

**Czech University of Life Sciences in Prague**

**Faculty of Economics and Management**

**Department of Economics**



**Bachelor Thesis**

**Economics of Health Care Sector in the Czech Republic:**

**A Case Study of a Hospital in Česká Lípa**

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**CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE**

Department of Economics  
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# **BACHELOR THESIS ASSIGNMENT**

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Thesis title

**Economics of Health Care Sector in the Czech Republic: A Case Study of a Hospital in Ceska Lipa**

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#### **Objectives of thesis**

To evaluate case of funding for a hospital in Ceska Lipa, to point out problems in the system and to suggest some solutions for the future.

#### **Methodology**

Theoretical part will be written using official literature on this topic. The results for further suggestions will be gained by analyzing financial data available from previous years from the hospital in Ceska Lipa and conduction appropriate financial analysis and cost benefit analysis

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ZLÁMAL, Jaroslav, BELLOVÁ, Jana. Ekonomika zdravotnictví. Národní centrum ošetrovatelství a nelékařských zdravotnických oborů v Brně, 2005

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## **Declaration**

I declare that I have worked on my bachelor thesis titled "Economics of Health Care Sector in the Czech Republic: A Case Study of a Hospital in Česká Lípa" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any third person.

In Prague, 15. 3. 2013

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Lucie Říhová

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# **Ekonomika sektoru zdravotnictví v České republice: Případová studie nemocnice v České Lípě**

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## **Economics of Health Care Sector in the Czech Republic: A Case Study of a Hospital in Česká Lípa**

### **Souhrn**

Tato práce se zabývá problematikou financování zdravotní péče v České Republice. Téma je následně ilustrováno na případové studii regionální nemocnice s poliklinikou v České Lípě. První část práce je zaměřena na systém financování, zdroje příjmů a způsoby přerozdělování financí jednotlivým nemocnicím. Přibližuje také roli pojišťoven a způsoby, jakými proplácení nemocnicím zdravotní péči poskytnutou pojištěncům. Druhou částí práce je případová studie nemocnice s poliklinikou v České Lípě. Její ekonomická situace je analyzována s použitím poměrových ukazatelů likvidity, rentability a tržní hodnoty. V poslední části je popsána strategická změna v systému nákupu zdravotnického materiálu nemocnice, jejíž efekty jsou zhodnoceny s použitím analýzy nákladů a přínosů. V závěru jsou shrnuty výsledky a naznačeny možnosti dalších změn.

### **Summary**

The main aim of this bachelor thesis is to introduce the reader into the topic of funding of the health care in the Czech Republic and to illustrate this issue on a case study of the regional hospital in Česká Lípa. The first part of this thesis shows the system of funding of the health care in the Czech Republic, the sources of funds and the ways in which they are distributed to medical facilities. The role of insurance companies is described and ways of payments from insurance companies to hospitals are explained. The second part shows the case of a regional hospital in Česká Lípa. Its economic situation is analyzed using profitability, liquidity and market ratios. In the last part of this thesis, a change done in buying system of the hospital is described, and its economic effects are analyzed using cost-benefit analysis. The results are then evaluated and suggestions for further changes are given.

**Klíčová slova:** Nemocnice, zdravotní péče, pojišťovny, financování zdravotní péče, poměrové ukazatele, strategické plánování, analýza nákladů a přínosů.

**Keywords:** Hospital, health care, insurance companies, funding of health care, economic ratios, strategic planning, cost-benefit analysis.

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## 1. INTRODUCTION

Despite the prevailing pessimistic opinion on Czech public health care system, it is true that it is meeting very high standards internationally. On the other hand, it is a fact that the funds raised and redistributed in the sector of health care are insufficient, if the hospitals are supposed to keep the high standard of health care they have nowadays. The main problem is no clear concept of the public health care – distribution of hospitals in the Czech Republic is very random, and the number of hospitals in some regions is unnecessarily high, which results in spending huge amounts of money on hospitals which are not vital for the system, while other regions have only a few underfunded medical facilities. Together with aging of population and a financial crisis, this situation resulted in serious lack of funds in the health care sector. [1]

A reform of health care system is necessary. But, although this topic is very popular in media and in public discussions, none has been done yet.

This situation caused a strong lack of funds in hospitals (especially smaller ones), and some of them have to struggle to survive and to be able to offer health care meeting the usual standards. They are forced either to deal with the lack of funds, or to shut down.

This thesis describes the current system of funding of the health care system as well as the issue of redistributing funds to hospitals, and shows the effects of this problematic system on a medium-sized hospital. It also suggests the possible changes in strategy to maintain a balanced budget.

The medical facility chosen for case study is a hospital in Česká Lípa. It is a hospital for an area with about 110,000 inhabitants, administered by the region Liberec. Because of its unfortunate design and difficult position in negotiations with insurance companies, its management is struggling every year to keep its financial loss as low as possible, but they found themselves in an even more difficult situation when in 2010, thanks to a change in redistributing funds from insurance companies as well as effect of financial crisis, they experienced a strong fall in revenues. The lack of funds had to be compensated in some way to ensure the operation of the hospital. Management of this hospital have decided to make a certain number of strategic changes in order to minimize the loss, and the last part of this bachelor thesis is dedicated to overall description of one of these changes.

## **2. OBJECTIVES OF THESIS AND METHODOLOGY**

The main aim of this bachelor thesis is to introduce the reader into the topic of funding of the health care in the Czech Republic, to illustrate this issue on a case study of the regional hospital, and to show some possible options to improve the operational funding of a hospital.

In the theoretical part, the issue of funding of health care in the Czech Republic is described. The emphasis is on the ways of raising funds, and on the system of redistributing them to individual medical facilities. This part explains the role of insurance companies as redistributors of funds, and describes different ways in which the funds may be distributed to hospitals. Some of the main problems in this system are pointed out.

In the practical part, the situation of the hospital in Česká Lípa is described. First, the reader is introduced to financial results of the hospital from last years. These results are then further explained using the balance sheets and operating results, and some problematic parts are pointed out. Results are then analyzed using profitability, liquidity and market ratios.

Second, a strategic change done in order to ensure balanced budget is explained and described in details, and its effects on the operational funding of the hospital are analyzed using cost-benefit analysis to show whether this project was successful. The main aim of this part is to illustrate the possibilities the hospitals have to improve their economic results.

### **3. LITERATURE REVIEW**

This part is explaining the system of funding of health care in the Czech Republic, its definition and actors, sources of funding and the roles of the insurance companies.

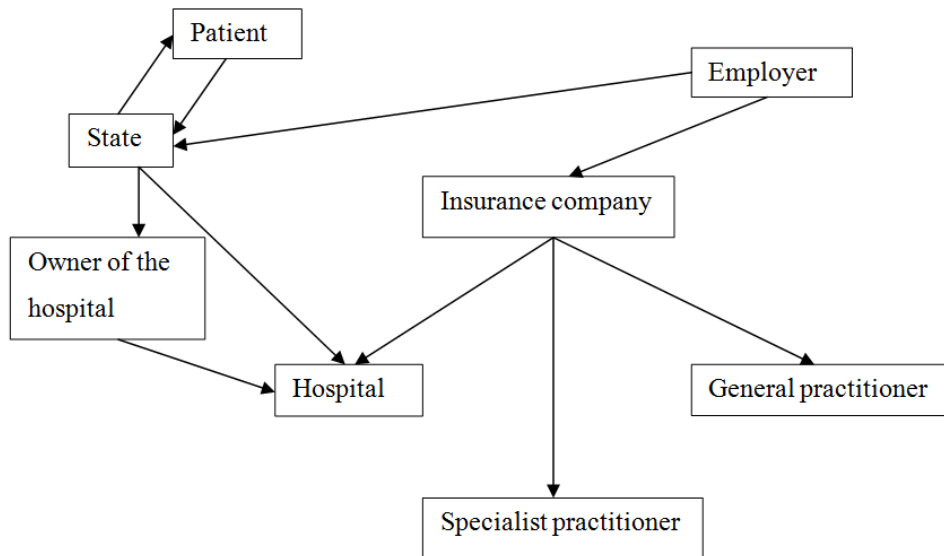
#### **3.1 System of funding of health care in the Czech Republic**

To explain the system of funding of health care in the Czech Republic, it is first necessary to define what the health care is. According to M. Field, author of multiple studies on health care system, the health system is an expression which identifies “the totality of formal efforts, commitments, personnel, institutions, economic resources, research efforts (both basic and applied) that a nation-state or a society earmarks or devotes to illness, premature mortality, incapacitation, prevention, rehabilitation, and other health-related problems.” [2]

The system is composed by many actors. The main part of this system is a hospital, which serves as a provider of health care. The actual treatments are carried out by doctors and medical staff, and for financial purposes, this staff may be divided into two groups: general and specialist practitioners. Next, there are three important actors providing funds (directly or indirectly) to hospitals: the state, the owner of the hospital, and the insurance companies. Other indirect providers of money are employers, who pay the health insurance for their employees. And the last part of this system is the patient, who, for the financial purposes, is referred to as the “insured person” or “policyholder”.

It is clear from this division that the system of distributing money is very complex. The best way to demonstrate the relationships between actors is using a simplified flowchart.

Diagram 1 – Health care system in the Czech Republic



Source: own input

This chart shows the flow of funds between the actors. We can see that the money paid as health insurance (paid by the employer) is divided between the insurance companies and the state. The state then pays some amount of money to the patient in case of long-term illness (statutory sick pay), a certain amount of money to the owner of a hospital, and may give donations straight to the hospital (usually through the ministry of health care). However, in this case, the most important part is the insurance company, which works as a distributor of money to medical facilities, and therefore operates with much larger amount of funds than the state itself. Insurance company then pays certain amounts of money to hospitals, specialist practitioners and general practitioners according to key, which is described in chapter 3.4. [3]

## 3.2 Sources of finance

### 3.3.1 Amount of money spent on health care in the Czech Republic

“The year 2012 was the second in a row of a slight decrease of total expenditure on health care. After 2009 with the peak total value 291.6 ths. mil. CZK, such level of total expenditure on health care was not reached, although it approached 290 ths. mil. CZK. The reasons were mainly reductions of expenditure from public budgets and the impact of unfavourable economic situation on expenditure of individuals. The share of public expenditure on health in 2011 was 84% and private expenditure represented 16% of the total expenditure on health care. However, a slight increase continued in expenditure from public health insurance; in 2011 total expenditure of the public health insurance rose to 225.5 ths. mil. CZK.” [4].

As can be seen from the table below, the total amount of money spent on health care has been rising steadily until the year 2009 (291,646 mil. CZK), and then suddenly in 2010 the number not only have not risen, but even dropped down (to 289,035 mil. CZK).

**Table 1 – Total expenditure on health care in the Czech Republic (in mil. CZK)**

	2006	2007	2008	2009	2010	2011
Public expenditure	197,027	206,563	218,719	243,692	243,281	242,410
Incl.: State and territorial budget	22,828	22,851	21,439	26,034	20,781	16,863
Health insurance	174,200	183,713	197,280	217,658	222,500	225,547
Private expenditure on health	29,783	35,370	45,801	47,954	45,754	46,162
Total	226,810	241,935	264,520	291,646	289,035	288,572

Source: data from UZIS.CZ

The fall in expenditures may be explained by a period of financial recession, which hit the Czech Republic in 2009, but its effects have not projected until 2010. [5]

The best illustration of this situation is the evolution of GDP of the Czech Republic. According to prediction from the year 2008, the GDP of the Czech Republic in 2012 was

supposed to be about 4,648 trillion CZK (in purchase prices), while in the end of 2011, this prediction was already adjusted to 3,853 trillion CZK. [5]

From this estimate it is obvious that the growth of GDP slowed down radically, which had a significant impact on the amount of money spent in every economic sector, including the health care system. This impact can be demonstrated on a table describing percentage of GDP spent on health care.

**Table 2 – Share of public health expenditure in GDP (in %)**

<b>Year</b>	<b>In %</b>
2005	6.14
2006	5.88
2007	5.64
2008	5.68
2009	6.52
2010	6.44
2011	6.37

**Source: data from UZIS.CZ**

As we can see from the table, the share of public health care expenditure in GDP stays in the range between 5.64 – 6.53% of the Czech GDP. As mentioned above, the difference between estimates of the GDP growth in years 2008 and 2011 was about 800 trillions, and considering the percentage of expenditures stayed the same, it means less money flowing into the health care system.

### 3.3.2 Source of funding of health care

The whole system of funding of health care in the Czech Republic, as described in chapter 3.1, is mainly based on the obligatory health insurance. Every person with a permanent residence in Czech Republic automatically becomes insured with a health insurance. In compliance with Act Nr. 48/1997 of the Legislation, the health insurance of a person is:

- a) valid from the day of birth, if the person in question is a permanent resident of the Czech Republic
- b) valid from the day when the person in question without a permanent residence in Czech Republic became an employee
- c) valid from the day of obtaining a permanent residence permit in the Czech Republic. [6]

The health insurance expires:

- a) on the day of death of the insured person or the day when the insured person is declared dead
- b) on the day when the person in question without a permanent residence in Czech Republic ceased to be an employee
- c) on the day of expiration of permanent residency in the Czech Republic [6]

The health insurance contribution is either being paid by the employer, or by the state (see Appendix 1 for the full list of policyholders whose insurance premium is paid by the state).

As clear from the table 3, the largest percentage of expenditures in the system is covered from public funds, and namely by insurance companies, which gain their income from their policyholders' contributions.

**Table 3 – Financial sources proportion in total health expenditure (in %)**

	2006	2007	2008	2009	2010	2011
Public funds	86.9	85.4	82.7	82.6	84.2	84.0
Incl.: State and territorial budget	10.1	9.5	8.1	8.9	7.2	5.8
Health insurance	76.8	75.9	74.6	74.6	77.0	78.2
Private expenditure	13.1	14.6	17.3	16.4	15.8	16.0

Source: data from ÚZIS.CZ



### 3.3 Role of insurance companies

#### 3.3.1 Insurance companies in the Czech Republic

As stated above, the insurance companies are main funders of the health care system. Funds collected from health insurance are being redistributed to hospitals in a way described in chapter 3.4. The activity of insurance companies is regulated by Act Nr. 551/1991 of the Legislation about VZP and by Act Nr. 280/1992 of the legislation about resort, sectoral, corporate and other health insurance companies. [7] [8]

To establish a new insurance company, the founder has to obtain a permit from the Ministry of Health of Czech Republic. Two main rules are also stated: a guarantee of 100,000,000 CZK has to be paid to a special bank account created purely for this purpose, and the insurance company has to have at least 100,000 insured persons by the end of the first year of its existence. [8]

Table 4 - List of insurance companies in the Czech Republic (valid from 1<sup>st</sup> January 2013)

Code	Name of Insurance Company
111 VZP	Všeobecná zdravotní pojišťovna ČR
201 VoZP	Vojenská zdravotní pojišťovna ČR
205 ČPZP	Česká průmyslová zdravotní pojišťovna
207 OZP	Oborová zdravotní pojišťovna zaměstnanců bank, pojišťoven a stavebnictví
209 ZPŠ	Zaměstnanecká pojišťovna Škoda
211 ZP MV ČR	Zdravotní pojišťovna ministerstva vnitra ČR
213 RBP	Revírní bratrská pokladna, zdravotní pojišťovna
217 ZP M-A	Zdravotní pojišťovna METAL-ALIANCE (from 1. 10. 2012 merged with ČPZP)

Source: data from mzc.cz

**Table 5 – Number of policyholders**

<b>Insurance Company</b>	<b>Number of Insured</b>	<b>Percentage of insured</b>
<b>111 VZP</b>	6,178,670	59.4%
<b>201 VoZP</b>	625,118	6%
<b>205 ČPZP</b>	736,897	7.1%
<b>207 OZP</b>	697,889	6.7%
<b>209 ZPŠ</b>	137,363	1.3%
<b>211 ZP MV ČR</b>	1,182,442	11.4%
<b>213 RBP</b>	415,489	4%
<b>217 ZP M-A</b>	429,403	4.1%

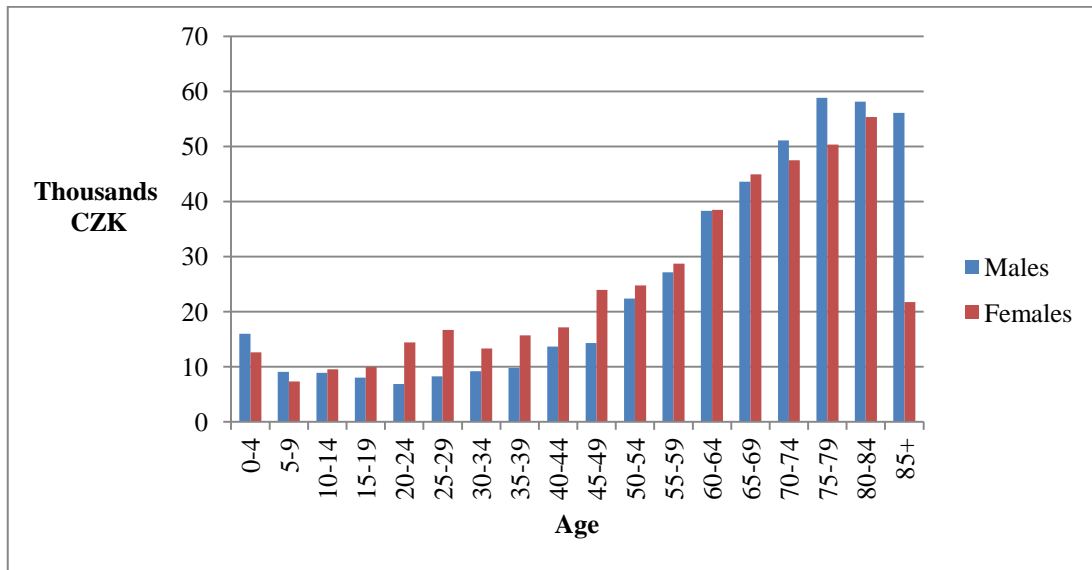
Source: data from mzcrcz

A special case of an insurance company is the VZP. It is an insurance company founded by the state and its activity is regulated by a special act (as stated above). There is a monopoly situation on the market of health care insurance with VZP having almost 60% of all policyholders in the Czech Republic (see table 5). [7]

### **3.3.2 Financial results of insurance companies**

Czech insurance companies are in a very difficult position nowadays. As the average age of population as well as the life expectancy is getting higher, there is a rising number of retired policyholders, which causes not only higher expenditure for the state (as the state is paying the contributions for retired policyholders), but also a higher expenditures for the insurance companies. This fact is illustrated by a table below:

**Graph 1 - Average health care costs covered by health insurance companies per one insured by age and sex in 2010 (in thousands CZK)**



Source: data from uzis.cz

It is obvious that the expenditures differ depending on age and gender of the policyholder, but the difference between the costs per one policyholder in a productive age and one elderly/retired policyholder may be up to 50 000 CZK, which is a sum with a huge effect on the insurance companies' budget. In last few years, mainly as an effect of aging of the population, the insurance companies got into a very difficult situation.

“The healthcare costs of health insurance companies increased according to CZSO from 2010 by 1.4 %, to 218 ths. mil. CZK. The largest increase was in costs of healthcare provided by out-patient specialists (by 5.7 %) and by general practitioners (by 2.1 %). The costs of medicaments and medical devices decreased in the total by 0.6 %. According to references of Ministry of Health care, the total revenues per 1 insurance client in 2011 were 21 203 CZK (by 2.1 % more than in 2010), the total expenditure per 1 client were 21 699 CZK which was an increase by 1.3 %. The State paid the insurance for its clients (pensioners, children, students, etc.) ca. 53 ths. mil. CZK, which covered health insurance of a total of 6 million „state” insurance clients (children, pensioners, job applicants, prisoners, etc.). “ [4]

Table 6 – Revenues and expenses of health insurance companies per person insured (in CZK)

Indicator	2010	2011
Total revenues (incl. government donations and taxable activities)	20,758	21,203
Total expenses	21,421	21,699

Source: data from [uzis.cz](http://uzis.cz)

As clear from the table 6, the insurance companies' expenditure per one policyholder is on average higher than the amount of money they receive. According to their financial results from last few years, they are generating a loss and depleting their financial reserves.

According to Act Nr. 551/1991 of the Legislation about VZP and Act Nr. 280/1992 of the Legislation about resort, sectoral, corporate and other health insurance companies, the insurance companies are obliged to have a certain financial reserves to ensure the ability to pay the hospitals even in case they get into financial loss [6] [8]. However, as the trend of depleting the financial reserves continued for multiple years, the financial reserves of VZP have been depleted in the end of the year 2011. As a response, in the beginning of year 2012 the Ministry of health care took a very controversial measure when it forced smaller insurance companies to give up their reserves (up to 3 billion CZK) and to transfer them to VZP's accounts to save it from insolvency, since the insolvency of VZP would mean a breakdown of the whole system of health care in the Czech Republic. This step was very unconventional and, surprisingly, it was not covered in the media at all. [9]

### **3.4 Ways of distributing funds**

As stated before, the insurance companies are in a position of distributor of funds to hospitals. The money paid as insurance premiums to insurance companies are then redistributed to hospitals (on annual basis). However, the rates are not flat and the total amount of money paid to each hospital differs. The amount is computed in quite a complicated way, and the rules for payments change every year according to a regulation issued every year by the ministry of health care (the current one is Act No. 425/2011 of the Legislation).

As a simplification, it is possible to divide the ways of payment used into four different groups:

- a) Payment per capita
- b) Payment per treatment day
- c) Payment per case
- d) Payment per diagnosis

#### **3.4.1 Payment per capita**

Payments are distributed according to number of patients registered with given specialist. This way of payment is most common with general practitioners and paediatricians. For example, the payment per one policyholder registered in the general practitioners office is 47-50 CZK, depending on the general practitioner's office hours. [10]

#### **3.4.2 Payment per treatment day**

Payments are distributed at a given rate per day, multiplied by number of days which the patient spent in the given facility. This way of payment is most usual with spa treatments and rehabilitation programmes as well as hospice facilities, and the rate is individually set for each patient category and each type of facility. [10]

#### **3.4.3 Payment per case**

Payments per case are mainly used for ambulant treatments provided by specialist practitioners (as dentists, gynaecologists or otolaryngologists). The rate per treatment is given by tariff, although it differs according to the specialisation, type of operation and age of patient. [10]

### 3.4.4 Payment per diagnosis

This way of payment is quite similar to payment per operation, but it is far more complex.

This system acknowledges the fact that different operations have different costs, and that those costs may change in time with technological progress.

Payment per diagnosis uses a system called DRG (diagnosis related group). DRG is a way of dividing the operations into groups according to its diagnosis. A version with 467 different groups is used currently [11].

This system has been first used in USA in 1982, and the reasons for its creation are described in the publication *Diagnosis Related Groups (DRGs) and the Medicare Program: Implications for Medical Technology from the year 1983*: “Recently, a new kind of prospective payment has emerged: per-case payment. Under this form of payment, the hospital is paid a specific amount for each patient treated, regardless of the number or types of services provided. Thus, the hospital is rewarded for reducing the cost of treating a patient over the entire course of the hospital stay. Per-case payment removes the incentive to provide more technologies and encourages the hospital and its physicians to consider explicitly the benefits of additional services against their added costs. Per-case payment cannot survive for long without a method to adjust for differences in the kinds of patients that hospitals treat. If hospitals were paid the same amount for each admission regardless of its clinical characteristics, over time they would be encouraged to treat patients who are less ill and to avoid the cases that require more resources. Thus, the implementation of per-case payment has rested on the availability of an acceptable method of measuring the hospital’s case mix.” [11]

So the system of payments is trying to find an ideal correlation between the cost of treatment and amount of money paid to hospital. However, as this system is very complex and dynamic, its application requires a lot of effort. As stated above, the cost of treatment is changing constantly, and the DRG system has to reflect it.

“In the long run, the success of DRG payment will rest on its flexibility and adaptability to changing costs and technologies. Four findings concern this need for periodic adjustment:

1. the requirement for regular re-estimation of relative DRG prices implies a need for continued collection of hospital cost and charge data;

2. procedures allowing for the adjustment of DRG rates conditional on a hospital's adoption of a technology may be important to stimulate adoption of desirable but cost-raising technologies;
3. the DRG adjustment process requires supporting evidence about the effectiveness, risks, and costs of new technologies; and
4. the adjustment process should guard against proliferation of DRGs.” [11]

## 4. CASE STUDY

### 4.1 Introduction of the hospital in Česká Lípa

Hospital in Česká Lípa is a medical facility located in a town in the north of the Czech Republic. The hospital's legal form is public limited company from the 1<sup>st</sup> January 2007 (before this date, it used to operate as a semi-budgetary organization). [12]

The hospital has been founded in 1892 as a municipal hospital and gradually expanded. In 1937 a pavilion for treatment of infections was established, and in years 1945-1946 a new building was added and used as a hospice, surgery department, gynaecology ordination and maternity ward. [12]

In the 1970's, Česká Lípa experienced a boom in uranium mining industry, and therefore the number of its inhabitants rose quickly as many families moved in to get a job in the uranium mines. The current hospital building was not sufficient anymore, and it was decided to build a new hospital complex. [12]

The construction of the new hospital complex begun in 1976, and was finished in 1981. The actual construction was carried out by a company from former Yugoslavia (same company which built most of industrial objects in this region in the 1970's). The overall disposition of the hospital, its infrastructure, type and the building size was planned for a rapidly developing district, steadily attracting new inhabitants. However, these expectations were not met as after 1989, the uranium industry was slowly abandoned and the growth of population of the Česká Lípa district slowed down, which resulted in the hospital complex being oversized to actual needs. This, together with the fact that the hospital was built in a manner usual in the communist era (the complex includes for example car repair shop, fallout shelter and a house for gardeners), causes huge problems in the budget of the hospital. [12]



Picture 1 – Hospital in Česká Lípa



Source: nemcl.cz

Nowadays, the hospital offers both inpatient as well as ambulatory care for the whole Česká Lípa district, which has about 100 000 inhabitants. The hospital has 414 beds for inpatient acute care and 122 beds for aftercare.

The inpatient department consists of departments of anaesthesiology and resuscitation (ARO), paediatrics, gynaecology and maternity ward, surgery, nephrology and dialysis, neurology, orthopaedic, urology, and aftercare department. Ambulatory care offers services of specialists (including speech therapy, oncology and pulmonary department, haematology and rehabilitation). [12]

## 4.2 Operational funding of the hospital in Česká Lípa

To evaluate a hospital's economic situation is complicated, since the hospital's main aim is not to generate profit, but to offer health care. However, "(...) resources – people, time, facilities, equipment, and knowledge – are scarce. Choices must and will be made concerning their deployment." [13] Therefore it is necessary that the hospital has a good financial plan. In this chapter, the funding of the hospital in Česká Lípa is explained.

The financial management of a hospital has some very specific aspects. One of the most significant problems represents the difficulty in job standardization. Although it is possible to standardize the job performance in other professions, this task is difficult in the health care system. The efficiency of work (doctor's experience) and the reaction of the organism of the patient are just two of all the variable factors affecting the performance. [1]

Another issue worth mentioning is the contradiction between the level of medical science and the sources the doctors have at their disposal. The increase in the source in the health service is not as rapid as the development of technologies. [1]

Also, as the health service is not purely economic area, it is very difficult to define the terms like costs or revenues. It is an area, where economy meets with solidarity and ethics. The ethic problems occur especially in cases, when unnecessary services are carried out in order to make profit. [14]

However, this chapter shows the overall situation of the hospital using the data from the internal documents of the hospital, from balance sheets and from the income statements.

### 4.2.1 Revenues of the hospital

The revenues in operational funding of hospital in Česká Lípa can be divided into four groups:

- a) Payments for medical services from the insurance companies
- b) Regulatory fees and payments for hospitalization from patients
- c) Donations from the region, from donors (companies), subsidies from ministry of health care

- d) “Other revenues” including rent from non residential premises (mainly renting empty ordinations to external specialists) and rent from hospital’s dormitory

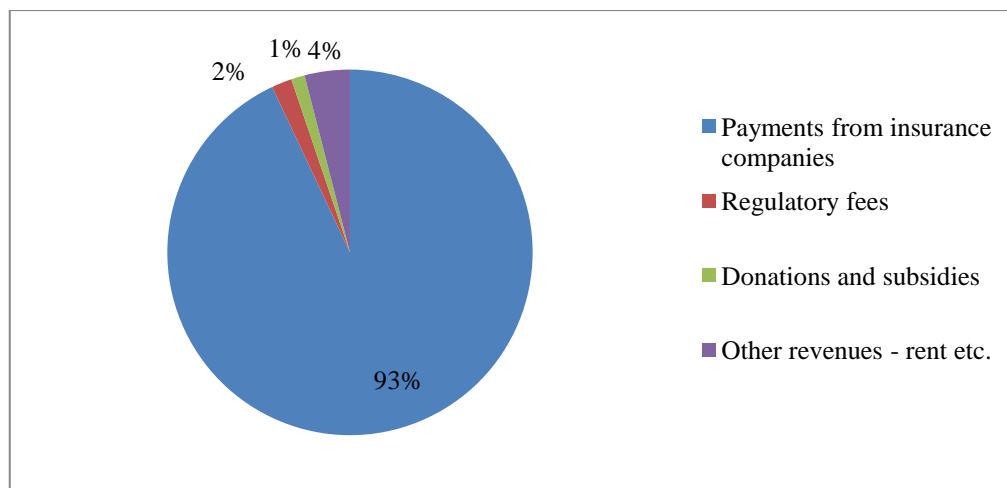
As an illustration for structure of the revenues, take the year 2011. This year wasn’t very successful for the hospital, as, after 2010, when it ended in profit of 160,000 CZK, in 2011 the hospital ended in loss of 43,244,000 CZK, mainly because of a change in way of payments from insurance companies.

**Table 7 – Revenues of the hospital in Česká Lípa in 2011 (in mil. CZK)**

Revenues	Mil. CZK	%
a) Payments from insurance companies	506.0	93%
b) Regulatory fees and payments for hospitalization	9.7	2%
c) Donations and subsidies	6.6	1%
d) Other revenues	21.9	4%
Total:	544.2	100%

Source: data from hospital

**Graph 2 – Revenues of the hospital in Česká Lípa in 2011 (in %)**



Source: data from hospital

As clear from the graph, the payments from insurance companies are more than 90% of the total revenues of the hospital, which means that even slight change in the amount paid may be vital for the hospital. In the year 2011, the payments from hospitals reached only

98% of the amount paid in year 2009, which meant a lack of 16 mil. CZK in the hospital's budget, which had to be covered from other revenues.

#### 4.2.2 Expenses of the hospital

Expenses of the hospital can be divided into seven main groups:

- a) Salaries and wages plus other personnel cost (social and health insurance etc.)
- b) Medicaments and medical material
- c) Services (including repairs of medical equipment, laundry, garbage treatment, IT services etc.)
- d) Payments for energy
- e) Repairs of buildings
- f) Depreciation
- g) Other expenses

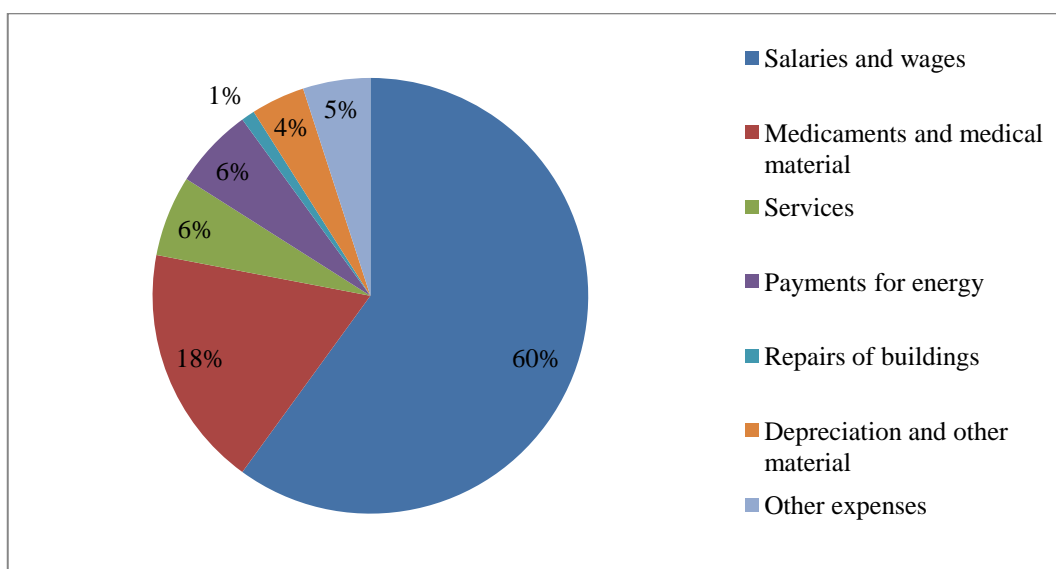
The structure of these expenses can be demonstrated on data from 2011.

**Table 8 - Expenses of the hospital in Česká Lípa in 2011 (in mil. CZK)**

<b>Expenses</b>	<b>Mil. CZK</b>	<b>%</b>
a) Salaries and wages	359.0	60%
b) Medicaments and medical material	110.0	18%
c) Services	35.5	6%
d) Payments for energy	34.5	6%
e) Repairs of buildings	7.0	1%
f) Depreciation and other material	26.5	4%
g) Other expenses	28.5	5%
<b>Total:</b>	<b>601</b>	<b>100%</b>

**Source: data from hospital**

**Graph 3 – Expenses of the hospital in Česká Lípa in 2011 (in %)**



**Source: data from hospital**

One of the main expenditure groups in hospital’s operational funding is salaries and wages. Although the revenues are steadily decreasing because of the financial crisis, there is a huge pressure on salary raise every year, especially from the doctors (in 2011, there was a huge protest movement called “Thank you, we’re leaving”, and more than 3,800 doctors around the whole Czech Republic had threatened to leave their positions and find a job abroad if their requirements, including a significant pay rise, would not be met), although from internal documents of the hospital, it is clear that doctors are the group of staff where not only the average salary is highest, but also it has risen the most from all the categories. This situation causes another pressure in the hospital’s budget.

**Table 9 - Average salary of the main staff categories in hospital Česká Lípa (in CZK)**

Period	Doctors	Nurses	Medical laboratory scientists	Physiotherapists
1-12/2008	53,221.80	21,185.94	23,267.96	21,887.97
1-12/2009	56,550.08	23,345.43	25,705.48	24,750.43
1-12/2010	57,663.11	24,383.77	26,511.65	26,493.63
1-12/2011	64,987.30	24,479.87	26,926.21	26,506.78

**Source: data from hospital**

## 4.3 Economic analysis of the Hospital

### 4.3.1 Economic situation of the hospital

For this part, the data from years 2008-2011 were used (final data for 2012 were not released yet in the time of composing this thesis). Data were taken from annual reports prepared by the hospital and available to public at their website, and the data from balance sheet and income statement were used. In the table 10, the total amount of assets and liabilities is shown.

**Table 10 – Total assets and liabilities (in thousands CZK)**

<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
455,716	458,115	475,361	478,664

**Source: data from hospital**

Table 11 shows the main groups of hospital's assets. It is interesting to notice the falling value of fixed assets (mainly because of the hospital's building complex depreciation).

**Table 11 – Assets (in thousands CZK)**

	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Fixed assets</b>	317,548	311,165	295,121	282,617
<b>Tangible fix. asset</b>	316,686	304,207	290,456	280,020
<b>Current assets</b>	137,396	145,963	177,971	194,774
<b>Inventories</b>	14,204	14,172	14,008	12,019
<b>Short-term receivables</b>	82,970	96,311	163,179	182,221
<b>Financial assets</b>	40,222	35,480	784	534

**Source: data from hospital**

Table 12 shows the main groups of hospital's liabilities. The large value of short term liabilities is mainly composed by unpaid invoices from the suppliers.

**Table 12 - Liabilities (in thousands CZK)**

	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Equity</b>	328,961	312,562	314,073	333,737
<b>Long-term liabilities</b>	2,374	1,927	729	283
<b>Short-term liabilities</b>	118,147	136,914	153,367	186,047
<b>Reserves</b>	6,000	6,357	6,652	7,590

Source: data from hospital

Table 13 shows the data from the income statements of the hospital from years 2008-2011. It helps to understand the hospital's financial results.

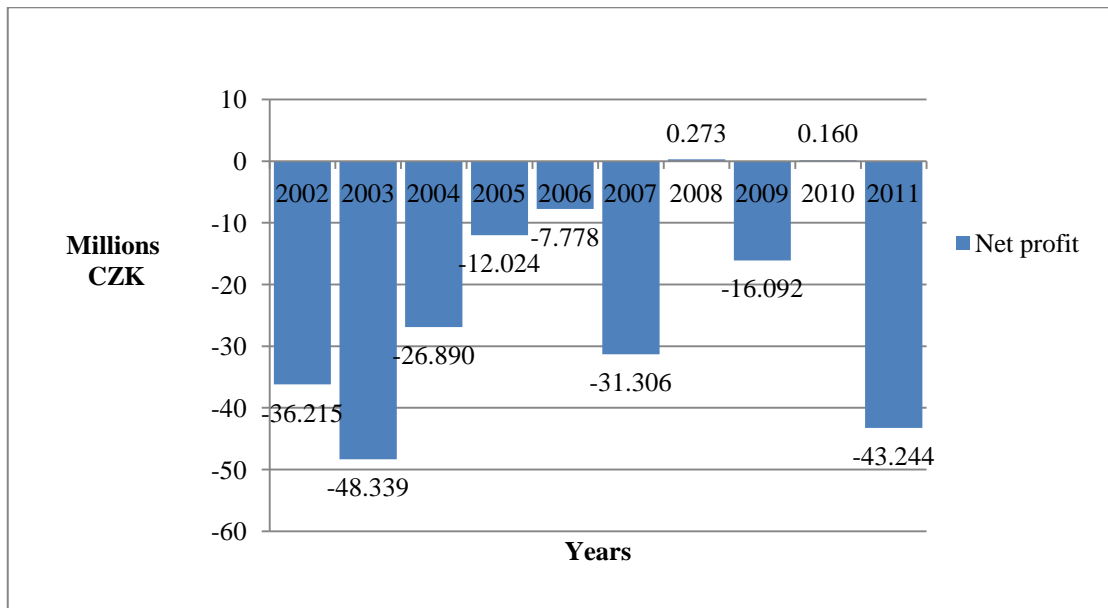
**Table 13 - Income statement data (in thousands CZK)**

	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Sales of goods</b>	94,429	111,873	96,900	85,007
<b>Cost of sales of goods</b>	77,636	92,583	79,002	69,326
<b>Revenue from procedures</b>	529,846	545,274	568,936	537,925
<b>Costs of procedures</b>	209,375	217,554	214,916	214,398
<b>Personnel costs</b>	321,529	342,236	350,306	361,968
<b>Depreciation</b>	19,680	21,286	23,098	22,701
<b>Operating income</b>	-1,822	-17,102	300	-43,042
<b>Total profit</b>	<b>153</b>	<b>-17,250</b>	<b>160</b>	<b>-43,224</b>

Source: data from hospital

As clear from the table 13, the financial situation for the hospital is not really satisfying. The hospital usually ends the year with a remarkable loss, as can be seen in following graph, which describes its results further in the past:

Graph 4 – Net profit of the hospital (in millions CZK).



Source: data from hospital

The reasons for this situation are too complex to be described properly in the thesis. However, one of the main problems is the oversized and obsolete buildings complex. As stated before, the hospital was built for a developing city, however the city development has not reached the expected level (and expected number of inhabitants), therefore the hospital is oversized and the management has to deal with unnecessary space. Due to the age of the complex, a lot of problems appeared in last few years; for example plumbing collapses (on average, two collapses per day occur in different parts of the hospital) or outdoor coating falling apart. This condition requires a lot of investments, but the hospital lack funds for a complex renovation, therefore the urgent repairs have to be paid from the operational budget.

Another problematic point affecting the economic results is the system of payments from the hospital. A fluctuation in results is mainly caused by the fact that the amounts paid to the hospital each year are quite unpredictable due to often changes in ways of payment, and therefore creating financial plans is complicated.



### 4.3.2 Ratios

First, it is necessary to mention that it is a bit problematic to evaluate a hospital using the financial ratios, since a hospital's primary objective is to ensure health care for the region, not to generate profit. However, the ratios are valuable indicators of the hospital's economic situation.

#### *Profitability ratios*

ROE: The return on equity ratio is computed as the net profit divided by average shareholders' equity. It shows the percentage of net profit over one CZK. This calculation is used by investors to determine the amount of return they are receiving from their capital investment in a company. [15]

Table 14 – Return on equity

2008	2009	2010	2011
0.0005%	-0.0552%	0.0005%	-0.1295%

As clear from the table, the hospital is not a good investment opportunity, since the return rate oscillates around zero and even drops into negative numbers.

ROA: The return on asset ratio shows the relation between profit and assets. "A company is deemed efficient by investors if it can generate an adequate return while using the minimum amount of assets to do so. This also keeps investors from having to put more cash into the company and allows the company to shift its excess cash to investments in new endeavours. Consequently, the return on assets employed measure is considered a critical one for determining a company's overall level of operating efficiency." [15] The ratio is computed as net profit divided by total assets.

Table 15 – Return on asset

2008	2009	2010	2011
0.0003%	-0.0377%	0.0003%	-0.0909%

These results only prove the previous results from ROE ratios, that the hospital is not a favourable investment opportunity.

### *Market ratios*

EPS: Earnings per share is a ratio which is used to compare the financial results of publicly held companies. It is useful for shareholders to determine changes in earnings per share held over a period of time. It is computed as net profit minus dividends on preferred stock (none for the hospital case) divided by number of shares [15]. For a hospital, the major and only shareholder is the region Liberec.

According to Czech business register, the hospital has issued 226 shares (by the 21<sup>st</sup> December 2007, and this number has not changed since then). The earnings per share ratio on yearly basis is shown in the table below.

**Table 16 – Earnings per share**

<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
0.6777	-76.3274	0.7080	-191.2570

It is obvious that the hospital's performance is per share is not a great opportunity for shareholders.

### *Liquidity ratios*

For the operation of the hospital, liquidity ratios are more relevant than others, since its main aim is to provide health care, not to generate profit. These ratios are of considerable use to lenders, investors, and investment analysts. The measures are used to evaluate a company's viability. This is accomplished by examining a company's ability to collect accounts receivable in an efficient manner, use its inventory within a short time frame, pay its accounts payable when due, and maintain a sufficient amount of liquid funds to pay off short-term liabilities. [15]

CURRENT RATIO: The current ratio is used by lenders to determine whether a company has a sufficient level of liquidity to pay its liabilities. The ratio actually shows how many times the company's liabilities can be satisfied, if all assets were converted to cash. While there is no "right" ratio, a ratio of 1.5-2 is usually considered safe. A current ratio of 1 is considered to be the absolute minimum level of acceptable liquidity, whereas a ratio closer to 2 is preferred. [15]

**Table 17 – Current ratio**

<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
1.1629	1.0661	1.1604	1.0469

As clear from the results, the hospitals ability to pay its liabilities is close to the minimum.

**CASH RATIO:** This ratio is considered to be more conservative, since it uses only cash and short-term marketable securities in the numerator, and so it is the best way to see what proportion of liabilities absolutely, positively can be paid right away. This ratio is computed as cash plus short-term marketable securities (financial assets) divided by current liabilities. A ratio of 1 is a reasonable evidence of liquidity. [15]

**Table 18 – Cash ratio**

<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
0.3404	0.2591	0.0051	0.0029

The cash ratio is extremely unfavourable for the hospital.

### **4.3.3 Results of the ratios**

The profitability ratios for the hospital are displaying the loss of the hospital – return on asset ratio in 2011 shows the profit of -0.1295% over one CZK of the shareholder’s equity, while the return on asset ratio for the same year is -0.0909%. The earnings per share ratio for the year 2011 is -191.26. These results show that the hospital is not a favourable investment option. The current ratio in 2011 shows a result of 1.0469, while the minimum for a company to be able to pay for its liabilities is usually considered to be 1. Cash ratio is 0.0029, which shows the incapability of the hospital to pay for its liabilities with cash and short-term liabilities.

## **4.4 Change in system of buying medical material**

This situation was unbearable for the hospital. Therefore, in the year 2010, it was decided to do a series of strategic changes to improve the hospital's budget. One of the management's decisions was to change the system of buying medical material. As this change was one with the largest effect on operational funding, this chapter is dedicated to its description and evaluation of its effect.

### **4.4.1 Description of the change**

Before 2011, the system of buying medical material was set in such a manner that each department of hospital was buying all necessary material according to its needs and consideration (usually the head nurse and the head physician of given department were in charge of buying). The invoices for the ordered material were then given to accounting department to be paid.

In 2010, the hospital performed an analysis of this buying system of medical material. The results showed that there are considerably high leakages of funds in this process, and that there was a high influence of pharmaceutical companies lobby. Therefore it has been decided to create a new, centralised system of buying medical materials, so that the management would be able to control amount of funds spent, and the type of material bought.

The process of implementing the new change was as follows:

- a) First, an internal document regulating the system of buying was issued, to set the rules for the new buying system and to acquaint the medical staff with it.
- b) Next, a system of "positive lists" was created and implemented. The "positive lists" are registers created by the buying team, which was put together by the management purely for this purpose. Those are registers of all medical supplies, which are considered necessary, altogether with a supplier who offered the best price. The system of creating the lists is further described in next chapter.
- c) The buying team started to use the electronic market (specialized on selling medical supplies, for ex. Alitrade) for buying smaller amounts of material, which also helped to cut down the costs.

- d) By all these steps, the danger of pharmaceutical lobbyists affecting the choice of material was minimized, and the position of the buying team was re-established and enforced.
- e) A motivation had to be created for the head nurses and head physicians to follow the positive lists and try to cut their expenses. A budget limit was therefore given to each department, and each expense over this limit is sanctioned.
- f) A position of internal auditor was created to ensure valid tenders and to control that the price stated in the tender is actually charged.
- g) As a last step for now, an evaluation of this process is currently in progress, as well as implementing some minor changes leading from experiences with this system.

#### 4.4.2 System of the positive lists

As stated before, the main idea of positive lists is to choose the best possible option from the large amount of goods on the medical material market, and to pick a supplier who is able to offer the good at the best price.

The system of positive lists is described by the graph below.

At the beginning, a buying team was established. The buying team for the hospital consists of 10 people, including head nurses who already had experience with buying of medical material, pharmacists and economists. Then, the head physicians of each department were asked to create lists of supplies necessary for their department, altogether with their current supplier and approximate amounts of each material needed per year. When the buying team received the lists from all departments, a long process of sorting out the best possible variant of good begun. This process involved getting references from the departments which already used these types of material as well as testing new samples.

Once the choices were made, the lists were put out to tender, and current as well as new suppliers were asked to make a proposal of their conditions. Since the exact products were already chosen, the main criterion for this tender was price.

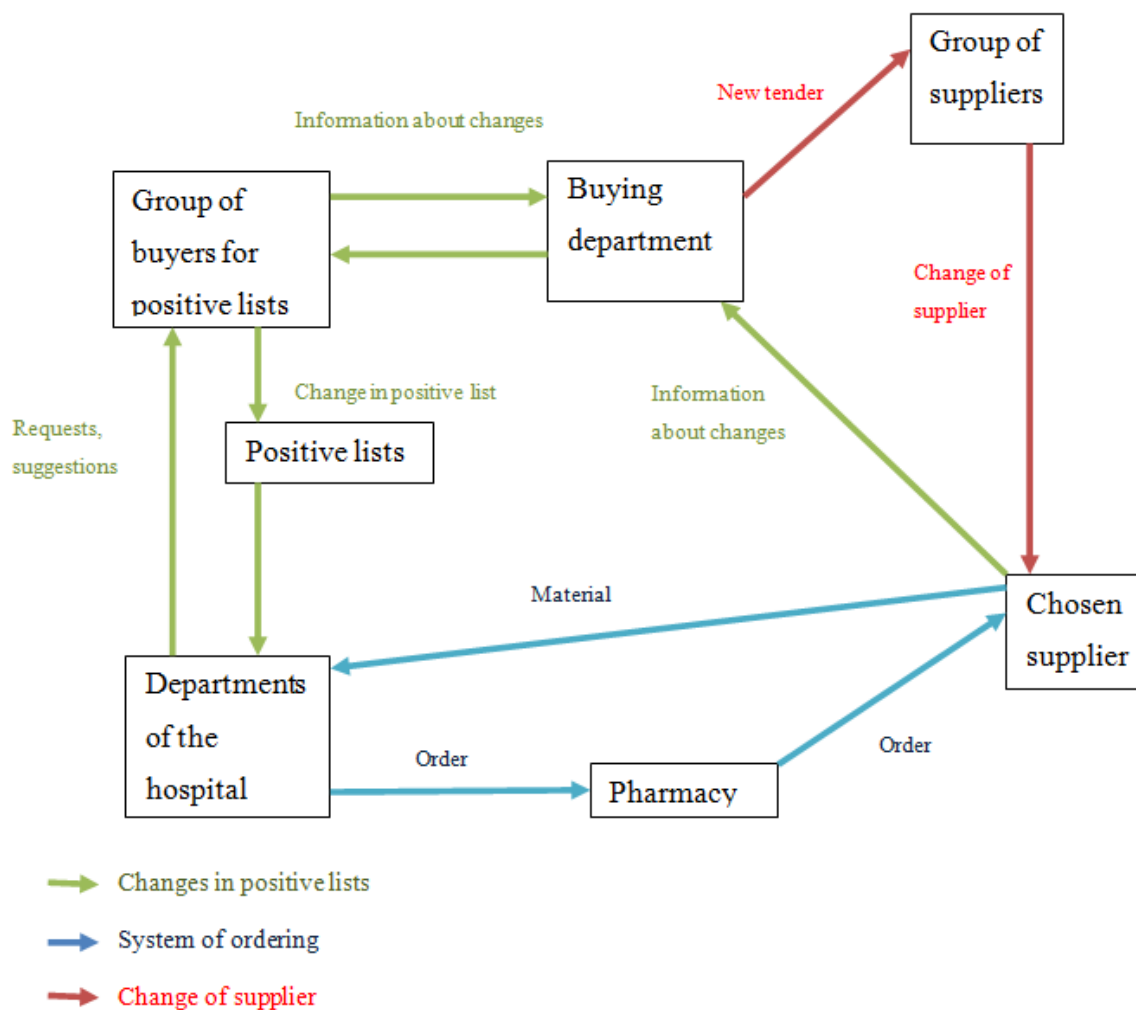
When the suppliers for each group of material were chosen, a “positive lists” were created. The lists clearly stated the type of material which can be ordered, and the supplier for each one.

Once the positive lists were ready and checked, custom software was created for ordering the material, which connects the hospital departments with the pharmacy department, which is responsible for ordering from suppliers. The programme allows ordering only those items, which are listed on the positive lists.

The feedback from the supplier (such as announcement about changes in products, modifications, changes in prices etc.) goes back to the buying team which, in case of any major change, decides whether to change the contract or not. If the new conditions are unfavourable for the hospital, a new tender is opened.

The supplier also sends the invoices to hospital’s accounting department. For this department, custom software was created just to check whether the price set in tender is the same as the price which is actually being invoiced.

Diagram 2 – System of positive lists in the hospital in Česká Lípa



Source: internal documents of the hospital

#### 4.4.3 Cost-benefit analysis of the project

Main aim of this project was to save money for the hospital without restricting the health care offered, and so the only effect considered in this analysis was economic. The initial investments were funded from the hospital's operating budget. The only sides affected by this project were the hospital's staff, which was forced to use the new system of ordering, and the management of the hospital, which had to plan the whole strategy.

The depreciation period for the software is 5 years, so this period will be used for the cost-benefit analysis.

##### **Costs of the project in the first year:**

###### **Non-recurring prices:**

Software development in the first year 25,000 CZK

###### **Recurring prices:**

Licence and service for the software 5,000 CZK/month

Personnel cost of the buying team including all the costs (paid as a salary premium for current employers involved in the team) 9,300 CZK/month

Recurring costs per year  $(12 * 5,000) + (12 * 9,300) = 171,600$

Total costs of implementation and operation in the first year = 196,600

Total costs of implementation and operation in next 4 years = 171,600

##### **Benefits from the project in the first year:**

This table shows the amount of savings on all groups of medical material used in the hospital during the first year of using the new system (created in 2011, the comparison is created for the year 2012 when the new system was implemented). It is necessary to mention that the amount ordered was still covering all the needs in the hospital.



Table 19 – Savings on medical material (in CZK)

Item	Price per year in 2010	Price per year in 2012	Yearly savings
Intravenous nutrition	1,400,000	1,000,000	400,000
Artificial stoma equipment	5,943,834	5,170,934	772,900
Catheters	348,606	299,302	49,304
Urine sacks	218,079	203,001	15,078
Gloves	659,459	601,120	58,339
Cannula plugs	151,228	120,032	31,196
Blood transfusion sets	1,595,477	1,203,030	392,447
Laboratory equipment	92,569	54,799	37,770
Urinary incontinence products	424,884	338,765	86,119
Bandages	1,129,411	881,347	248,064
Respiratory equipment	1,251,279	974,670	276,609
Probes	17,878	16,280	1,598
Sterilization	663,800	584,946	78,854
Surgical wear	108,900	85,749	23,151
Heparins	2,854,000	2,391,050	462,950
Orthoses	890,000	756,500	133,500
Equipment for flexible endoscopy	1,430,000	1,274,000	156,000
All medicament types	4,618,000	4,287,000	331,000
All solution types	2,463,000	2,389,110	73,890
<b>Total</b>	<b>26,260,404</b>	<b>22,631,635</b>	<b>3,628,769</b>

Source: Data from hospital

## **Cost – Benefit analysis**

For this cost-benefit analysis, the period of five years was used.

Three scenarios are suggested – in the first one the benefit for next four years stays the same, in the second one the benefit falls in time, and in the third one, the benefit is zero after the initial year

The discount rate is the interest rate used in discounted cash flow analysis to determine the present value of future cash flows. The discount rate takes into account the time value of money (the idea that money available now is worth more than the same amount of money available in the future because it could be earning interest) and the risk or uncertainty of the anticipated future cash flows (which might be less than expected). [16]The discount rate for each of the three scenarios is the same, 2%. It reflects the opportunity cost of investing the money into this project versus saving them on a savings account – 2% is an average interest rate on a common savings account.

Payback period is the length of time required to recover the cost of an investment. The payback period of a given investment or project is an important determinant of whether to undertake the position or project, as longer payback periods are typically not desirable for investment positions. Calculated as  $\text{payback period} = \text{cost of project} / \text{annual cash inflows}$  [17]

Internal rate of return is the rate of growth a project is expected to generate. While the actual rate of return that a given project ends up generating will often differ from its estimated IRR rate, a project with a substantially higher IRR value than other available options would still provide a much better chance of strong growth. [18]

### **Scenario 1**

In scenario one, the assumption that the benefit stays the same is used. This assumption is based on the idea that the amount of material bought stays almost the same each year, and that the prices can be set at a similar level each year.

**Table 20 – Cost-benefit analysis scenario 1 (in CZK)**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Costs	196,600	171,600	171,600	171,600	171,600
Benefits	0	3,628,769	3,628,769	3,628,769	3,628,769
Net benefits	-196,600	3,457,169	3,457,169	3,457,169	3,457,169

Benefit-cost ratio: 16.43836:1

**Net present value of the project = 503,547.98 CZK**

Payback period = 0.0542 years

Internal rate of return = 1,758%

## **Scenario 2**

In this scenario, the benefit falls in time. This scenario might be quite possible, since in time, price of medical material may rise and the deals with the suppliers may change.

**Table 21 - Cost-benefit analysis scenario 2 (in CZK)**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Cost	196,600	171,600	171,600	171,600	171,600
Benefit	0	3,628,769	2,000,000	1,000,000	500,000
Net benefit	-196,600	3,457,169	1,828,400	828,400	328,400

Benefit-cost ratio: 8.073351:1

**Net present value of the project = 397,893.67 CZK**

Payback period = 0.0542 years

Internal rate of return = 1,711%

### Scenario 3

The third scenario is a hypothetical case. It shows the results of this project if after the first year, this project wouldn't bring any more benefits.

Table 22 - Cost-benefit analysis scenario 3 (in CZK)

	2011	2012	2013	2014	2015
Cost	196,600	171,600	171,600	171,600	171,600
Benefit	0	3,628,769	0	0	0
Net benefit	-196,600	3,457,169	-171,600	-171,600	-171,600

Benefit-cost ratio: 4.109591: 1

**Net present value = 309,416.31 CZK**

Payback period = 0.0542 years

Internal rate of return = 1,653%

#### 4.5 Evaluation of the economic result of change and proposals for the future

In the first year, the price including implementation of the project was 196,600. From the next year on, the cost dropped to 161,600, and the amount of funds saved is more than 3,628,000 CZK.

This amount is surprisingly high, but it can be explained by multiple factors. First category of savings were those in the hospital's budget connected straight to the new buying system – mainly economies of scale, since the hospital was able to negotiate a better price with the suppliers when it started buying in bulks. Another reason for the savings was that the price was set in a tender, which eliminated the attempts of pharmacy companies to raise the price in agreements with the head nurses and head physicians, a tactics often used before introducing the new system of buying.

Savings were also caused by lower consumption of the medical material, mainly thanks to introducing limits for amounts of medical material which can be used in each department, and sanctions for breaking them, as well as because of simplified system of ordering from the pharmacy, so it is easier for the departments to check the amount of material in stock.

From the results of the first scenario, it is obvious that if the benefit stays the same for next three years, the project was a great success. The net present value is over 500,000 CZK, and the benefit-cost ratio is almost 16.5:1, which is both extremely favourable for the project. The second scenario is the same case with present value over 397,000 CZK, and benefit-cost ratio of 8.7:1. The third case is interesting from the hypothetical point of view – even if the benefits listed above were the only benefits this project brought, it would still be a good investment opportunity, as the net present value is over 309,000 CZK and the cost-benefit ratio of 4.1:1.

From the results of cost-benefit analysis, it is clear that the implementing of a new buying system was really efficient and brought large savings into the operational funding of the hospital, and as it is expected to bring about the same amount of benefit even in the next years, it is expected to be a real success for the hospital.

For the future of the hospital, there are few other changes considered. One of the most important is merging the detached hospice and aftercare facility located in Nový Bor (approx. 15 km from Česká Lípa) with the hospital's one, and moving it into the hospital's

complex. This move would save funds from renting a building in Nový Bor and also a lower number of staff would be necessary, however it causes ethical dilemma, since all the patients would have to be moved to Česká Lípa, which often means further from their families.

Another considered option is restructuring of the inpatient ward. Some of the departments would then be merged, which should bring along considerable amount of savings on energy and staff. This change would not affect the patients, since the overall bed occupancy in 2011 was only 67.7% [19], which means that there is an unused capacity of beds.

## 5. CONCLUSIONS

The aim of this thesis was to explain the situation of health care in the Czech Republic and to show the implications of this situation on a case study of a hospital in Česká Lípa, and then to analyze the change in buying system.

The situation of health care in the Czech Republic is described in the literature review part. As clear from the system of payments from insurance companies, the current situation is not very favourable for smaller hospitals such as the one in Česká Lípa.

According to financial ratios used, it is obvious that the financial results of hospital in Česká Lípa are not very satisfactory. The hospital is not profitable and its loss is cumulating steadily, which means an accumulation of debts, and the fluctuation in liquidity is causing problematic relationship with suppliers (due to the possible incapability to pay hospital's liabilities).

However, as the second part of the case study shows, there are ways how to improve this situation. To make a fundamental change and to help to generate profit, it would be necessary to restructure the whole concept of the hospital, but such a change can take many years. Therefore it is necessary to introduce smaller changes into the strategy of the hospital, such as the change in buying system described in the thesis, to keep a balanced budget. The results of the cost-benefit analysis show that this project was a success and that it brings a considerable amount of savings into the hospital's budget.

There are plenty possibilities for changes, the management of the hospital is currently considering merging the detached hospice and aftercare facility and restructuring the ward, which would bring savings in the operating budget. However, most of these changes have not only economical, but also an ethical point of view. These aspects need to be considered before any strategic change is done.

## 6. LITERATURE REVIEW

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## 7. APPENDICES

Appendix 1 – Number of insured persons for whom the state paid health insurance premiums according to the status by end of 2010 and 2011

Skupiny pojištěnců Groups of insured persons	2010	2011	
	počet osob celkem No. of insured total	počet osob celkem No. of insured total	z toho u VZP out of which with GHIC
Nezaopatřené děti / <i>Unprovided-for children</i>	2 328 584	2 315 805	1 219 257
Poživatelé důchodů / <i>Pensioners</i>	2 777 279	2 834 672	1 956 088
Ženy na mateřské dovolené, příjemci rodičovského příspěvku <i>Women on maternal leave, recipients of parental benefits</i>	356 934	348 016	178 134
Uchazeči o zaměstnání v evidenci úřadu práce <i>Job applicants registered with Labour Offices</i>	510 831	475 763	288 849
Osoby pobírající dávky soc. péče z důvodu soc. potřeby <i>Social neediness benefits recipients</i>	2 177	1 572	1 025
Osoby převážně nebo úplně bezmocné a osoby o ně pečující <i>Invalid persons and their home-nurses</i>	32 162	31 683	18 734
Osoby konající civilní vojenskou službu nebo na voj. cvičení <i>Persons in civilian military service or on military exercise</i>	5	11	6
Osoby ve vazbě nebo ve výkonu trestu odnětí svobody <i>Persons in detention or in imprisonment</i>	20 940	22 161	15 654
Osoby bez příjmu pečující osobně celodenně o děti <i>Persons without income taking personal fulltime care of children</i>	26 302	27 970	17 560
Osoby důchodového věku bez nároku na důchod <i>Persons in retirement age without pension right</i>	5 250	5 612	5 015
Osoby bez zdanitelných příjmů pobírající nemocenskou <i>Persons without taxable income receiving sick-benefit</i>	13 156	12 620	6 065
Mladiství v ústavech / <i>Juveniles in social detention homes</i>	923	862	648
Ostatní výše neuvedení / <i>Others not mentioned above</i>	939	740	708
Celkem / <i>Total</i>	6 075 482	6 077 487	3 707 743

Source: data from uzis.cz