INTRODUCTION

Experts in health policy pay particular attention to the problems and challenges of health reforms undertaken in the last decade of the twentieth century in transition countries of Central and Eastern Europe [1, 2, 3, 4]. Even though large-scale research activities have been carried out since 1990s on the effect of reforms, appropriate evidence that such reforms resulted in substantial improvements in health care organization and provision of health services are still missing. Research findings confirmed that the adopted Western ideals of privatization, decentralisation and competition policy coupled with the ineffectiveness of existing health sector arrangements resulted in escalating health expenditures, overuse of health services and growing health inequalities [1, 2, 3].

All over the world, and especially in transition countries, the hospital care remains a critical part of health care, providing both advanced and basic care for the population. Heavy investments in hospital care during the last decades converted the hospital sector into the largest expenditure category of the health system [4, 5].

Searching how to minimize the hospital care expenditures has become a problem of vital importance for the survival of hospital sector [4, 6, 7].

In Bulgaria, since 2000, the health care reform was based on the adoption of new laws and changes in the entire mechanism of governance, organization and financing of medical activities. The health system was transformed from state monopoly to European model of health insurance [8, 9].

Hospital care in Bulgaria also underwent profound changes according to the Health Care Establishments Act adopted in 1999 [10]. Until 2005 hospital activities were paid by the National Health Insurance Fund (NHIF) based on case payments (clinical pathways), by the Ministry of Health per patients per day, and through patients’ copayments which are compulsory [11]. Since 2006 the overall financing of hospital services has been covered by the NHIF which led to constantly observed under-financing. Moreover, during the last decade serious problems in hospital care occurred in relation to the induced demands for hospital services which did not correspond to the real needs of hospitalization, and contribute to over-hospitalization and over-expenditures in hospital care.

The aim of this paper is to explore the trends of hospitalization and to analyse the main contributing factors to over-hospitalization.

Methods. The analysis is based on the data from the Annual financial reports of the National Health Insurance Fund (NHIF) in Bulgaria, the Annuals of Public Health Statistics published by the National Centre of Health Informatics (NCHI), and corresponding data for European countries from the European Health for All Database for the period 2000-2009. The total number of in-patient discharges and the rate of hospitalizations per 100 inhabitants were used as basic indicators.

The hospitalizations by clinical pathways were analysed for a period of 6 years (2004-2009) using routine statistics procedure to follow the changes over time: absolute increase in the number of hospital admissions (difference between two consecutive years, difference between the baseline year and any other year of observation, annual growth rate expressed in percentage for a particular year to the baseline year or to the previous year.

Some conclusions in the analysis were based on other different research findings and authors’ experience and theoretical background.
Results. Discussions.

Budgetary financial indicators show that the total expenditures for hospital care during the period 2000-2010 have grown up intensively and reached 610% in nominal terms. After taking into account inflationary effects for the period the increase in real value was 390% while GDP for the same period grew in real expression only by 47%.

Research findings reveal that under the health reform the quality of hospital services has not been improved, and hospital expenses and admissions to hospitals have increased significantly [9]. As shown in table 1, the total number of in-patient discharges during the 10-year period has increased significantly by 156.5% – since 1 261 151 in 2000 to near 2 millions in 2009 (1 962 268).

The data in table 1 and the linear presentation in figure 1 point out that while in the EU the average rate of in-patient discharges ranges between 17% for EU members before 2004 to 20-21% for EU members after 2004 per 100 citizens, in Bulgaria for the same period the hospitalization rate has significantly increased and has reached near 26%, e.g. 26 patients per 100 inhabitants [12, 13].

Comparing the data on hospitalizations in Bulgaria with the European countries, we found evidence that the numbers of cases per clinical pathways were not related to the real needs of the population, but they rather present the demand induced by the service provider. Hospitals create growing demands in specific areas in order to maximize their revenue and profits. For example, the number of cases with pneumonia per 1000 in some regions in Bulgaria (Plovdiv, Sofia) is about 10 times higher than the average incidence in EU countries; the average incidence in Bulgaria is 5 times higher than in EU. Data on chronic and acute heart failure show similar trends. The average number of patients with acute myocardial infarction per 1000 is 5 times higher than the same indicator in the EU, and in Sofia this disproportion is even 15 times. Obviously there is an expressed tendency to over-hospitalization.

At the same time, from the data in table 2, it’s evident that the number of hospital discharges by clinical pathways has increased even more rapidly, reaching 1 769 230 admissions in 2009 compared to 738 976 hospitalizations in 2004 which presents an increase of 239.4%. An extremely high annual increase in the number of hospitalizations by clinical pathways is observed in 2006 compared to 2005 – 57.5%. Such an increase and the growing numbers during the following years could be related to the health care reform realized in 2005 according to which the Ministry of Health stopped financing the hospital care and since January 2006 all hospital expenditures were undertaken by the NHIF. The NHIF expenditures for hospital care increased accordingly to the growing numbers of hospital admissions after 2006.

The basic negative factors leading to such increase in hospital care expenses in Bulgaria may be ranked as follows:

- historical predispositions for the widespread demand for hospital services;
- induced by physicians demand for hospital services in terms of 180 newly open hospitals in the past 15 years;
- inefficiency of the referral system to hospitalization;
- socioeconomic factors – patients’ distrust of the quality of outpatient and primary care;
- organisational shortcomings and gaps in primary and specialized outpatient care;
- lack of effective monitoring and control by the NHIF which is based solely on documentation rather than on an objective analysis of daily hospital activities;
- improper use of clinical pathways as a primary mechanism for financing of hospital activities.

The main prerequisite for the impact of these negative factors were the shortcomings in the overall process of health care management in Bulgaria, and particularly, the poor management of hospital sector in terms of missing professional health management. The prevailing part of hospital managers has some clinical background without sufficient managerial experience and training. The mobility of hospital directors in parallel with the changes in political situation and in health top-management has also strong adverse effect. Implementation of hospital boards did not lead to increased effectiveness of strategic and operational management in Bulgarian hospitals.

Our conceptual framework about the relationships between different factors affecting the supply and demand of hospital services is presented in figure 1. Induced demand for hospital services is mainly due to lack of control mechanisms on the part of the NHIF. Hospitals are encouraged to admit all patients, and they often encode wrong (unreal) diagnoses and classify the patients admitted to more expensive clinical pathways in order to increase the hospital revenue and profits.
Moreover, there is a common practice in hospitals to transfer the patients from one clinic/hospital sector to another that allows registering new diagnoses in different clinical pathways. Inefficient system of hospitalization is also determined by the easy alternative of hospitalization through the emergency departments set up in each hospital. The other contributing factor to over-hospitalization is the fact that some physicians working simultaneously in outpatient and hospital care often refer patients to their hospital departments even when there are no strict indications for hospitalization. The distrust of patients to primary care as a contributing factor to hospitalization is determined by insufficient professional qualification and experience of most of the newly established GPs. The basic remuneration system is capitation fee rather than fee for services taking into account the quality of achieved therapeutic results. This practice leads to some further decrease in motivation and qualification of GPs.

The high percentage of patients with chronic conditions admitted to hospitals for acute diseases is also an important problem in Bulgaria. The main reason for such practice is the shortage of social care institutions, rehabilitation and long term care establishments.

Another important factor for over-hospitalization is the low quality of specialized outpatient care, particularly for chronic diseases. It is estimated that over 60% of diagnosed diabetics are beyond disease control (HbA1c > 6.5). This leads to frequent complications and to an increased number of hospitalizations [8]. Comparative analysis of NHIF annual financial reports with WHO database [12] and public health statistics information of NCHI [13] allows drawing some important inferences. Significant differences in hospitalization indicators can be found between different regions in Bulgaria. Pricing policy of NHIF is incorrect and it forces hospitals to register and report unrealized extra activities. There is some evidence that a significant part of hospital services in Bulgaria, which were registered and presented to NHIF, were not realized. Dynamics of the referrals for hospitalization during this period revealed that the patients redirected from one hospital to another has increased, which is an indicator of insufficient quality of hospital services. An important factor for over-hospitalizations in Bulgaria is the expressed inefficiency of the referral system (figure 2). It is obvious from the data in figure 2 that less than one third of the patients admitted to hospitals were referred by their GP. This is the ultimate evidence that the role of GPs as gatekeepers is not well recognised and realized. The lack of trust of population to primary health care is an important factor of over-hospitalization. Many patients indicate that the main role of GPs is to refer them to hospital or to a specialist and to provide them with prescriptions [9].

**Conclusions.** The percentage of hospitalizations in Bulgaria is growing much faster than in other EU countries. Hospital care expenses have increased by 390% over the 10-year period, while GDP increased only by 47%. The main contributing factors for over-hospitalization and increasing hospital expenditures include: induced demand; inefficiency of the system for targeting treatment of chronic diseases; mistrust of patients to outpatient care; low efficiency of primary health care confirmed by the high level of avoidable hospitalizations (medically unjustified) and almost missing ambulatory daily surgery for patients; inadequate supervision and regulation of NHIF; easy access to hospital care through emergency care units; incorrect policy of NHIF that allows hospital doctors to register and report missed fictitious activities; frequent rehospitalisation and transferring the patients from hospital to hospital without their problems solved.