

THROUGH THE PRISM OF ACTIVITY TO RESOURCE ASSESSMENT

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Abstract: This article aims to present an idea / approach - different from the generally accepted in health systems for analysis of resources in hospital care. **Methodology:** the Pareto principle in various aspects of specific medical activity in the health system of Bulgaria. **Results:** The statistics show that during the four - year period under review, the share of private hospitals in the contractual process is one third of all contracts in the country, against the provision of surgical activity to health insured persons - twice less or one sixth of all operational activity. all contractual partners of the national health fund. Private hospitals perform one-third of breast cancer surgery. **Discussion:** The resource is a means or an opportunity. Proper use of a resource involves the proper functioning of a system or well-being. As a rule, the allocation of resources is carried out economically. The results presented by the concluded contracts and the volume of operational activity are a mirror image of the distribution of resources for this activity in the health system. Through Pareto analysis of the number of contracts and the volume of activity of hospitals can be determined: the imbalance between the contractual process for a particular medical activity and the results of implementation and as realized volume, nationally, the number of beds as a means of treatment of a specific disease and prospective, rethinking the contract process by setting quality criteria. The largest and smallest deviations from the average value in percentages for concluded contracts and volume of activity of hospitals by type of ownership require analysis of the environment in which the diagnostic and operative activity for breast cancer is performed. Deviations from the average values, expressed as a percentage, number of contracts and volume of activity or randomly selected aspects of a process, are the initial data for adjusting the allocation of resources for proper functioning of the health system (for research - diagnostic and operative activity of breast cancer). **Conclusion:** By applying the Pareto principle to different aspects of the activity of a hospital or different types of hospitals, or on some grounds, the resources of a hospital or health system can be analyzed, the beds occupied by a specific disease can be determined, determine the efficiency of the use of the bed stock and the distribution of resources at a given moment, as well as the correct functioning of the health system. The presented idea, different from the generally accepted in health systems analysis of resources in hospital care "The prism of activity and resource assessment, an alternative approach to resource assessment.

Keywords: Pareto principle, quality of medical care, access, equity, resources, resource allocation

1. INTRODUCTION

The capacity of the health system is assessed by its structure and resources. It has been established that in Bulgaria there is a well-developed network of hospitals and the average is the same as in the European Union. The number of hospital beds is higher than in the European Union. However, the health status of the population in Bulgaria remains low. This article attempts to present an approach to the analysis of hospital care resources for a disease - surgical treatment of breast cancer, by applying the management method - "Pareto Principle".

Aim: to present an idea / approach - different from the one generally accepted in health systems for analysis of resources in hospital care.

2. METHODOLOGY

Pareto analysis is applied in various aspects of specific medical activity in the health system of Bulgaria: contracts of the National Health Insurance Fund with hospitals performing surgery for breast cancer in Bulgaria and the result - the volume of surgical activity.

3. RESULTS

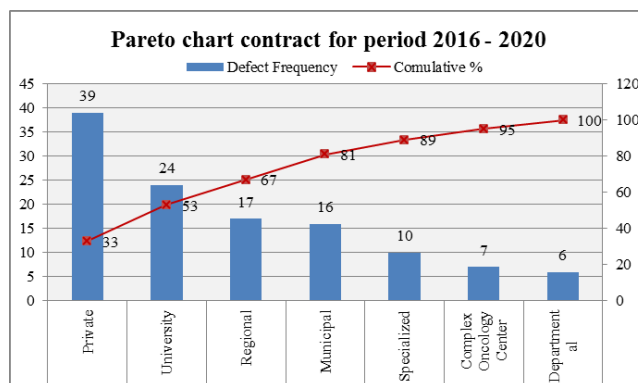
Statistical data on the incidence of breast cancer in Bulgaria for the four-year period "2016 - 2019" are used. Table 1 presents two aspects of the medical activity of the surveyed hospitals - the number of concluded contracts of the volume of surgical activity for the period under review.

Table 1: Contractual process – number of contracts and volume of activity

Contractual process – number of contracts				Volume of activity			
№	Kind of Hospitalr	Defect Frequency	Comulative %	№	Kind of Hospitalr	Defect Frequency	Comulative %
1	Private	39	33	1	University	5 699	33
2	University	24	53	2	Complex Oncology center	4 052	56
3	District	17	67	3	Private	2 860	72
4	Municipal	16	81	4	Specialized	2 203	85
5	Specialized	10	89	5	District	1 186	92
6	Complex Oncology center	7	95	6	Departmental	1 032	98
7	Departmental	6	100	7	Municipal	396	100
	Total	119		Total		17 428	

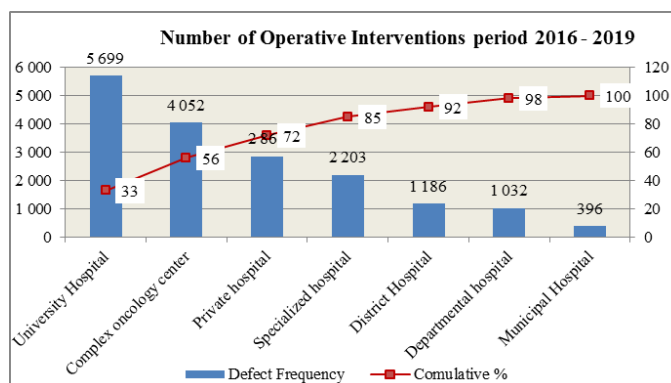
The study covers hospitals in Bulgaria, which for the same period were in contractual relations with the National Health Insurance Fund for the implementation of diagnostic and operative activities for breast cancer stage Tis 1-4, N0-2 M0-1: a total of one hundred and nineteen contract. The application of the Pareto principle to the contractual process is presented in the diagram in Figure 1.

Figure 1: Diagram of the Pareto principle for the number of contracts for breast cancer



20% of the hospitals - private and university, district and municipal, form 80% of the contractual relations with the NHIF. These 20% are the most important partners for the fund. They are the reason for the largest volume of contracted activities, respectively the largest costs. This fact implies the concentration of material, human and financial resources (equipment, equipment, technology) in these hospitals, constituting 20% of the contractual relationship. As the most important contractual partners of the national health fund, they should provide the largest volume of health services in the country, of the best quality and, accordingly, receive the largest income from the financial resources of the national fund. Beyond these most important 20% remain specialized oncology hospitals. Therefore, there is an imbalance in the distribution of resources in the hospital sector and an imbalance in the contractual process (health activities that the national fund buys). The reason is in the cardinal reform implemented in the health sector in 1999-2000.

Figure 2: Diagram of the Pareto principle for the volume of surgical interventions for breast cancer



15% of the operative activity for breast cancer is formed by university hospitals, complex oncology centers (structures from thirty years ago, before the reform of the system), private and specialized hospitals. It follows from the chart that they are "these most important" 15% of hospitals, as partners of the national fund.

4. DISCUSSION

When comparing the two criteria - number of contracts and volume of activity in relative values in percent, but in percentage terms an imbalance is found between the number of contracts and the volume of diagnostic and surgical activities based on the type of ownership of hospitals. The average values for both criteria is 14.5%. Figure 3 presents the number of contracts and the volume of activity in% relative to the average values.

Figure 3: Comparison in% between the number of contracts and the volume of surgical activity for breast cancer



The data in Figure 3 form two aspects of the study:

- I-st aspect: inefficient contractual process, characterized by a large number of contracts with twice less volume of surgical activity: private, regional and municipal hospitals which represent respectively: private, state (regional) and municipal form of ownership. They could not maintain a high level of quality. Profiled specialists - surgeons, could participate in teams in university hospitals.

- II aspect: an effective contractual process, characterized by a small number of contracts and a very large volume of activity: university, complex oncology centers and part of the specialized oncology hospitals. All resources are concentrated in these hospitals: material, financial, human resources, apparatus and equipment, knowledge, experience and long-term efforts of the society. The latter is based on a continuous process of investment and maintenance at a high level in professional and educational aspects.

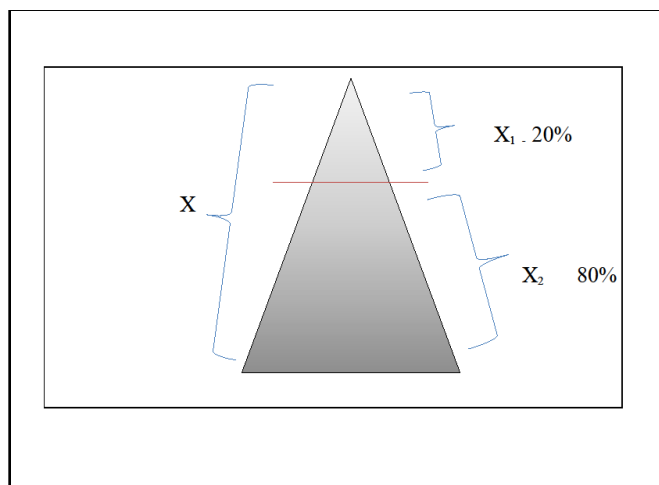
As a rule, the resource is considered in two aspects - as a means and as an opportunity. Proper use of a resource involves the proper functioning of a system. The distribution of resources is carried out economically.

In the health system, and specifically in hospital care, resources are given meaning by the means by which a goal can be achieved. This is the picture of the capacity of the health network of medical institutions in total and per 100,000 population, hospital beds per 100,000 population number of beds in private hospitals, number of doctors per

100,000 population number of hospitalizations per 100 population. The data from these "classic" criteria for the structure of the health system provide quantitative information about the ability of this system to meet an event - a disease. These data do not provide a specific answer about the treatment options for a disease (excluding specific infections).

From the Pareto analysis - presented in Figures 2 and 3, it follows that through the activity forming 20%, beds are taken for the specific disease (breast cancer). These data show that the use of beds in university hospitals, complex oncology centers and specialized hospitals is a constant and homogeneous quantity over time and this fact is important for the formation of health policy on this issue. If we present the bed stock as an iceberg, they are located in the visible part. The remaining 80% of the bed stock is used to treat all other diseases, including the treatment of breast cancer. These beds are located in the invisible part of the iceberg. They are a volatile inhomogeneous quantity and are the result of an inefficient contractual process.

Figure 4: *An idea different from the generally accepted in health systems analysis of resources in hospital care "The prism of activity and resource assessment."*



X - beds of general character; X1 beds occupied in the surgical treatment of breast cancer; X2 - all other general beds.

X1 - is not a constant value and may increase with increasing morbidity and vice versa. X is a constant value of the normatively established for the health system. The increase in X1 is at the expense of X2 - where there are ineffective contracts. This calls into question the quality of medical activity.

THEREFORE:

Through Pareto analysis of the number of contracts and the volume of activity of hospitals can be determined:

- The imbalance between the contractual process for a specific medical activity and the results of the implementation and as a realized volume, at the national level.
- The number of beds as a means of treating a specific disease.
- Prospective, rethinking the contract process by setting quality criteria.

1. The largest and smallest deviations from the average value in percentages for concluded contracts and volume of activity of hospitals by type of ownership require analysis of the environment in which the diagnostic and operative activity for breast cancer is carried out.

2. Deviations from the average values, expressed as a percentage, number of contracts and volume of activity or randomly selected aspects of a process, are the initial data for adjusting the allocation of resources for proper functioning of the health system (for research - diagnostic and operational activities of cancer on the breast).

5. CONCLUSION

By applying the Pareto principle to different aspects of the activity of a hospital or different types of hospitals, or on some grounds, the resources of a hospital or health system can be analyzed, the beds occupied by a specific disease can be determined, the efficiency can be determined. from the use of the bed stock and the distribution of resources at a given moment, as well as the correct functioning of the health system.

The presented idea, different from the generally accepted in health systems analysis of resources in hospital care "The prism of activity and resource assessment, an alternative approach to resource assessment.

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