ISSN 1392-3110
Socialiniai tyrimai / Social Research. 2009. Nr. 1 (15), 76–87

Cardiologic Aid Management: the Siauliai County Case Study

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Abstract

The article analyzes morbidity from heart and vascular illnesses, the patients' flows into Siauliai County treatment institutions, it also evaluates Siauliai territorial patients' payments for in-house and ambulatory cardiologic services of the mentioned institutions, also the demand for funds for 2010 has been forecasted. There have been analyzed financial health care strategic management principles, the Lithuanian national health care policy according to heart and vascular illnesses' cases and the spread of heart and vascular system's illnesses and strategic attitudes towards decrease of their consequences in Siauliai County.

Keywords: cardiologic aid, health care financing and strategic management.

Introduction

Research relevance

It is important to improve the health of working people, to reduce the number of working days lost due to illnesses, to prolong the working age, to decrease the number of early deaths and disability cases as the number of working age people gets smaller. In the ageing society the patient's health state becomes important; it directly affects working force scope and productivity. The current Lithuanian health rates improve, but some of them still lag behind the EU average. The estimated average lifespan in Lithuania gets longer and has come closer to the Middle and Eastern European average, but is shorter than in the old member states of the EU (in 2004 the average lifespan in Lithuania was 72.6 years).

Heart and vascular illnesses in Lithuania as well as all over Europe were and still remain the main cause of death. In 2004 54.5 per cent of all death cases were due to heart and vascular illnesses. Almost twice more people die from heart and vascular illnesses in Lithuania than in the old member states of the EU. There is inadequate attention for illnesses' prophylaxis, their prevention and early diagnostics; infrastructure of health care institutions is outdated, there is a lack of modern medical technologies. It is anticipated that by 2013 the average lifespan of Lithuanian residents will have achieved 73 years[1].

[1] The National General Strategy: the European Union Structural Support Use Strategy for 2007–2013 in Lithuania to achieve the goal of convergence, 2006.

To carry out prevention successfully, to diagnose heart and vascular illnesses and treat them efficiently, it is necessary to create perfect individual health care links interaction and good facilities links.

The scientific research problems' aspects could be formulated according to these main *problem questions*:

- How to form and base optimal Siauliai County cardiologic aid model?
- What main priorities must be for Siauliai County cardiologic aid?
- How to rationally distribute spare county's financial resources for cardiologic aid?

Research subject: cardiologic aid management in Siauliai County.

Research aim: to investigate the following main cardiologic aid management aspects in Siauliai County: to analyze flows of patients suffering from illness of unstable chest angina and acute myocardial infarction in the Siauliai County health care institutions and estimate the Siauliai territorial patients' chest funds allocated for in-house and ambulatory services' payments, use, estimate the funds' demand for 2010.

Research objectives:

1. To analyze the in-house morbidity with unstable chest angina (further in the article UCA) and acute myocardial infarction (further in the article AMI) and patients' flows in the Siauliai County health care institutions in 2004–2007, to estimate morbidity in 2010;
2. To analyze payment for in-house services' rendering for people suffering from UCA and AMI in Siauliai County from 2004 to 2007;
3. To evaluate the allocated funds' share for one UCA and AMI case in Siauliai County in-house health care institutions during four years and estimate funds needed for in-house services in 2010;
4. To analyze interventional cardiologic aid in the Siauliai County hospital;
5. To investigate ambulatory cardiologic aid scope and financing in Siauliai County from 2004 to 2007.

Research methods: analysis of theoretical sources and documents, experts' method, quantita-

tive and qualitative data analysis, comparative analysis, generalization.

Influence of strategic management and factors' analysis on institution's activity

In this article the following strategy concept is used: "*Strategy* is the concentrated behaviour in certain environment oriented to the external environment" (Carpenter, 2006, 15).

Some other authors (Dixon, 2005) emphasize that organizations inadequately implementing external environment analysis face the pressure of this environment. For example, chemical industries suffer from the state's environmental protection agencies' control and frequently encounter difficulties when they get into the list of companies posing threat to environment.

Many scientists (Belkic, 2004) particularly emphasize the importance of psychological and social work environment on the company's production and the workers' health. Psychological pressure and its individual components, especially low possibility to control the work, work autonomy decrease workers' satisfaction with work, negatively affect the well-being and productivity. Au (2004) notices differences of cultural work autonomy in international firms, which have social and organizational consequences. Michie (2003) points out that optimization of psychological environment in companies is related to lower unemployment rate.

Klasfeld (2004) emphasizes some cultural management differences, the so-called *Germanic, Anglo-Dutch* and *Latin* management differences, which must be considered while forming the company's potential.

Special attention is paid to researchers of psychological terror (bullying) in the workplace. Many authors (Kivimaki, 2003; Salin, 2001) point out that the psychological terror experienced by employees in workplace especially damages their health and is related to health disabilities and great staff turnover.

According to Stoner (2005), human resources management process consists of seven main activities: human resources planning, recruitment, selection, socialization, teaching and development, activity's assessment, position's promotion, movement, position's lowering and firing (Stoner et al., 2005, 368).

Haile (2005) researched the importance of human resources department for company's productivity and estimated that exaggerated control of employees only for a short time has the influence on the greater productivity and later the tension increases and the level of employees' commitment to the company decreases, the morals "fall".

Purcell (2007) carried out analysis of 12 companies while researching how the head's behavior and the human resources management activities have influence on the employees' commitment to the employer and work. The author concludes that it is essential to improve the abilities of higher level heads to manage people.

International human resources management becomes important part of international management (De Cieri, 2007). The author notes that theoretical base of international human resources management increased. With the emergence of international business networks, international human resources management acquires new forms and becomes the object of development (Scullion, 2007).

Strategy realization – the most difficult strategic management part related to all management sides. The activities needed during strategy realization time emerge from thorough investigation into what the organization has to do differently and what could be done better. Some authors (Hay, 1997) pay particular attention to sustainable functioning of all organization's chains. It is noticed that the organization's strategy is differently understood by the managing chain and the employees. Therefore the heads must better acquaint employees with the organization's strategy, so that the strategy is equally understood when working "above" and "below". It will guarantee the sustainable existence of the organization. Some authors investigate the question how higher level managers are managed in the firms (Boxall, 2007). Different companies use different methods to attract, defend, renew and motivate, compensate for resources of the higher level managers.

Research of Furrer (2008) has shown that strategic management conception changed. Having carried out analysis of strategic management researches of 26 years, he noticed that more attention was received by corporate level strategy theory based on resources and there was decrease of attention to higher level managers' role. The highlighted approach based on resources created new era when there was stated that the main source of sustainable development is the special application of resources and their use (Herrman, 2005).

Planning – the management cycle function. While implementing it, the organization's aims are defined and the activities and means to achieve these aims are set up (Vasiliauskas, 2002). Strategic planning is oriented to potential and the constant realization of activity strategy.

Strategic planning in realization sphere encompasses planning, marketing and functional strategies. Ways how to realize production as widely as possible, also different ways of behaviour with the customers are sought. Dussart (2001) emphasizes

that search for new production realization ways is extremely essential, but sometimes it is difficult to estimate the real value of new ways. *Attraction of investments* is also extremely important phenomenon. The international researches of recent years have shown that countries which are characterized by low uncertainty level and great confidence are chosen for foreign investments (Bhardwaj, 2007).

Management of resources of Lithuanian health care institutions

As it was noticed in the EU Commission's Report of 2007 on the real situation in Lithuania and the main trends, the Lithuanian national health care system's institutions (further in the text: LNHCS) provide health care services at three levels: the municipal level, the county level and the state level. Provision of services is decentralized and mostly governmental. Almost or partially free of charge health care is provided for compulsorily insured residents according to the compulsory health care insurance system, which covers all residents paying contributions and also certain groups (e.g., children). The initial health care provision is given at health care centers, at general practitioners' cabinets, community's stations, ambulatories and clinics. The specialized ambulatory aid is given at health care centers and the patients' ambulatory departments. The in-house care is implemented in general and specialized hospitals. The number of services provided by private specialized ambulatory care services, which are provided mostly by state hospitals' specialists, is growing. The health care services providers work according to agreements with the insurance funds defined in the laws. LNHCS is financed from the compulsory insurance payments, the state's budget and municipalities' funds and direct patients payments in cash to the service providers. The health care insurance funds set in the laws are managed through the state patients' fund (further in the text: SPF) and its regional branches: the territorial patients' funds (further in the text: TPF). TPF conclude agreements with health care institutions covering services provisions and compensate the expenses of the insured (medical and additional costs).

Quality. In the 2007 European Commission Report on the situation in Lithuania and main trends, there was mentioned the limited medical services' quality including poor conditions of buildings and equipment. TPF exercise the quality control. The state institutions seek to install modern medical technologies and raise qualification and salaries of staff. Information system based on comparative indicators is created. Patients can freely choose the initial health care services, the general practitioner and hospital. Lithuania seeks to improve the legal system so that the quality of health care system could be improved. In addition to great immunization and vaccination programmes, it is planned to put into use the international health care rules of the WHO and strengthen the preventive health care.

Financing. The main Lithuanian health care system financing sources are the following: the public health care system's financing and financing from private sources. The financing sources of Lithuanian societal health care system are the State budget and the municipalities' expenses on health care activities.

According to the data of Lithuanian Health Information Center (Lietuvos statistika, 2006), there increased the state sector's (the state and municipalities budgets and Compulsory Social Insurance Fund) expenditure on health care during the period of 2004–2006. They comprised 3.5 billion litas and increased by 23 per cent during the period of 2004–2006. The share of state sector's expenditure on health care in the gross domestic product, which decreased from 1998, grew during 2005–2006 and in 2006 reached 4.27 per cent. The state's expenditure on one resident in 2007 was 1031 litas.

The compulsory social insurance fund (further in the text: CSIF) is the main financing source of health care. The expenses of CSIF on health care in 2008 comprised 88.3 per cent of the state sector's expenditure on health care and reached 3090.5 million litas. The expenses of CSIF on the person's health supervision reached 2106.1 million litas or 68 per cent of all CSIF funds. The funds to compensate for purchases of medications, and medical aid means comprised 547.2 million litas or 17.7 per cent, the expenses to finance the health programmes comprised 145.4 million litas or 4.7 per cent, the expenses to compensate for medical rehabilitation and sanatorium treatment comprised 107.5 million litas or 3.5 per cent.

The structure of CSIF expenses on individual health care during the recent years changed insignificantly: partially the share of expenses to pay for in-house services decreased, the share of expenses to pay for ambulatory specialized aid services increased. Expenses to pay for in-house services in 2006 comprised 57.1 per cent, the initial health care service – 19.5 per cent, ambulance services – 4.8 per cent, health care and nursing health care – 3.5 per cent, ambulatory specialized aid – 15 per cent of total CSIF expenditure on individual health care.

The residents' private expenditure on health care were calculated using the of th Department of Statistics data on household expenses (including monetary and natural) for one resident and the data on demographical statistics about the average annu-

al residents' number. In 1998–2006 the direct expenses of residents on health increased more than twice (from 177.6 litas for one resident in 1998 to 392.4 litas in 2006). In total in 2006 Lithuanian residents spent 1.3 billion litas on health. It accounted for 27.6 of all expenditure on health.

The total expenditure on health in Lithuania in 2006 was 4.8 billion litas or 5.9 per cent of the gross domestic product.

There was emphasized in the annual Lithuanian Lisbon Strategy Implementation Programme Report (2006) that in 2005 the first stage of health care institutions restructuring (the stage of 2003–2005) in order to improve the quality of health care services' institutions and their accessibility while optimizing the scope of the rendered services and also the structure was finished. Having evaluated the results, there was found that hospitalization indicator for 100 residents decreased from 23.2 to 20.3 patients, and the average hospitalization duration decreased from 10 to 8 days. The results of the first restructuring stage already gave economic benefit of 154 million litas. The saved funds were used to improve quality and accessibility of health care services, the work conditions of medical staff. According to the results of the first restructuring stage of individual health care institutions, in 2006 the second (2006–2009) restructuring stage of health care institutions was started and is in progress.

In the national report on the Lithuanian social protection and the social scope strategies for 2006–2008 (2006), there was emphasized that while developing health insurance system, there was approved the voluntary health insurance conception, in which the attempt was made to attract private funds so as to add to additional health care financing.

Figure 1 presents the share of the European Union countries' public and private expenditure on health care activities from the gross domestic product (GDP) in 2005.

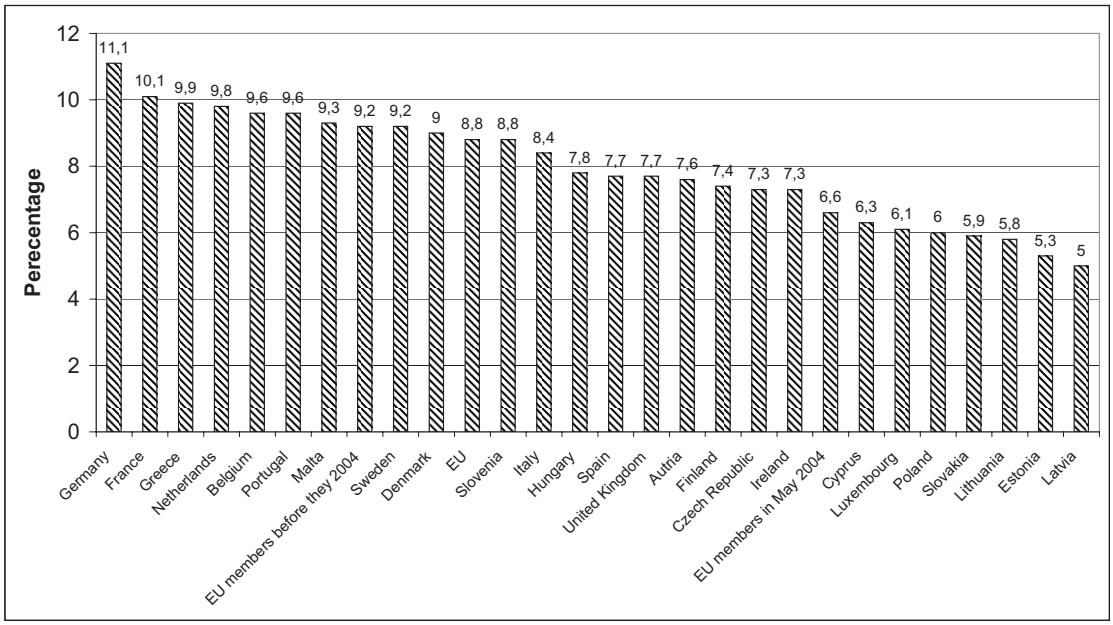

Figure 1. Public and private expenditure on health care activities in the EU countries (percentage from the GDP, in 2005)

Source: Lietuvos sveikatos apsaugos sistemos finansavimas ir sveikatinimo paslaugų prieinamumas gyventojams. Sveikatos ekonomikos centras ir Etinių farmacijos kompanijų asociacija. Studija. Vilnius, 2006.

During 2005 in Lithuania 5.8 per cent of funds from the GDP was allocated for health care activities. By this indicator Lithuania lagged behind most of the European Union countries. The worse situation was in Estonia and Latvia. The average of the European Union was 8.8 per cent from the GDP in 2005. In 2005 the public expenditure on health care activities comprised 3.9 per cent of the GDP in Lithuania, in Germany – 8.7 per cent of the GDP, in France – 7.7 per cent of the GDP.

Human resources analysis in the Lithuanian health care system

Human resources are an important chain in health care. The quality of health care is predetermined not only by the number of health care specialists, but also by level of their qualification. The analysis of human resources in the European Union countries' health care system in 2004 revealed that Lithuania was in the third place by number of doctors for

1000000 residents (400 doctors / 100000 residents). Only in Greece and Belgium the number of doctors for 100000 residents was bigger: 488/100000 and 443/100000 residents respectively (WHO, European Health for All Database, 2007). In 2005 in Lithuania there were twice more doctors in comparison to the European Union average.

In 2005, Lithuania lagged behind most European Union states by the number of family doctors for 100000 residents. There were only 51 general practitioners for 100000 residents in Lithuania in 2005. The number of general practitioners increased in Lithuania in 1995–2005. Until 1994 such a system of health care institutions' supervision was functioning when in the ambulatory chain internists (therapists) and children illnesses' (pediatricians) specialists were employed. While implementing the initial health care reform in Lithuania, the Lithuanian doctors of health centers were requalified into general practice or family doctors.

In Lithuanian counties there are different numbers of doctors. Such uneven numbers also are in some other countries. Goodman (2007) writes about uneven numbers of doctors in the USA, when the doctors' numbers differ two or three times in different regions. Gravelle (2001) notices differences of doctors' numbers between England and Wales.

Goodman (2007) points out that in many countries of the world the number of doctors is related to the better quality of health care. He points out that it is better to allocate finances not to additional preparation of doctors, but to health care movement closer to the residents. Goodman emphasized that in the USA there are several health care systems ensuring high standards of patients' care with the small number of doctors and moderate financial resources.

Heart and vascular system illnesses as a global problem

Heart and vascular system illnesses are one of the frequent causes of deaths and severe disability of the middle age Lithuanians (Domarkiene, 2000). Heart and vascular systems illnesses in Lithuania as well as all over Europe are the main cause of death. In Lithuania, almost twice more residents die from these illnesses in comparison the old European countries. According to the data of the Lithuanian health care and information center, blood circulation illnesses comprised 45.9 per cent of death causes for men and 64.1 per cent of death causes for women.

In 2006, men morbidity from heart and vascular system illnesses reached 750.45/100000, women – 436.07/100000, while in the EU countries morbidity of men from heart or vascular diseases was only 320.02/100000, and of women – 207,62/100000 (Lietuvos sveikatos informacijos centras, 2007). The standardized rate of morbidity from the vascular illnesses for 1000 residents in the EU countries in 2005 was the highest in Bulgaria: 685 for 100000 residents. Lithuania according to this indicator was in the fourth place: 563 for 100000 residents.

In Lithuania the indicator for the heart disease for 100000 residents was the highest among the European Union countries and reached 355/100000 residents. According to the data provided by the Lithuanian Health Information Center in 2005, the morbidity with the heart disease increased in Lithuania during the period of 2000–2007.

State policy to reduce prevalence of illnesses with heart and vascular diseases

According to the data of the Lithuanian Health and Information Center, in the morbidity structure of 2006 there could be noticed prevalence of heart and vascular diseases (54.3 and 18.2 per cent of all deaths, respectively), almost for one third of the patients heart and vascular diseases were the first time cause of their disability. Heart and vascular diseases are distinguished as the priority sphere while reforming the health care system and using the funds of the EU.

The National Lisbon Strategy Implementation Program approved by the Government of the Republic of Lithuania according to the decree No. 1270 (Zin., 2005, Nr. 139-5019) and the Program for 2006–2008 of the Lithuanian Government approved by the decree No. X-767 (Zin., 2006, Nr. 80-3143) of the Seimas of the Republic of Lithuania pay most of attention to investment in diagnostics of heart and vascular diseases and medical equipment used for treatment.

In the Cohesion Actions' Stimulation Programme approved by the decision of the European Commission on July 30, 2007 and the Second Health Care Institutions' Restructuring Stage, approved by the Government of the Republic of Lithuania by the decree No.647 of July 29, 2006, there is emphasized improvement of health care services' quality accessibility, health care system improvement guidelines.

One of the main and newly prepared programmes, which envisages actions and means to reduce morbidity and mortality, is the Programme of 2007–2013 to Reduce Morbidity and Mortality from Main Non-infection Illnesses approved by the decree of Health Minister of the Republic of Lithuania on October 9, 2007.

The reform of Lithuanian health care system covers 4 main stages: ambulatory aid reform, optimization of in-house services, ambulance aid reform, the reform of the labs' network (Miseviciene, 2002).

According to the Lithuanian Single Programming Document of 2004–2006, health care institu-

tions are restructured according to the following priority trends:

- ambulatory services, especially the primary health care expansion (priority is given to the general practice and services expansion, especially in the rural areas, researches and treatment services scope increase in the institutions of ambulatory services, paying more attention to prevention of illnesses);
- optimization of in-house services and development of alternative activity forms (the optimization of scope of in-house services, development of day-time in-house services, expansion of ambulatory consulting services in the in-house health care institutions);
- medical nursing and long-time supporting treatment services' expansion paying most of attention to development of elderly and old age people's health care system.

The reform of Lithuanian health care system is based on the quality policy. Such policy is to give patients accessible, needed and equal, effective, reliable and safe according to the quality standards health care in the spheres of illnesses' prophylaxis, diagnostics, treatment, nursing and rehabilitation (Janusonis, 2004).

According to the data on risk factors, the experimental and later national most important programmes of prophylaxis of heart and vascular illnesses have been launched (Domarkiene, 2000). These programmes as well as other impact means predetermined decrease of the main risk factors in some populations of the world countries. By these changes is frequently explained decrease of general morbidity and mortality from heart and vascular diseases in the USA, most Western European countries and some Asian countries. Meanwhile in the Eastern European countries, including Lithuania, these indicators do not tend to decrease in the current decade.

Arterial hypertension is one of the major heart illness risk factors. The possibilities of arterial hypertension correction are based on non-medical and medical ways of treatment. According to the data of the Lithuanian Health Information Center, during the last years morbidity from hypertension illness increases, therefore the regulation of arterial blood pressure must be one on the strategic tasks to reduce mobility from heart and vascular diseases in Lithuania.

To improve the accessibility of services of health care institutions, it is planned to modernize and develop the network of general practitioners (further in the text GP) services network in the rural and distant areas. Support is given to renew equipment of GP cabinets and computerization, also for installation of new technologies, and medical equipment, for setting up of new initial stage health care institutions rendering services of general practitioners.

The modern data rendering systems and means should enable to provide effective information change possibilities, consultations accessibility, the qualitative health care services on time.

In the economically developed countries, different strategic models of treatment of heart diseases are applied. In the United Kingdom various treatment strategies' price models have been created, other models evaluate possibilities and resources' planning, while the other models forecast illness frequency in the future populations, also different health intervention strategies are modeled (Cooper, 2006). Simulation models are widely analyzed (Terry, 2005). Health supervision strategy scenarios, which function according to certain business philosophy, are created. Frequently diagnostics and treatment of illnesses is seen as the health care industry, which seeks to gain profit (Elif, 2006). The popular modeling methods describing medical services management strategies, e.g. how to reduce the number of days while waiting in line in order to get to hospital, are given (Mark, 2005).

Siauliai County health care, heart and vascular system illnesses and cardiologic aid

According to the data of Lithuanian Health Information Center, there were 39.9 doctors for 100000 residents and in the Siauliai County there were only 23.3 doctors for 100000 residents in Lithuania in 2006. Thus in Siauliai County there is a smaller number of doctors than Lithuanian average, especially in comparison to Kaunas, Vilnius, Klaipeda and Panevezys counties.

Siauliai County lagged behind by the number of beds for 100000 residents in 2004. The Lithuanian average was 84.6 beds, in the Siauliai County – 75.4 beds.

In 2005 mortality from heart-vascular illnesses in Lithuania amounted to 697.7 for 100000 residents, while in Siauliai County it was 745.6 for 100000 residents.

In-house morbidity of patients suffering from acute heart diseases in Siauliai County hospitals during the period of 2004–2007

During four year period, the greatest in-house morbidity with unstable chest angina was registered in the public institution Pakruojis Hospital in 2006 (23.45/1000 residents) and had the tendency to increase (Table 1) by 4.2 per cent on average. In most of Siauliai County hospitals specializing in many profiles the greatest in-house morbidity and the greatest number of patients lying in in-house was registered in 2006.

Table 1

In-house morbidity with unstable chest angina in different Siauliai County hospitals in 2004–2007* and the forecasted morbidity rate for 2010

Person's health care institution	2004	2005	2006	2007	2010	Annual change. % / year	%
	In-house morbidity for 1000 residents	In-house morbidity for 1000 residents	In-house morbidity for 1000 residents	In-house morbidity for 1000 residents	In-house morbidity for 1000 residents		
Naujoji Akmene Hospital	9.42	12.45	14.93	12.98	18.37	+11.4	0.2
Radviliskis Hospital	3.72	3.51	4.16	4.47	5.27	+7.2	0.1
Pakruojis Hospital	18.37	21.76	23.45	20.59	24.8	+4.2	0.5
Joniskis Hospital	13.35	15.60	16.97	15.91	19.53	+6.1	0.2
Kelme Hospital	2.52	2.12	1.64	2.05	1.23	-8.8	0.4
Siauliai County Hospital	20.25	20.55	21.25	18.27	17.72	-2.8	0.5

**Source*: Statistical data of Siauliai Territorial Patients' Fund.

Despite the short observance rate statistically different changes have not been obtained, but in the public institution Kelme Hospital in-house morbidity was registered greater in 2004 and had the tendency to decrease. In public institution Siauliai County Hospital the greatest morbidity was in 2006 and remained quite stable. Meanwhile in public institution Radviliskis Hospital in-house morbidity with unstable chest angina in 2007 was significantly greater than in 2005. If the same tendencies remain in Siauliai County, then according to linear trend function the greatest morbidity with unstable chest angina would be in public institution Pakruojis Hospital and equal to 24.8/1000 residents. In public institution Siauliai County Hospital this indicator would have the tendency to decrease to 17.72 residents and the smallest morbidity rate would remain in public institution Kelme Hospital and would reach 1.23/1000 residents.

Analogically analyzing the in-house morbidity with acute myocardial infarction (further AMI), there has been noticed that in public institution Naujoji Akmene Hospital morbidity indicators for 4 years were increasing even by 22.2 per cent annually. In all hospitals there have been noticed increases in morbidity rates, only in public institution Siauliai County Hospital there have been noticed trend ofdecrease. If the same trends remain, i.e. if the highest numbers of patients suffering from AMI indicator in 2010 would be in Kelme Hospital and would reach 6.10 for 10000 residents, in public institution Siauliai County Hospital this indicator would be more than two times smaller and would be similar to public institution Radviliskis Hospital (correspondingly 2.85 for 1000 residents and 2.82 for 1000 residents). The smallest rate of AMI according to the linear trend function in 2010 would be noticeable in public institution Pakruojis Hospital.

Interventional cardiologic aid in Siauliai County Hospital

Interventional cardiologic aid in Siauliai County was provided only at public institution Siauliai County Hospital. Number of in-house diagnostic interventional cardiologic cases during the period of 2004–2007 remained stable, while the number of cases of remedial interventional aid increased by 8.6 per cent annually.

Analyzing the money of territorial patients' funds (further – TPF) allocated for payments for interventional diagnostic and remedial cardiologic aid, there has been noticed that in 2004 and 2007 the TPF provided more money for remedial aid than for interventional diagnostic aid (220500 Lt and 316317.6 Lt, respectively, while for diagnostic one 188300 Lt and 329034.1 Lt, respectively), while in 2006 for both diagnostic and remedial aid similar amount of funds was allocated. During this period funds of TPF for interventional diagnostic aid increased by 24.2 per cent annually, while the funds for supportive cardiologic aid increased by 16.2 per cent annually.

Analyzing the average price of one aid case, there has been noticed that remedial cardiologic aid price was greater, but both diagnostic and supportive medical aid case during the analyzed period increased by 14.7 per cent and 15.6 per cent, respectively. If the same conditions prevail, in 2010 the price of one diagnostic aid according to the trend function would be 735.07 Lt, while the supportive would be 3289.39 Lt.

Mobility with acute heart illnesses increases both in Siauliai County and all over Lithuania. Therefore, there is estimated that due to the increased need for cardiologic aid expansion in Siauliai County, there would be allocated financing and the price of the average case would increase.

Territorial distribution of funds in Siauliai County hospitals while providing in-house cardiologic services for patients suffering from unstable chest angina and acute myocardial infarction

While analyzing spread of the funds allocated for payments for in-house services for residents suffering from unstable chest angina (further in the text – UCA) in Siauliai County hospitals, it has been estimated that in nearly all hospitals in 2006 TPF funds for rendered cardiologic in-house services were greater than in 2004, 2005 and 2007, because the in-house cases of the mentioned illness was greater, excluding public institution Naujoji Akmene Hospital, which in 2007 received more funds than in 2004–2006, and public institution Kelme Hospital, which got the largest amount of funds in 2004. During the analyzed period most funds for unstable chest angina was for Siauliai County Hospital.

Similarly funds were distributed for hospitals for provided services for patients suffering from AMI: the largest number of funds in 2006 was given to Radviliskis Hospital, Pakruojis Hospital, Kursenai Hospital, Naujoji Akmene, Joniskis Hospital and Siauliai County Hospital in 2007. During the years of 2004–2007, the most of funds of TPF allocated for services of AMI patients was for Siauliai County Hospital.

Funds allocated for in-house unstable chest angina and acute myocardial infarction case in Siauliai County in-house treatment institutions

In all Siauliai County hospitals funds allocated for one case of unstable chest angina during the observed period significantly increased and the biggest sum for in-house case was in 2007 in Kelme Hospital: averagely for one case in 2007 there were allocated 1236.53 Lt. A little bit smaller price was in Naujoji Akmene Hospital, Radviliskis Hospital, Joniskis Hospital, the smallest in Pakruojis Hospital – here for one case of unstable chest angina 948.38 Lt were allocated. If the situation remains the same, i.e. if the same changes in in-house morbidity and patients' flows would be noticed as in 2004–2007, in 2010 the price of one case of unstable chest angina according to the trend function in all Siauliai County hospitals would reach averagely 1558.82 Lt.

While analyzing the funds allocated for treatment of one unstable AMI, there was noticed that the price of one case of AMI in all Siauliai County hospitals increased significantly, only in Kursenai Hospital during the whole period it was stable. The largest sum in 2007 was given to Siauliai County Hospital and was 2662.41 Lt, while in 2004 most funds for one AMI was allocated to Naujoji Akmene Hospital: 1629.18 Lt. If the same trends remain, in 2010 the price of the case for one AMI would amount to 3020.78 Lt in all Siauliai County hospitals.

Payment for one case system is improved in Lithuania, while implementing services' description and increasing the numbers of in-house profiles. One case of unstable chest angina and AMI in Siauliai County hospitals is different, because patients in municipal hospitals are treated for unstable chest angina and acute myocardial infarction in non-specialized therapeutic divisions, where payments for given services are smaller. Besides, TPF prices for in-house services are smaller, when patients are moved to specialized cardiologic divisions.

Ambulatory cardiologic aid in Siauliai County and its financing

While evaluating amounts of cardiologic aid in Siauliai County individual health care institutions, it has been found that the biggest number of services was provided in 2004 by public institution Siauliai County Hospital Consulting Health Center – 11736 cases annually and the mentioned services increased averagely by 7.6 per cent annually. The smallest number of consulted patients in 2004 was in Radviliskis Hospital Consulting Health Center – 784 cases annually, but during the period of 2004–2007 this indicator increased by even 32.7 per cent. In Kelme Hospital and Kursenai Hospital the number of cases dealing with cardiologic aid during the analyzed period remained quite stable, and in 2007 it was smaller than in Radviliskis Hospital. Only in Kelme Hospital the number of the mentioned ambulatory services was greater than in Radviliskis Hospital. If the same mobility remains, as well as the patients' flows to health care institutions for the analyzed demographical situation as during the analyzed period, in 2010 most of cardiologic services would be rendered in Siauliai County Hospital Consulting Health Center, and Radviliskis Hospital would excel hospitals of Pakruojis, Kursenai, Kelme (Table 2).

Table 2

Number of ambulatory cardiologist's consultations in Siauliai County treatment institutions 2004–2007* and the number of forecasted services in 2010

Health care institutions	Number of services					Annual change. % / year	%
	2004	2005	2006	2007	2010		
Kelme Hospital	2743	2809	2736	3380	3744	6.0	0.2
Kursenai Hospital	1236	1153	1300	1380	1528	4.5	0.2
Pakruojis Hospital	1924	2099	2147	2158	2420	3.7	0.1
Radviliskis Hospital	784	1845	2236	2182	3825	32.7	0.1
Siauliai County Hospital	11736	11366	12213	14754	16973	7.6	0.2

**Source*: Statistical data of Siauliai Territorial Patients' Fund.

In all Siauliai County hospitals consulting health centers funds allocated for ambulatory cardiologic services increased during the period of 2004–2007. The biggest amount of TPF funds were allocated to Siauliai County Hospital consulting health center, here the number of cases during the analyzed period was the greatest. In Radviliskis Hospital the number of ambulatory cardiologist's consultations increased and the funds grew averagely by 49.2 per cent annually.

Analyzing average price of cardiologic service, it has been found that in 2004 in Radviliskis Hospital ambulatory cardiologic aid was most costly – 26 Lt, while in the hospitals of Kelme, Kursenai, Pakruojis and Siauliai hospital this price was around 23 Lt. During the period of 2004–2007, the average price of one case got more expensive in consulting health centers of all Siauliai County hospitals. Provided that the same trends remain, in 2010 the price of one cardiologic service according to the trend function would be the highest in Siauliai County Hospital Consulting Health Center and would amount to 116.34 Lt.

Strategic attitudes towards heart and vascular diseases spread and their consequences reduction in Siauliai County Hospital

When forecasting the means to reduce morbidity and mortality from heart and vascular diseases, improvement of cardiologic aid and accessibility, it is neecessary to solve the following problems in the city of Siauliai and its districts:

Inadequate activity is in the sphere of prevention of the mentioned illnesses. Though according to the order of Health minister of November 25, 2005 No. V-913, the selection and prevention programme of patients belonging to heart and vascular diseases greater risk group was approved, in Siauliai County Hospital the heart illnesses prevention cabinet has not been founded.

The Lithuanian Health Economics Center (2006), paying attention to the data of Eurostat, declares that average lifespan increase in Lithuania, ageing of population and decrease of number of working age residents will predetermine the increase of dependants' numbers as well as significant increase of society's expenditure on payments, pensions and health care. Taking these statements into consideration it is expedient to have expansion of medical nursing and long-term treatment services, foundation of geriatrics divisions in hospitals.

Installation of database including electronic medical data about the patients at Siauliai County hospitals would improve the patients' examination and facilitate the doctors' work and save funds.

According to these statements development of medical care and long-term supportive treatment services, creation of geriatrics departments in hospitals is needed in Siauliai County.

While seeking early diagnostics of heart and vascular illnesses there is a need to develop preventive work, set up heart illnesses prevention consulting-room for work with the patients with increased risk.

While improving the access to cardiologic services, there is a need to seek the decrease of patients sent to consultation by an unmotivated cardiologic specialist and the decrease of long-term illness patients sent to the in-house department.

It is necessary to guarantee the qualified delivery of emergency medical services in hospitals in all county districts. For that there is a need to improve the quality of specialized ambulatory cardiologic services in hospitals of all county districts, while setting up ambulatory cardiologic service in Joniskis and Naujoji Akmene hospitals. The rehabilitation departments at districts hospitals must be equipped with rehabilitation beds and the equipment necessary to combat menacing acute heart and vascular illnesses.

Conclusions

1. Cardiologic aid situation in Siauliai County are described by the following main statements:

- In Siauliai County hospitals in-house morbidity and flows of patients ill with UCA and AMI have a tendency to increase;
- Interventional cardiologic aid scope in the Siauliai County hospitals has a tendency to increase;
- Funds of Siauliai County hospitals allocated to treat one case of UCA or AMI increased, but not by the same proportion for individual hospitals.

2. Cardiologic aid in Siauliai County could be improved by using the following means:
   - Siauliai County doctor's service must prepare the county's health care support program with the underlying heart and vascular illnesses' sphere, where the actions and means to decrease morbidity and mortality while creating conditions for improvement of cardiologic aid structure and organization must be forecasted;
   - To direct most of cardiologic patients to Siauliai County hospital, leaving for Siauliai County districts' hospitals only in-house and emergency rehabilitation aid;
   - Siauliai County cardiologic aid coordination center must be set up in order to organize Siauliai County cardiologic aid and to improve quality and access to prevention of in-house and ambulatory illnesses and vascular illnesses.
3. There is a need to prepare the Siauliai County health programme with underlying heart and vascular illnesses' sphere, where actions and means for reducing morbidity and mortality must be set; so that the said programme would create conditions for improvement of cardiologic aid structure and organization using the EU support funds.
4. Most of patients sent to cardiologist's consultation and the number of patients suffering from long-term diseases are moved to in-house. This problem could be solved by fostering co-operation between hospitals and initial health care institutions while improving qualification of family doctors and providing them with the needed equipment. It is recommended to direct the greater flow of cardiologic patients to Siauliai County Hospital and increase the number of beds in Siauliai County Hospital, while gradually decreasing number of beds in other Siauliai County hospitals, leaving there only ambulatory and fast rehabilitation aid. Such a concentration is essential, because qualified specialists and modern diagnostics and treatment equipment are needed for qualified heart and vascular diseases treatment. Only then the best treatment results can be expected.

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Kardiologinės pagalbos valdymas: Šiaulių apskrities atvejo analizė

Santrauka

Mokslinius tyrimo problemos aspektus galima formuluoti remiantis šiais pagrindiniais *probleminiais klausimais:* kaip suformuoti ir pagrįsti optimalų Šiaulių apskrities kardiologinės pagalbos modelį? Kokie turėtų būti pagrindiniai Šiaulių apskrities kardiologinės pagalbos prioritetai? Kaip racionaliai paskirstyti negausius apskrities finansinius išteklius kardiologinei pagalbai?

Tyrimo tikslas **–** ištirti šiuos pagrindinius kardiologinės pagalbos valdymo Šiaulių apskrityje aspektus: išanalizuoti ligonių, sergančių nestabilia krūtinės angina ir ūmiu miokardo infarktu, srautus Šiaulių apskrities gydymo įstaigose; įvertinti Šiaulių teritorinės ligonių kasos lėšų, skirtų stacionarinių ir ambulatorinių paslaugų apmokėjimui, panaudojimą; nustatyti lėšų poreikį 2010 m.

Straipsnyje laikomasi tam tikros strategijos sampratos: *Strategija* – tai koncentruota elgsena tam tikroje aplinkoje, orientuota į išorinę aplinką (Carpenter, 2006). J. Purcell (2007) atliko 12 kompanijų analizę, tirdamas, kaip vadovo elgesys ir žmonių išteklių valdymo praktikos turi įtakos tarnautojų atsidavimui darbdaviui ir darbui. Autorius daro išvadą, kad būtina tobulinti aukštesniojo lygio vadovų gebėjimus valdyti žmones. O. Furrer (2008), atlikęs 26 m. strateginio valdymo tyrimų analizę, pastebėjo, kad daugiau dėmesio sulaukė ištekliais paremta korporacijos lygio strategijos teorija ir sumažėjo susidomėjimas aukščiausiojo lygio vadovų vaidmens analize. Išryškintas, ištekliais paremtas požiūris sukūrė naują erą, kai pradėta teigti, kad darnaus vystymosi privalumų pagrindiniu šaltiniu yra vertingų išteklių plėtra ir panaudojimas (Herrmann, 2005). *Investicijų pritraukimas* yra ne mažiau svarbus veiksnys. Tarptautiniai moksliniai tyrimai parodė, kad užsienio investicijoms dažniausiai pasirenkamos tos šalys, kurios pasižymi žemu netikrumo vengimo laipsniu ir dideliu pasitikėjimu (Bhardwaj, 2007).

Ekonomiškai išsivysčiusiose šalyse taikomi įvairūs širdies ligų gydymo strateginiai modeliai. Jungtinėje Karalystėje sukurti įvairių gydymo strategijų kainos įvertinimo modeliai, kiti modeliai vertina galimybes ir išteklių planavimą, treti numato ligos dažnį būsimose populiacijose, modeliuojamos įvairių sveikatos intervencijų technologijos (Cooper, 2006). Plačiai nagrinėjami simuliacijos modeliai (Terry, 2005). Kuriami sveikatos priežiūros strategijos scenarijai, kurie veikia pagal tam tikrą verslo filosofiją. Neretai į ligų diagnostiką ir gydymą žiūrima kaip į sveikatos priežiūros pramonę siekiant pelno (Elif, 2006). Populiarūs modeliavimo metodai, aprašantys medicinos paslaugų vadybos strategijas, pvz., kaip sumažinti laukimo eilėse dienų skaičių siekiant patekti į ligoninę (Mark, 2005).

Lietuvos nacionalinės sveikatos sistemos įstaigos teikia asmens sveikatos priežiūros paslaugas trimis lygiais: savivaldybės, apskrities ir valstybės. Paslaugų teikimas yra decentralizuotas ir daugiausia valstybinis. Visiškai arba iš dalies nemokama priežiūra teikiama privalomai apsidraudusiems gyventojams pagal privalomąją sveikatos draudimo sistemą. Specializuota ambulatorinė pagalba teikiama poliklinikose ir ligoninių ambulatoriniuose

skyriuose. Stacionarinė priežiūra vykdoma bendrosiose ir specializuotose ligoninėse. Privačių specializuotos ambulatorinės priežiūros paslaugų, kurias daugiausia teikia valstybinių ligoninių specialistai, skaičius didėja. Sveikatos priežiūros paslaugų teikėjai dirba pagal sutartį su įstatymų numatytais sveikatos draudimo fondais.

Nors paslaugų ir gyventojų, kuriems jos teikiamos, skaičius yra didelis, skiriasi regionų sveikatos priežiūros paslaugų lygis: sveikatos priežiūros infrastruktūra yra sutelkta pagrindiniuose miestuose, kaime trūksta tam tikros srities specialistų, skiriasi ligoninių pajėgumai. Medicinos paslaugų prieinamumą blogina nepakankami ištekliai, bendradarbiavimo tarp pirminės priežiūros įstaigų, ligoninių ir kitų paslaugų teikėjų trūkumas. Europos Komisijos 2007 m. ataskaitoje apie padėtį Lietuvoje ir pagrindines tendencijas įvardijama ribota medicinos paslaugų kokybė, įskaitant prastas pastatų ir įrangos sąlygas.

Pagrindiniai Lietuvos sveikatos sistemos finansavimo šaltiniai yra visuomeninis sveikatos sistemos finansavimas ir finansavimas iš privačių šaltinių. Lietuvos visuomeninio sveikatos sistemos finansavimo šaltiniai yra valstybės biudžetas ir savivaldybių išlaidos sveikatinimo veikloms. 2005 m. 85 proc. sveikatos apsaugos sistemos visuomeninio finansavimo lėšų sudarė privalomojo sveikatos draudimo fondo išlaidos ir 15 proc. valstybės biudžetas bei savivaldybių išlaidos sveikatinimo veikloms. Visos išlaidos sveikatai Lietuvoje 2006 m. sudarė 4,8 mlrd. Lt, arba 5,9 proc. bendrojo vidaus produkto.

Sveikatos priežiūros kokybę lemia ne tik sveikatos priežiūros specialistų skaičius, bet ir jų kvalifikacijos lygis. Žmonių išteklių Europos Sąjungos (ES) valstybių sveikatos priežiūros sistemoje analizė 2004 m. parodė, kad Lietuva buvo trečioje vietoje pagal gydytojų skaičių 100 tūkst. gyventojų (400 gydytojų / 100 tūkst. gyventojų). Lietuvoje 2005 m. buvo beveik 2 kartus daugiau gydytojų, palyginus su ES vidurkiu. Pagal šeimos gydytojų skaičių Lietuva 2005 m. atsiliko nuo daugelio ES valstybių. Lietuvoje 2005 m. buvo tik 51 bendrosios praktikos gydytojas 100 tūkst. gyventojų. Bendrosios praktikos gydytojų skaičius Lietuvoje 1995–2005 m. didėjo. Iki 1994 m. Lietuvoje veikė tokia sveikatos priežiūros sistema, kai ambulatorinėje grandyje dirbo vidaus ligų (terapeutai) ir vaikų ligų (pediatrai) specialistai. Vykdant pirminės sveikatos priežiūros reformą, Lietuvoje poliklinikų gydytojai buvo perkvalifikuojami į bendrosios praktikos arba šeimos gydytojus.

Širdies ir kraujagyslių ligos yra viena dažniausių vidutinio amžiaus Lietuvos gyventojų mirties ir sunkaus invalidumo priežasčių (Domarkienė, 2000). Širdies ir kraujagyslių sistemos ligos Lietuvoje, kaip ir visoje Europoje, buvo ir tebėra pagrindinė mirties priežastis. Lietuvoje nuo šių ligų miršta beveik dvigubai daugiau gyventojų, negu vidutiniškai ES šalyse. 2007 m. Lietuvos sveikatos informacijos centro duomenimis, kraujo apytakos sistemos ligos sudarė 45,9 proc. vyrų ir 64,1 proc. moterų mirties priežasčių. Lietuvoje standartizuoto mirtingumo rodiklis išeminei širdies ligai 100 tūkst. gyventojų 2005 m. buvo aukščiausias tarp ES šalių ir siekė 355 100 tūkst. gyventojų. Lietuvos sveikatos informacijos centro duomenimis, Lietuvoje 2000–2007 m. daugėjo ir sergamumas išemine širdies liga atvejų. 2006 m. mirtingumo struktūroje vyravo širdies ir kraujagyslių ligos bei piktybiniai navikai (atitinkamai 54,3 ir 18,2 proc. visų mirčių), beveik trečdaliui ligonių dėl širdies ir kraujagyslių ligos pirmą kartą buvo nustatyto neįgalumo priežastis. Širdies ir kraujagyslių ligos išskiriamos kaip prioritetinė sritis reformuojant sveikatos priežiūros sistemą ir panaudojant ES paramos lėšas.

Tyrimu analizuojamas sergamumas širdies ir kraujagyslių ligomis, ligonių, sergančių nestabilia krūtinės angina ir ūmiu miokardo infarktu, srautai į Šiaulių apskrities gydymo įstaigas, įvertintos Šiaulių teritorinės ligonių kasos lėšos, skirtos šių įstaigų stacionarinių ir ambulatorinių kardiologinių paslaugų apmokėjimui, numatytas lėšų poreikis 2010 m. Išsamiai pateikti finansinio sveikatos priežiūros strateginio valdymo principai, Lietuvos nacionalinė sveikatos politika širdies ir kraujagyslių ligų atžvilgiu bei širdies ir kraujagyslių sistemos ligų paplitimo ir jų pasekmių mažinimo strateginės nuostatos Šiaulių apskrityje.

Kardiologinės pagalbos situacija Šiaulių apskrityje apibūdinama tokiais teiginiais: Šiaulių apskrities ligoninėse stacionarinis sergamumas nestabilia krūtinės angina ir ūmiu miokardo infarktu bei ligonių srautai į šias ligonines turi tendenciją didėti; intervencinės kardiologinės pagalbos apimtis Šiaulių apskrities ligoninėje didėja ir turi poreikį didėti; visose Šiaulių apskrities ligoninėse lėšos, skirtos vienam NKA ir ŪMI atvejui gydyti, didėjo, tačiau neproporcingai atskiroms ligoninėms.

Kardiologinę pagalbą Šiaulių apskrityje galima tobulinti šiomis priemonėmis: Šiaulių apskrities gydytojo tarnyba turi parengti apskrities sveikatos programą su prioritetine širdies ir kraujagyslių ligų sritimi, kurioje būtų numatyti veiksmai ir priemonės sergamumo ir mirtingumo mažinimui, kardiologinės pagalbos struktūros ir organizavimo tobulinimui; didesnį srautą kardiologinių ligonių stacionarizuoti Šiaulių apskrities ligoninėje, Šiaulių apskrities rajonų ligoninėse paliekant tik ambulatorinę ir skubią reanimacinę pagalbą. Šiaulių apskrities kardiologinės pagalbos organizavimui, ambulatorinių ir stacionarinių kardiologinių paslaugų kokybės ir prieinamumo gerinimui, širdies ir kraujagyslių ligų prevencijos plėtrai būtina įsteigti Šiaulių apskrities kardiologijos koordinacinį centrą.