

# The Assessment of the Competitiveness of Adhesive Bandages Used in Peripheral Vascular Diseases in Geriatric Patients

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## Abstract

Using the method of assessing the competitiveness of medical organizations, medical services, drugs and medical goods and using of results when planning to provide benefits on the medical services market and allow to optimize the activities of the clinic. The scope was to assess the competitiveness of the adhesive bandages used in peripheral vascular diseases in geriatric patients in order to optimize care in case of specified nosologies and to improve competitive advantages in the market of medical services. Materials and methods. The official statistics and market research results of adhesive bandages have been used. The statistical data analysis method for a certain period, the method of an estimation of competitiveness, the ranking method, and the expert estimations method have been used, during which the proposed parameters have been investigated by the impact on treatment outcome, and the assessment of qualitative characteristics of the object of the research has been made. Results and Discussion. The results of the statistical analysis and the results of the adhesive bandages' market research have made it possible to draw conclusions about the growing need for this type of medical services. It has been established that there was an increase in the number of patients above working age that justifies the demand among consumers of medical services for the fixation of a bandage on the wound. The data found in the study on the impact and evaluation of research subjects allow identifying competitive advantages of different methods of the dressings' fixation on the wound, which will streamline the process of peripheral vascular diseases' therapy in elderly patients and the expenditure of material resources by the medical organization. Conclusion. The results of the assessment of the competitiveness of adhesive bandages to fix a bandage on the wound in geriatric patients with peripheral vascular diseases provide information for making managerial decisions in optimizing the management of a medical organization and increasing competitive advantages in the market of medical services.

**Keywords:** assessment of competitiveness, expert assessment, marketing environment, medical organization, medical services.

## INTRODUCTION

The vascular diseases remain to be one of the most common diseases of mankind in the 21st century, leading to disability and premature mortality. These are a separate group of cardiovascular diseases which have become a real scourge of our time. Aneurysms, varicosity, thrombosis, embolism are diagnosed everywhere, regardless of the patient's region of residence.

Peripheral vascular pathology is common in various age groups of the population, but most often people older than the working age are exposed to it. Age-related disorders of trophic tissue, the presence of concomitant diseases, and a decrease in physical activity often lead to the transition of vascular pathologies into chronic diseases in the elderly people. This disease leads to an increase in the expenses for the therapy of nosology, lengthening the period of rehabilitation, and more frequent occurrence of complications. It is in this group of patients where the highest percentage of disability and premature mortality are caused by the peripheral vascular disease.

The process of demographic ageing of the population is a global trend in developed countries [1]. The causes of this phenomenon are such factors as:

- increased life expectancy by improving the overall standard of living of the population;
- insufficient level of fertility for the demographic rejuvenation of people;
- scientific and practical development of health and social protection, etc.

In the Russian Federation, the growth of the population over the working age amounted to 8.2% (Figure. 1) in the period being analyzed.

Elderly population growth rates suggest the inevitable increase in peripheral vascular diseases and the need to optimize the cost of medical care in this pathology.

The competitiveness assessment of medicines, medical services and medical supplies used in the course of the treatment of vascular disease can become one of the development patterns. This kind of marketing research will allow the medical organization to choose among the diversity of goods and services in the market the most advantageous proposal for

the implementation of standards of this nosology treatment and saving material resources [2, 3].

Timely and quality medical care contributes to the more favorable flow of the disease, reducing the risk of disease complications, leading to disability. Many patients regularly receiving supportive therapy preserve their working capacity, which has a positive effect on the economic well-being of the country as a whole [4].

## MATERIALS AND METHODS

Competitiveness is the key indicator of the organization's activities and its position in the market. Medical organizations are no exception. The use of the results of competitiveness assessment in management activity has become an indispensable tool in the strategic and tactical planning of the existence of a medical organization and studying marketing environment [5-7].

The advantage of this type of marketing research is represented not only by an opportunity to assess the competitiveness of specific clinics but also by individual medical services provided by the organization, certain drugs and medical goods purchased by the clinic [8, 9].

In the conditions of the medical care provision in the hospital, in order to assess the competitiveness of a particular medical service or product, not patients as consumers become the experts, but the competent experts from the number of medical personnel who know the specifics of the manipulation or the characteristics of the medical goods being studied. This feature of the study enables the assessment with the utmost precision by the degree of satisfaction of the needs of the patient and by the costs of treatment [10]. Thus, there is an opportunity to evaluate the real competitiveness through the expert assessment and using the ranking method for calculating parametric indexes for a particular good or service and its competitors on the market.

Assessment of competitiveness is the identification of the advantages or disadvantages of the goods or services studied in practical medical activities by the characteristics defined by certain researchers [11].

The experts perform a comprehensive assessment of the proposed parameters by the impact on outcome and quality characteristics of the object of the research.

It is at this stage of the research that the advantages of involving medical professionals as the experts are revealed. The patients in the hospital do not know about the standards of treatment of specific diseases, they cannot adequately assess the principles of therapy and evaluate its results when using different technologies [12].

### RESULTS AND DISCUSSION

Patients with peripheral vascular disease of the geriatric profile often become very complicated patients. The chronic and complicated course of the underlying disease, concomitant nosologies, adherence to traditional methods of treatment, disruption of physician-patient communication due to the age-specific features of the psychics create certain difficulties for medical personnel.

This is particularly true for patients after surgery. With the increase in the number of patients with this pathology, the number of surgical interventions for peripheral vascular diseases increases. In the Russian Federation, the growth of this parameter over the study period was 9.14% (Figure 2).

Geriatric patients are severely affected by postoperative bandages due to age-related changes in pain threshold, tissue regeneration rate, and psychological characteristics. Such patients require special attention and the use of new medical technologies and materials.

The relevance of optimizing the manipulation in postoperative bandaging in geriatric patients gave grounds to assess the competitiveness of specified services using different bandages. In the modern conditions, the most common medical services are "Fixing of a bandage on the wound using glue mixtures" and "Fixing of a bandage on the wound using a sticky bandage."

In the course of the study, the market and manufacturers of these products were studied, and it was also concluded on the growth by 10.37% in the production of adhesive bandages and similar materials with sticky surfaces impregnated or coated with drugs or prepacked in forms or packages for retail sale (Figure 3).

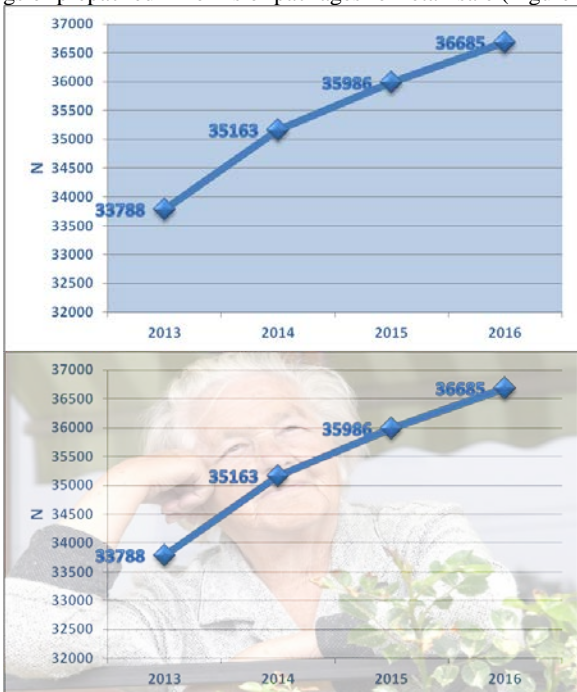


Figure 1. Population over the working age (N, thousands of people) in the Russian Federation



Figure 2. Number of surgeries on vessels (S, thousand) conducted in a hospital



Figure 3. The production of materials for adhesive dressings and similar materials with a sticky surface, impregnated or coated with drugs or prepacked in forms or packages for retail sale (D, thousands of packages)

The experts in this study were nurses who worked at the departments of vascular surgery in geriatric hospitals.

Based on the market research and the requirements of standards for the treatment of patients with the peripheral vascular disease, the following parameters for assessing the competitiveness of the goods were determined: the reliability of fixing the bandage for a long time, the ability to dress the bandage, sterility, the aesthetics of appearance.

With a high degree of competence, the proposed parameters were ranked by the experts in terms of the degree of influence on the outcome of treatment and the evaluation of the quality characteristics of specific bandages.

The result of the calculation of the composite parametric indices (Ps) on the basis of the experts' opinion was a clear

competitive advantage of the use of a sticky bandage during the medical service studied (Figure 4).

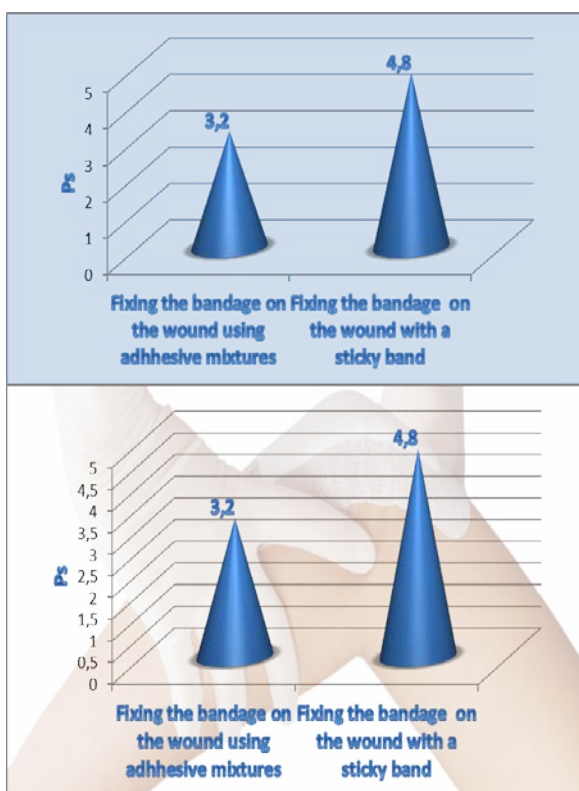


Figure 4. The results of the assessment of the competitiveness of the "Fixation of a bandage on the wound" medical service provided at the Department of Vascular Surgery

Based on the results of the competitiveness assessment of the two ways to fix the bandage on the wound, the medical experts have established that, at a sufficiently high price, the use of this medical service in the provision of the medical service in question has several advantages.

Reliability of fixing on the wound for a long period of time allows changing the bandages at large periods of time, which reduces physical and psychological negative reactions in elderly patients. This advantage allows reducing the consumption of bandaging materials, thus saving resources. Such saving is also caused by a reduction in the time for manipulation by medical personnel, thus improving the work timing.

Modern mankind is extremely susceptible to allergic reactions. Sticky bandage reduces the possibility of such complications due to the advantage of hypoallergenicity and removal of residues of adhesives from the skin without additional solvents.

The advantages of the sticky bandage are in strict compliance with aseptic requirements and aesthetic appearance.

Assessment of the competitiveness of various bandages used in the provision of "Fixation of a bandage on the wound" medical services showed the advantage of the more expensive material. Using the results of the research by the medical

organization will allow saving material and labor resources and optimizing the process of providing services to geriatric patients with peripheral vascular diseases.

#### CONCLUSIONS

1. In the course of the study, the proposed parameters have been analyzed in terms of the degree of influence on the outcome of treatment and assessment of the qualitative characteristics of the adhesive bandages used to treat peripheral vascular diseases in elderly patients that had the greatest competitive advantages for the development and strengthening the position of the medical organization on the market.
2. The results of the assessment of the competitiveness of adhesive bandages for fixation on the wound provide information for making managerial decisions when optimizing management of the clinic and increasing the competitive advantages in the market of medical services by saving the resources of the organization.
3. The use of the method for assessing the competitiveness of the clinic, drugs and medical goods used, and the provision of medical services will allow the medical organization to optimize the expenditure of material and labor resources.

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