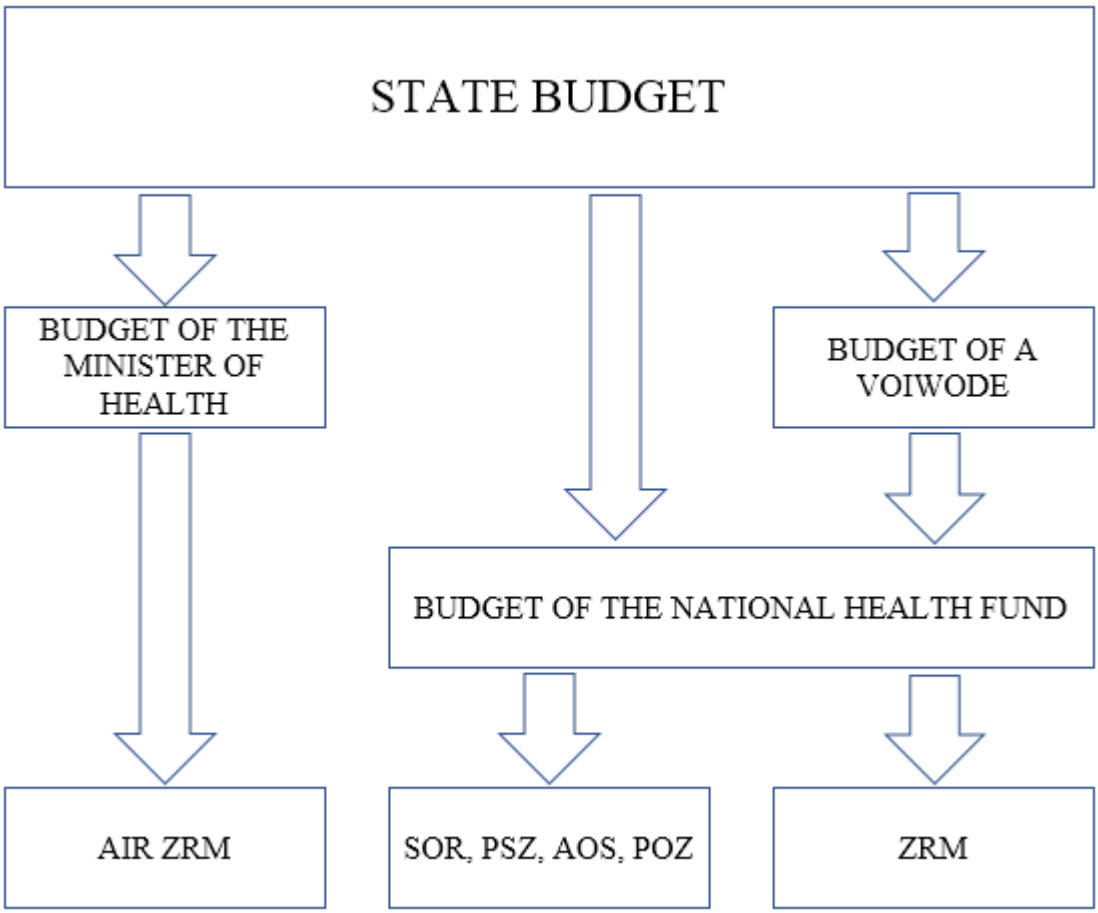


4. Medical healthcare financing in Poland in scope of Emergency Rescue.

The principles of financing State Medical Rescue are regulated by the Act of 8 September 2006 on State Emergency Medical Services, particularly art. 46 of that act [9] concerning the financing of system units and points voivodes as responsible for contracting of medical rescue teams, excluding LPR in the area of a given voivodship. Voivodes plan funds for the financing of ZRM, proposing amount to the minister competent for public finances, including quotas per voivodships. The distribution of financial resources needed for the implementation of benefits is planned basing on data from previous years. The following points are taken into consideration: density of population, population, number of events causing sudden health risk per a voivodships and maximum time of arrival at the place of the event which is needed to act appropriately. Although in the Act on State Medical Rescue, the Hospital Emergency Department unit (SOR) functions as a unit of the medical emergency system, it does not regulate financing of it from the state budget [10]. The SOR is

financed in the same way as other healthcare branches from the budget of the National Health Fund under the terms of the Act of 27 August 2004 on healthcare services financed from public funds. The activity of Air Medical Rescue teams (LPR), on the other hand, is financed directly from the state budget owned by the minister of health. The costs of the teams' activities are calculated, taking into account direct and indirect costs, in particular operating costs, personnel costs, administrative and economic expenses as well as depreciation write-off excluding depreciation made from fixed assets for which the entity obtained a budget subsidy. By calculating the costs, the value of the contract, which is concluded by the minister competent for health with the administrator of air emergency medical teams can be determined. In order to sign a contract, the commission appointed by the Minister of Health conducts negotiations on the terms of financing and performing medical rescue operations. Air Medical Rescue teams (LPR) may also perform search and rescue tasks, but they are financed from funds transferred for the operation of the Air Search and Rescue system (ASAR) [13].

Table 2. Emergency Rescue financing



Despite of defining the organizational structure of functioning within the scope of the Medical Rescue subsystem in the healthcare system, financing of this activity even it originates from the same source as this is State Budget, is diversified and subsequently for LPR is distributed from the State Budget by the Ministry of Health budget, from the State Budget via the NFZ budget, for ZRM from the State Budget via the Voivode's Budget and subsequently delegated to the NFZ budget. Non-uniformity of financing may cause significant differences in the distribution of money to particular elements of the subsystem, without indicating any significant differences in the amount of funds allocated for medical activities carried out, e.g. by hospitals. Until now, the most often administrators of ZRM [4] were county units which after 1 April 2019 are going to be consolidated into consolidated units into the area of operation of medical dispatchers. It is also planned to exclude hospitals as administrators of ZRM, which will result in the separation of rescue services from other medical activities,

resulting in growing disproportions of aggregated funds. Medical Rescue is fully financed from the state budget [3]. Financial resources of medical rescue teams as well as Air Emergency Medical teams (LPR) come directly from the state budget. In contrast, the Hospital Emergency Departments are financed by the budget of the National Health Fund, which also comes from the health contributions of the society. It should be noted that until now the National Health Fund has been treated as a money distributor which should not create a healthcare policy which the Ministry of Health and local state organs, including the Governor, have competence on.

In order to assess the impact of financial resources available for Medical Rescue, the measure [proportion of resources allocated for Emergency Medical Services to resources assigned to all general medical activities] was assumed in percentages. The hitherto measures in the field of Medical Rescue in relation to the whole available in the field of health care in the State scale accounted for about 2.71% (analyzed period from 2011 to 2019). In the Podkarpackie Voivodship, this value was about 3.03% in a comparable period. In the area of the Sanok Dispatching Center, including 4 counties, this value was about 7.86%, comparing to the value of 26.48% for a single SP ZOZ Ustrzyki Dolne medical unit. On the scale of the largest treatment units of the Podkarpackie voivodship (I and II Provincial Hospital in Rzeszów with reference to WSRM) this rate would be at the level of 2.42%. Thus, the scale of impact on the units of the medical emergency treatment activity is extremely different from negligible to significant.

Table 3. Participation of resources allocated for Emergency Medical Services in particular budgets

Budget	[resources allocated for Emergency Medical Services] / [resources allocated for all general medical activities] in %
Budget for ZRM - Poland	2,71%
Budget for ZRM – Podkarpackie voivodeship	3,03%
Budget for ZRM - Dispatcher Sanok	7,86%
Budget for ZRM - specific SP ZOZ (Ustrzyki Dolne)	26,46%
Budget for ZRM - specific SP ZOZ (Lesko)	19,00%
Budget for ZRM - specific SP ZOZ (Sanok)	8,73%
Budget for ZRM - specific SP ZOZ (Brzozów)	2,87%

Analyzing the above statement, that the existing ZRM managers after changing the organization and financing of Emergency Medical Services may face serious financial problems. It can be assumed with great certainty that large centers will not be affected with this change or it will be irrelevant to them. As for today, it is assumed that the activity of ZRM is well financed [5], so it could have been a form of co-financing of other therapeutic activities at the managers of these teams. The legal status did not preclude such proceedings. The following analysis indicates that this condition has lasted at least since 2011, which was adopted as a base due to the Act on Medical Activity stated on 15 April 2011, Dz.U.2018.2190 of 23/11/2018. During the last two decades, the system of medical activity has been being built. Particular emphasis has been placed on the emergency medical system. In modern medical emergency, great attention is paid to help at the scene and during transport. It seems, however, that the financing system discriminates against remaining medical activities and the organization of tasks, despite the fact that theoretically appropriate, allows saving lives at the accident place, proper evacuation, however it does not secure the proper treatment of the victim in the specialist center in accordance with health indications.

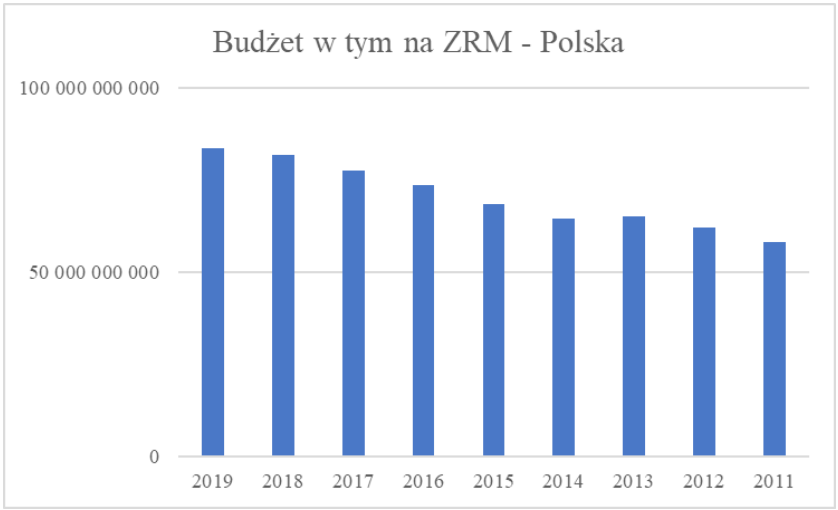
Table 4. National Health Fund (NFZ) budget from 2011 to 2019 including resources for ZRM [14]:

Budget including ZRM - Poland										
Year		2019	2018	2017	2016	2015	2014	2013	2012	2011
B2	Costs of health care services	83 657 338 000	81 864 037 000	77 659 464 000	73 710 095 000	68 430 811 000	64 517 195 000	65 230 834 000	62 153 649 000	58 399 651 000
B4	Costs of carrying out the tasks of emergency rescue teams	2 106 832 000	2 045 846 000	1 928 047 000	1 870 949 000	1 845 354 000	1 839 959 000	1 839 892 000	1 839 964 000	1 787 607 000
	Costs of healthcare services / Costs of carrying out the tasks of emergency rescue teams	2,52%	2,50%	2,48%	2,54%	2,70%	2,85%	2,82%	2,96%	3,06%

Table 5. Dynamics of budget changes for National Health Fund (NFZ):

2019	2018	2017	2016	2015	2014	2013	2012
2,19%	5,41%	5,36%	7,71%	6,07%	-1,09%	4,95%	6,43%
2,98%	6,11%	3,05%	1,39%	0,29%	0,00%	0,00%	2,93%

Chart 1. National Health Fund (NFZ) budget from 2011 to 2019 including resources for ZRM:



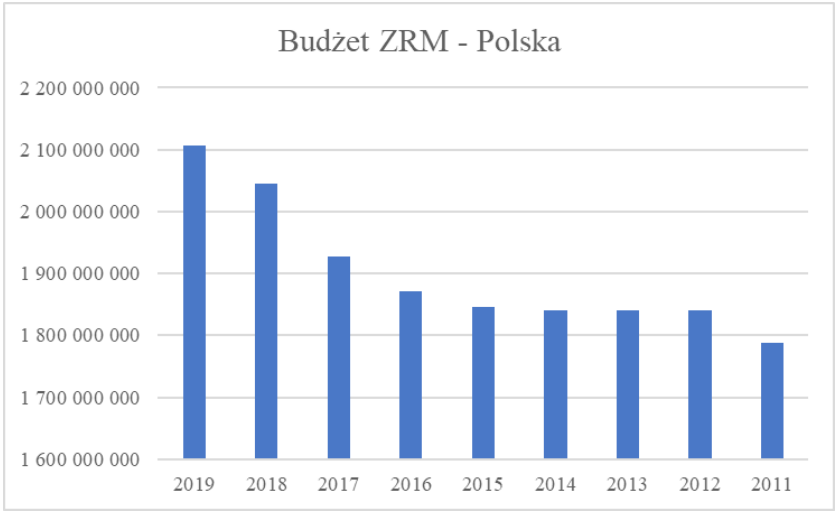


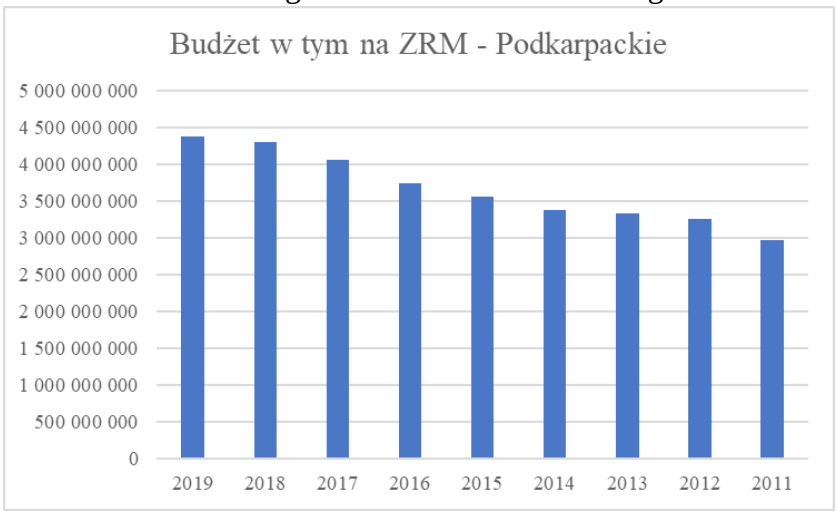
Table 6. POW NFZ in Rzeszow budget from 2011 to 2019 including resources for ZRM [15]:

Budget including ZRM - Podkarpackie										
	Year	2019	2018	2017	2016	2015	2014	2013	2012	2011
B2	Costs of health care services	4 383 899 000	4 302 602 000	4 060 434 000	3 744 021 000	3 554 378 000	3 383 854 000	3 328 089 000	3 256 277 000	2 974 361 000
B4	Costs of carrying out the tasks of emergency rescue teams	121 201 000	119 082 000	111 484 000	108 034 000	107 026 000	106 378 000	106 449 000	106 415 000	103 397 000
	Costs of healthcare services / Costs of carrying out the tasks of emergency rescue teams	2,76%	2,77%	2,75%	2,89%	3,01%	3,14%	3,20%	3,27%	3,48%

Table 7. Dynamics of budget changes for POW NFZ:

2019	2018	2017	2016	2015	2014	2013	2012
1,89%	5,96%	8,45%	5,34%	5,04%	1,68%	2,21%	9,48%
1,78%	6,82%	3,19%	0,94%	0,61%	-0,07%	0,03%	2,92%

Chart 2. POW NFZ in Rzeszow budget from 2011 to 2019 including resources for ZRM:



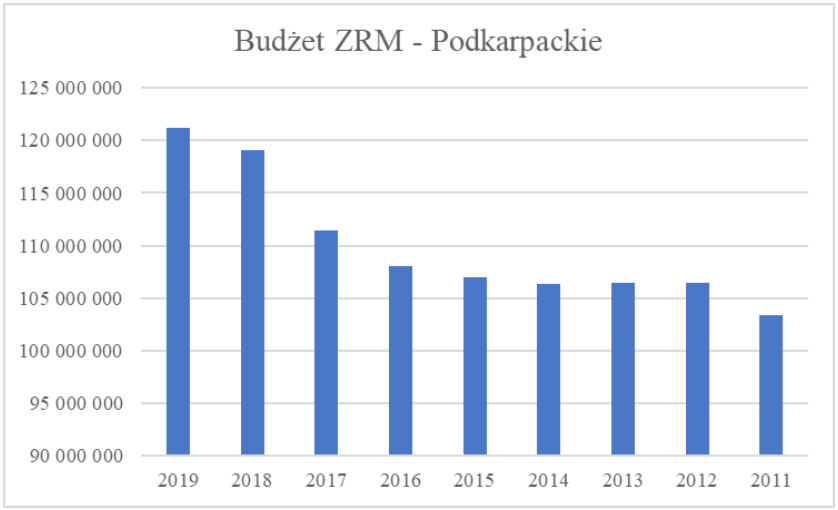


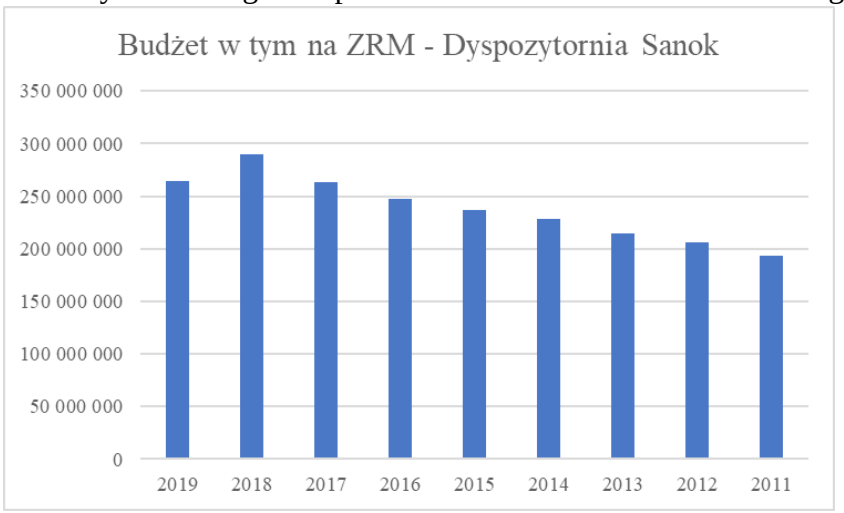
Table 8. Bieszczady area's budget - dispatcher Sanok from 2011 to 2019 including resources for ZRM:

Budget including ZRM - Dispatcher Sanok										
	Year	2019	2018	2017	2016	2015	2014	2013	2012	2011
B2	Costs of health care services	263 919 192	290 064 174	263 786 039	247 633 915	237 320 002	228 013 421	214 021 832	206 073 052	193 630 343
B4	Costs of carrying out the tasks of emergency rescue teams	21 506 782	20 312 348	18 840 708	18 070 956	18 002 018	17 956 258	17 968 032	17 400 000	17 142 004
	Costs of healthcare services / Costs of carrying out the tasks of emergency rescue teams	8,15%	7,00%	7,14%	7,30%	7,59%	7,88%	8,40%	8,44%	8,85%

Table 9. Dynamics of budget changes for Bieszczady area's budget:

2019	2018	2017	2016	2015	2014	2013	2012
-9,01%	9,96%	6,52%	4,35%	4,08%	6,54%	3,86%	6,43%
5,88%	7,81%	4,26%	0,38%	0,25%	-0,07%	3,26%	1,51%

Chart 3. Bieszczady area's budget - dispatcher Sanok from 2011 to 2019 including resources for ZRM:



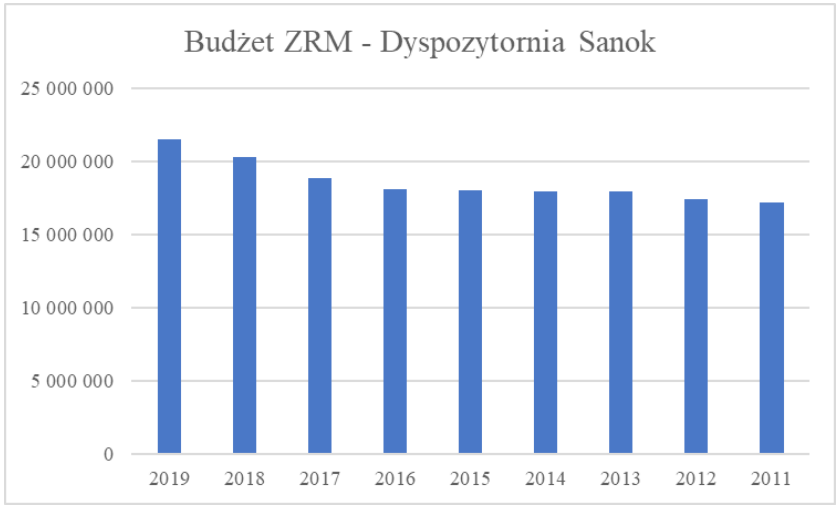


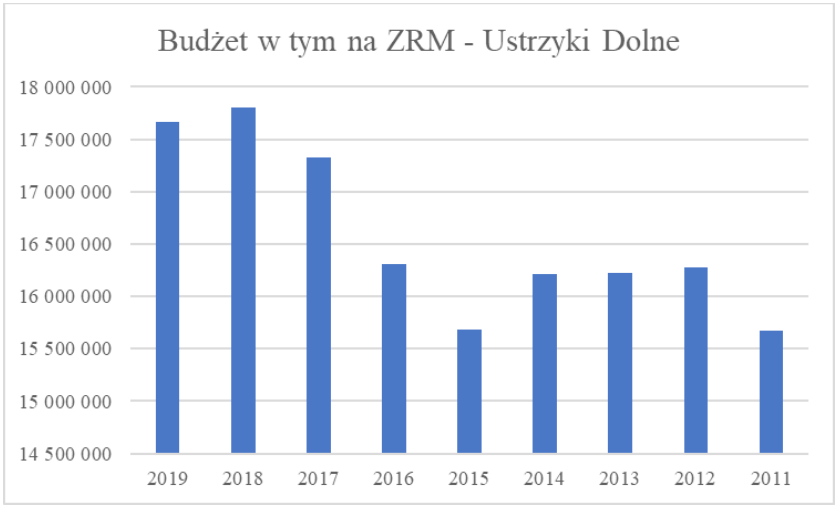
Table 10. Budget for Bieszczadzki County – SP ZOZ in Ustrzyki Dolne from 2011 to 2019 including resources for ZRM:

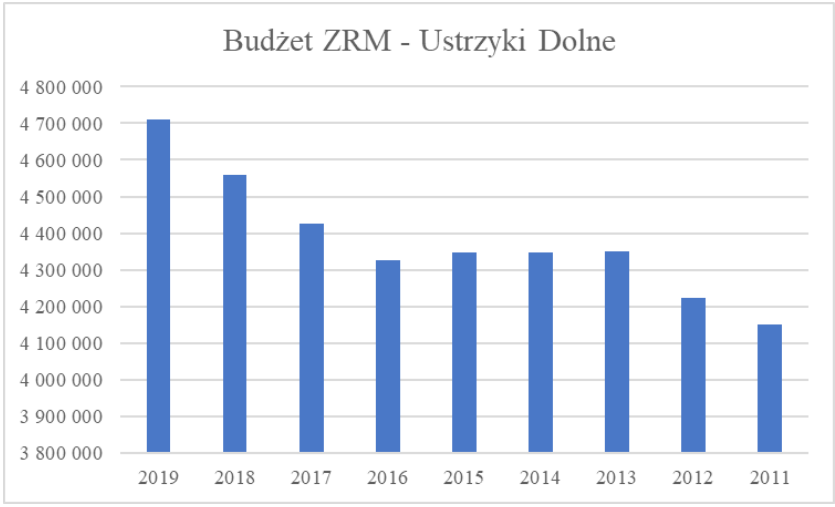
Budget including ZRM - specific SP ZOZ (Ustrzyki Dolne)										
	Year	2019	2018	2017	2016	2015	2014	2013	2012	2011
B2	Costs of health care services	17 666 092	17 807 535	17 321 088	16 305 649	15 688 741	16 210 746	16 224 246	16 282 363	15 668 023
B4	Costs of carrying out the tasks of emergency rescue teams	4 709 951	4 559 742	4 424 566	4 325 390	4 347 727	4 346 127	4 348 977	4 224 000	4 149 881
	Costs of healthcare services / Costs of carrying out the tasks of emergency rescue teams	26,66%	25,61%	25,54%	26,53%	27,71%	26,81%	26,81%	25,94%	26,49%

Table 11. Dynamics of budget changes for Bieszczadzki County – SP ZOZ in Ustrzyki Dolne:

2019	2018	2017	2016	2015	2014	2013	2012
-0,79%	2,81%	6,23%	3,93%	-3,22%	-0,08%	-0,36%	3,92%
3,29%	3,06%	2,29%	-0,51%	0,04%	-0,07%	2,96%	1,79%

Chart 4. Budget for Bieszczadzki County – SP ZOZ in Ustrzyki Dolne from 2011 to 2019 including resources for ZRM:



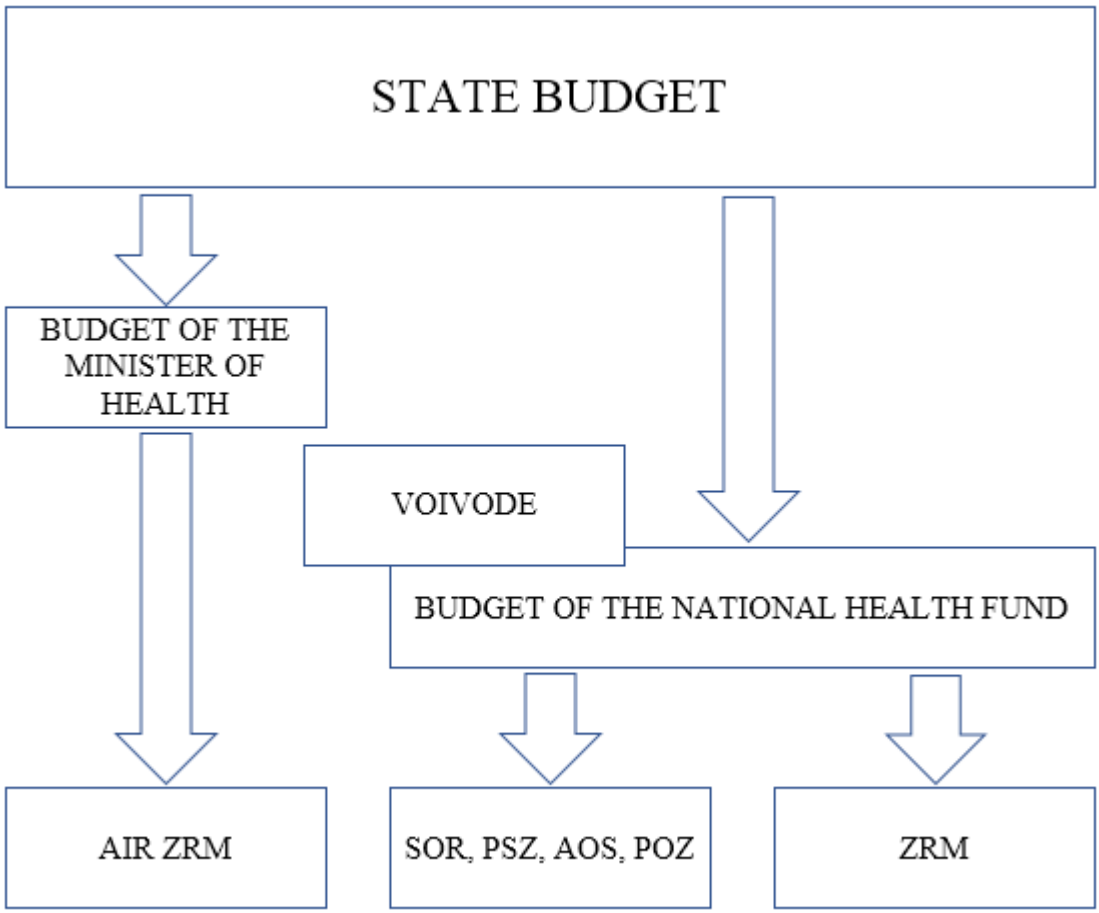


When analyzing the financing of Emergency Medical Services, it can be pointed out that in the area of medical activity it is a very well financed part of the medical activity system. Thus, separating it for independent operation will result in its better financing, while the wage pressure induced and the lack of correlation with the financing of the remaining part of the medical activity may cause problems in the functioning of healthcare as a system. In particular, this can take place in small centers with difficult access.

5. Proposal to change the financing of the Medical Emergency subsystem.

The principles for financing State Medical Rescue should change as in the following diagram, while the planning rules should remain within the scope of regulation in accordance with the Act of 8 September 2006 on State Emergency Medical Services, indicating voivodes and the National Health Fund as appropriate to create health policy and planning in both the scope of medical and emergency medical services, excluding LPR in the area of a given voivodship.

Table 11. A proposal to change the financing of the Medical Emergency subsystem



The role of the National Health Fund and a voivode should be strengthened in scope of creating health policy in the area of the voivodship. Taking into account the necessity to increase possibilities of cooperation of medicinal entities, the possibility of amending the provisions of the Act on medical activity from 15 April 2011, Dz.U.2018.2190 of 23/11/2018 in the scope of joint creation of medical entities by one or several local government units should be considered.

Essentially, the healthcare system as a whole should be scalable accordingly to the area in which it operates. It should be considered whether a reference to other examples, such as German or French, would not result in a better use of infrastructure and thus financial resources. Sometimes the redundancy of used resources may be a problem for the medical emergency subsystem itself, causing, for example, lack of personnel through the use of too much rigor in terms of education or the staff of the ZRM.

When comparing Polish and German systems, it is necessary to point out essential differences and common elements. The organization of providing help in Germany depends on the state. Emergency medical services are public. Financing the system is based on health insurance. A common organizational element is the notification system and integrated cooperation with other services (Fire Brigade, Police). However, in individual federal states, the organization of emergency medical services can be divided into two models, which are separate for individual regions (federal states). The first one assumes that medical services are performed by public administration officials or employees, however the second model assumes performing tasks related to medical rescue by legal entities. This allows scalability of the subsystem. Its dependence on local authorities and, consequently, independence in extreme situations and independence in case of, for example, loss of communication. Emergency medical teams consist of two people, at least one of them must have the medical resident's qualifications. These skills can be gained in a two-year school, which is the equivalent of a Polish study. The second person may have the rights of a paramedic after six months of training. In German emergency ambulances, a doctor is not a member of the crew. An ambulance doctor can be disposed to more serious cases, such as accidents or emergencies. Centers, accepting reports about life-threatening situations are very similar in functioning to the Polish Rescue Notification Centers (CPR) [6]. Thus, diversification in operations based on local entities of medical activity with a common planning and management system with the accepted operating and financing principles may prove to be a safer and more functional solution in situations of extreme danger than full centralization.

6. Summary

For over a dozen years, the subsystem of the State Medical Rescue in Poland has changed a lot, shaping the entire system in this way its financing resulted in a high level of implemented medical services in the territory of the country. Funding and the possibility of changing it have been briefly described in order to present rules of functioning and organization to people who are interested, but not related to PRM. Basing on provided information, it can be stated with certainty, that the Polish subsystem of Medical Rescue is well organized, managed and financed. However, it should be pointed out, that the recently proposed changes, aiming full centralization, disconnection from other units of medical activities and management without the participation of local government units, do not take into account the threat of excessive centralization in the long-term perspective. During the changes, a patient as a subject, is not taken into account. Lack of scalability of the subsystem, lack of relations and dependencies with other entities of the medical activity, and thus its rigidity in operation may be its weakness.

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