FINANCING OF THE LABORATORY SECTOR 
IN THE CZECH REPUBLIC 

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ABSTRACT 

The financing of health services in the Czech Republic has undergone fundamental changes since 1990. Due to legislative action followed by subsequent financing reform, significant expansion of the laboratory sector has been made possible. 

This paper summarizes fundamental milestones in laboratory financing, both in terms of outpatient care and hospital services. Positive and negative aspects of the various reimbursement models are discussed from the point of view of service providers and payers. The “Costing Model,” which is still used today to calculate reimbursement for the services listed in the “Index of Health Care Services,” is explained. 

Keywords: reimbursement, clinical laboratory, health service 

Słowa kluczowe: system zapłat, laboratorium diagnostyczne, system ochrony zdrowia 

INTRODUCTION 

The system of financing the health care system in the Czech Republic has fundamentally changed since 1990. A socialist payment model has been replaced by financing from various sources, with the majority of funding from the public health care insurance system. This change was instituted in 1993 by the Act on the system of health insurance contributions (Journal of Laws no. 592/1992). The amount of health care contributions was calculated on the basis of a percentage of the tax base, as part of a tax reform that led to increasing the amount of resources transferred to the health care system by about 50%. Thanks to that, the Czech health care system gained an extraordinary potential which meant fast development in all medical sectors, but also created the risk of excessive money squandering and maintaining too numerous personnel, especially in hospital inpatient units. 

The development of health care services depends on economic growth, technological progress, the country’s health care policy, an understanding of the causes and mechanisms of diseases, and a change in the way of thinking: from a purely medical approach to a greater emphasis on socioeconomic, demographic, and psychological factors. In the Czech Republic, the quality of health care has reached a very high level, mainly thanks to a new system of financing the health care system and high economic growth. Much worse results have been found in the sphere of management, and especially financing. They main underlying causes are the small experience in health care management and a liberal policy of concluding contracts. In the course of time, there have arisen some major conflicts between the index of available services and the possibility of their reimbursement and between the availability of services and their quality. 

This tendency has also been observed in laboratories, where technical equipment soon reached a level comparable to that of Western countries. A positive role was played by the fact that the system of postgraduate education was already well developed, thanks to which the laboratories were able to employ a large number of highly qualified workers with secondary or tertiary education. 

Reimbursements for health care services are an important tool of the health care policy aiming at providing appropriate and effective care for patients. Since 1992, several sickness funds
have been operating in the Czech Republic.\(^1\) Optimization of payments in health care is a very complicated issue, because it is not based on a direct relationship between the health care provider and the patient. Between them, there is a payer, that is, a sickness fund, which “purchases” health care. The great number of health care providers and the existence of several sickness funds have enabled all of these entities to behave in a market-wise way, but it should be remembered that there is no such thing as a perfect market, especially in the field of health care. These services are unique in that:

- the nature of health care services is often not readily understandable, and yet they need to be provided immediately;
- information about the necessary services, their quality, and price is often not accessible, even to the taxpayers;
- the patient does not know the cost of the services provided;
- market entry is significantly hampered by legal regulations;
- there is a very high risk of corruption, especially in terms of purchasing equipment and medicines;
- some political decisions run contrary to the efficiency of the system.

The aspect of reimbursement of health care services and their scope has been defined by executive legislation in the form of regulations issued by Government and by the Ministry of Health (MH). Health care legislation as well as the Index of Health Care Services (IHCS) containing point values for services has been published on a regular basis,\(^2\) as well as a list of medicines and medicinal products, on the basis of a conciliatory session between representatives of the state, health care providers, and all sickness funds. The main advantage of such a session is the opportunity to reach an economic agreement between the parties involved in providing health care services.\(^3\)

### Reimbursement Models

In the Czech Republic, reimbursements from the sickness funds are practically the only source of income for health care providers. The participation of patients is marginal, and includes payment for medicines and regulatory charges for medical visits or hospitalization. In the case of laboratory diagnostics, patients do not make any direct payments. Since 1992, when the IHCS was introduced, all reimbursement models have been tested, beginning from service-based reimbursement, various models of lump-sum payments based on previous periods, payments per patient, and combinations of these systems. Apart from the above mentioned options, hospitals also use diagnosis related groups (DRG), based on standard cases.

All medical services covered by the universal health care insurance are included in the IHCS. Since 1990, the Czech Organization of Physicians (JEP), with some specialist companies, has been responsible for the professional side of the IHCS, even though its role was very limited by 2010. The role of the initiator and coordinator was played by the Ministry of Health (MH). Until 2011, the process of developing and updating the IHCS was exclusively controlled by professional companies and sickness funds participating in the so-called conciliatory session, which evaluated the possibility to offer new services and the financial effects for the health care system if such services were to be introduced to the IHCS. In 2010, the process of developing and authorizing new services to be included in the IHCS was transferred to the Czech Ministry of Health, and the Minister of Health appointed a working group for the IHCS. Members of this group include, apart from the MH, sickness funds and representatives of public health providers.\(^4\)

The first IHCS was created by experts from different specialist companies, who did not have practically any experience in economic matters in the context of the health care system. Furthermore, the first IHCS was characterized by a number of discrepancies, and in particular

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1. Sláma P. Veřejné zdravotní pojištění, Hospodaření zdravotnických subjektů, Informační systémy ve zdravotnictví, Učební text, verze 1.2. 2009: 3-23.
there were substantial differences between the various medical sectors. The prices for services were defined in terms of points, which correspond to costs of labor, general costs, and costs of material. Costs of labor and general costs were expressed in terms of points, with 1 point worth 1 Czech koruna, while the costs of material were expressed simply in koruna.

In mid-1997, a new act of law became effective (Journal of Laws no. 48/1997), which introduced a new index of services, pursuant to which payments for particular laboratory services are to be calculated according to the so-called Costing Model (Annex 1).

The algorithm was created on the basis of the sum of direct costs and general costs.

Direct costs are divided into several groups:

- personal costs of the health care provider (a provider is defined as a qualified worker – physician, graduate of a medical university, a medical chemist who spends some time directly providing services);
- cost of monofunctional equipment (analyzers) – the cost of equipment is determined so that the analyzer should amortize over time;
- directly used medical material – analytical kits, reagents, cuvettes, etc.,
- directly used medicinal preparations.

Such an algorithm was defined for all health care services, but it could not precisely appraise those services that are to a lesser or greater degree dependent on equipment or directly used material. Therefore, the new IHCS did not remove differences in the financing of services performed by the various medical sectors. Mostly due to the considerable technological advancement (as compared to the clinical sector), laboratory diagnostics was given relatively good financing, which enabled further development of complementary care. On the other hand, in the course of time sickness funds started to press for reducing the costs of laboratory tests.

In 1992, when the Universal Sickness Fund (Czech Všeobecná zdravotní pojišťovna) was established, the service-based reimbursement system was selected as the basic model of service provision, both for clinics and hospitals.

The sickness funds were under obligation to conclude contracts – that is, all entities that met the requirements for the provision of certain services could conclude a contract with a sickness fund.

This immediately gave rise to independent laboratories that were not part of hospitals, as there appeared a unique opportunity for new businesses to enter the health care market. The new laboratories offered a new approach to laboratory diagnostics, with a focus on comprehensive and fast services, active communication, and quality. The laboratories very soon started to experience both the advantages and disadvantages of the service-based reimbursement model (Table 1).

### Table 1. Laboratories in the period 1992-1996

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reimbursement depends on the laboratory procedure performed</td>
<td>Double performance of laboratory tests</td>
</tr>
<tr>
<td>Reimbursements directed to more efficient health care facilities</td>
<td>Reporting non-existent medical services</td>
</tr>
<tr>
<td>Easy to control</td>
<td>Nobody was accountable for the number of laboratory tests performed</td>
</tr>
<tr>
<td>Fast reaction to new methods and technologies</td>
<td>Sickness funds did not introduce an efficient audit system</td>
</tr>
</tbody>
</table>

*Source: own work*

The most positive aspect of the IHCS system was that it defined the value of particular services and paid for them directly, due to which laboratories obtained large sums of money. Thanks to this financial stimulus, laboratories were able to purchase cutting-edge equipment.

After a time when diagnosticians could use only analogue microscopes or digital photometers equipped with flow cells, they were finally

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5 Amended regulation no. 134/1998 (the number refers to the Czech Journal of Laws) www.mzcr.cz
able to take advantage of automated biochemical, hematological, and immunochemical analyzers, etc. The emerging private laboratories offered physicians working outside hospitals a wide variety of methods which used to be the domain of hospital laboratories. Thanks to the comprehensive and fast laboratory services, the number of diagnostic tests, especially in the sector of clinics, dramatically increased.

However, in the context of the rapid development of Czech laboratories, also some negative aspects of the service-based system emerged. The managers of health-care facilities quickly learned to report all health care services. As the number of laboratory tests and other medical services were in fact not restricted, the health care system very quickly incurred a deficit.

Due to this situation, the sickness funds were forced to lower the value of one reimbursement point to as little as CZK 0.46. Further on, this also led to the bankruptcy and merger of sickness funds. Considerable differences were revealed between health care services dependent on technology and materials, which were better financed, and health care services dependent mostly on physicians’ knowledge, whose financing dramatically deteriorated (Table 2).

The greatest problem of the system is handling unnecessary health care services. The health care system more favors those health care providers that work more, irrespective of whether the diagnostic tests or other health care services they provide make any sense. And a higher number of diagnostic tests means a higher income for the service providers. Due to the lack of standards or new applications for test results, laboratory tests were and still are performed irrespective of whether they are useful for the patient and whether the physician is able to correctly interpret their results. Furthermore, animosities between the public and private sectors have often led to double testing. As the popular belief was that hospitals provide services of the highest quality, physicians working at hospitals often distrusted the results of tests performed in private laboratories, despite the fact that they were better equipped and had better qualified personnel.

Laboratories started to bring profits for hospitals because payments for laboratory tests were reduced to a much smaller degree than those for clinical services (Table 2), and it was easy to increase the number of laboratory tests through internal regulations.

The most serious fraudulent behavior in the system, which concerned not only laboratories, involved reporting non-existent services. This was facilitated by a lack of audit procedures (theoretically they should have been carried out by the sickness funds) and by competition between the funds.

Another drawback of the service-based system was the fact that neither the patient nor the physician knew the price of particular services, because reimbursement for laboratory procedures was made by the sickness funds (this situation still continues today). The sickness fund covers all costs. It has to pay for all laboratory tests due to the fact that laboratories may not refuse to perform tests.

Table 2. Sample valuation of clinical and laboratory services

<table>
<thead>
<tr>
<th>Health care service</th>
<th>Material</th>
<th>Points</th>
<th>Financing (1 point = CZK 1.00)</th>
<th>Financing (1 point = CZK 0.46)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>5.46</td>
<td>-9.00%</td>
</tr>
<tr>
<td>ALT</td>
<td>9</td>
<td>3</td>
<td>12</td>
<td>10.38</td>
<td>-13.50%</td>
</tr>
<tr>
<td>Creatinine</td>
<td>6</td>
<td>3</td>
<td>9</td>
<td>7.38</td>
<td>-18.00%</td>
</tr>
<tr>
<td>TSH</td>
<td>173</td>
<td>8</td>
<td>181</td>
<td>176.68</td>
<td>-2.39%</td>
</tr>
<tr>
<td>Comprehensive examination by family doctor</td>
<td>5</td>
<td>198</td>
<td>203</td>
<td>96.08</td>
<td>-52.67%</td>
</tr>
<tr>
<td>Distal resection of stomach</td>
<td>300</td>
<td>3419</td>
<td>3719</td>
<td>1872.74</td>
<td>-49.64%</td>
</tr>
</tbody>
</table>

Source: own work

In response to the dramatic crisis in the payment balance of sickness funds, the Ministry...
of Health and sickness funds issued a new IHCS, instituted by an act of law (Journal of Laws no. 48/1997). All items in the index were expressed in koruna, and the final prices depended on the point value of the services. Prior to the implementation of the new IHCS, sickness funds prepared a model predicting the influence of the new IHCS on the level of reimbursements and concluded that the amount of money collected through the universal health insurance system would suffice to cover all the services only if the value of one reimbursement point was set to CZK 0.46. Following this finding, the service-based reimbursement system was terminated, because if such a financing model was introduced, soon all the financial resources allocated to health care would be exhausted.

The main problem was the period of providing services, which was set erroneously. The Ministry of Health and sickness funds took advantage of the provisions of act no. 48/1997 and introduced an erroneous principle of capitation fees for primary health care, and a lump-sum reimbursement for the other health care sectors, based on previous (reference) periods.

The advantage of lump-sum reimbursement is that both health care providers and sickness funds gain a well-defined budget and can better plan health care provision and its financing. The drawbacks of the lump-sum system based on previous years may be summarized in the following points:

- health care offers are not directed at those health care providers that are delivering services in the current period, but the status quo is preserved (including inefficient old medical facilities, that is, hospitals);
- it is not possible to react to changes in treatment procedures, new technologies, and new medicines in a flexible manner;
- the system does not distinguish different degrees of difficulty of different services (thus health care providers may focus on treating only those disorders that will bring better financial results);
- the Ministry and sickness funds may in an uncontrolled way raise or lower reimbursement rates through changing the percentage value of rates for services;
- the quality of health care decreases due to lump-sum reimbursement;
- health care facilities may no longer be compared – if they render more health care services, then the real value of a reimbursement point declines and vice versa (lump sum reimbursement is unfavorable for health care facilities that employ more specialist physicians and provide a greater number of services).

Switching from the service-based system to the lump-sum system meant a considerable decrease in the frequency of service provision, especially in state-owned facilities. The objective of sickness funds was to prevent a further increase in the number of services provided. As a result, immediately after the introduction of the new IHCS, 70% of services for the reference period were paid for with lump-sum reimbursement

<table>
<thead>
<tr>
<th>Year</th>
<th>1st Half Year</th>
<th>2nd Half Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>RR for 96-104% RNP</td>
<td>RR for 96-104% RNP</td>
</tr>
<tr>
<td>2001</td>
<td>RR for 97-103% RNP</td>
<td>RR for 97-103% RNP</td>
</tr>
<tr>
<td>2002</td>
<td>1.06*RR for 97-103% RNP</td>
<td>1.05*RR for 97-103% RNP</td>
</tr>
<tr>
<td>2003</td>
<td>1.05*RR for 97-103% RNP</td>
<td>1.04*RR for 97-103% RNP</td>
</tr>
<tr>
<td>2004</td>
<td>1.05*RR for 97-103% RNP</td>
<td>1.04*RR for 97-103% RNP</td>
</tr>
<tr>
<td>2005</td>
<td>RR for 97-103% RNP</td>
<td>RR for 97-103% RNP</td>
</tr>
<tr>
<td>2006</td>
<td>RR for 97-103% RNP</td>
<td>RR for 98-105% RNP</td>
</tr>
<tr>
<td>2007</td>
<td>1.01*RR for 98-102% RNP</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>1.02*RR for 98-102% RNP</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>Acc. to services CZK 0.88/point up to 100% RNP, CZK 0.50/point above 100%</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>Acc. to services CZK 0.70/point up to 100% RNP, CZK 0.36/point above 100%</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>Acc. to services CZK 0.70 /point do 100% RNP, CZK 0.40/point above 100% (regulation by reimbursement limit on patient services)</td>
<td></td>
</tr>
</tbody>
</table>

RNP – reference number of points, RR – reference reimbursement

**Source:** own work
amounting to 100% for the reference period.

Thanks to lump-sum reimbursement, hospi-
tal laboratories still remained an economically
important regulatory factor. If there were not
enough patients (and thus not enough services and
not enough points), ordering laboratory tests was
the easiest way of obtaining the missing points.

In clinics, services were financed according
to a modified lump-sum reimbursement method.
The sickness funds took into account the fact that
laboratories were not able to predict the number
of procedures performed. However, limits on the
number of points earned were introduced.

If the number of points was within the per-
mitted limit, then the reimbursement was equal
to the reimbursement for the reference period.
If the laboratories reported fewer or more points,
then the final payment was directly proportion-
ate to the difference in laboratory procedures
(Reimbursement = RR * Points / RNP, where RR
is the reference reimbursement and RNP is the
reference number of points). This system was
in fact a method of financing based on the results
of services provided, while the limits on the num-
ber of points earned were relatively low (Table 3).
Large laboratories offering comprehensive servic-
es could easily exceed these limits.

The lump-sum reimbursement system unjust-
ly maintained, or even increased, the real value
of points that was perpetuated due to being linked
to a given reference period. Thus, point values varied across laboratories not only for particular
half-year periods, but also depending on the sick-
ness fund. For some laboratories, the point value
was CZK 0.6, while for others that value was close
to CZK 2.0. These differences were caused by dif-
ferrent contracting policies of sickness funds (con-
cerning contracts concluded between laboratories
and sickness funds).

LABORATORIES IN THE PERIOD 2007-2009

In 2006, the health care system faced another
deep deficit, mostly due to the development of car-
diology and oncology, the introduction of new
medicines, advances in imaging diagnostics, the
development of and increasing demand for genetic
and molecular biological assays in laboratories,
and the financial demands of physicians. The
negative consequences of lump-sum reimburse-
ment became apparent. In response to this state
of affairs, the Ministry of Health imposed strict
regulations on all health care sectors, and in par-
ticular on laboratories and drug reimbursements.
In 2006, the reimbursement limit for laboratories
was set at 100% of the reference period, and phy-
sicians came under close scrutiny if they exceeded
the set number of laboratory tests. As a result, the
year 2006 saw a significant drop in reimburse-
ment in the laboratory sector (Chart 2), mostly
due to the fact that physicians limited the number
diagnostic tests they ordered.

A major breakthrough in laboratory financing
came in 2009, when the regulation of December
18, 2008 (Journal of Laws no. 464/2008) came
into force. Differences between laboratories were
removed by the reintroduction of the service-
based system at CZK 0.88/point for up to 100%
of the reference number of points, and at CZK
0.45/point for over 100% of the degressive limit.
This system also applied to hospital laboratories
which performed tests on specimens from clinics.
Even though this method of reimbursement was
developed in cooperation with sickness funds,
which accepted this model of financing, in 2009
reimbursements to laboratories rose significantly
(Chart 2). In our opinion, it was largely caused
by the negative consequences of the functioning
of the health care system (health care facilities
again exerted considerable pressure on laborato-
ries to increase the number of performed diagno-
sic procedures), and especially by the fact that the
degressive rate of CZK 0.45/point was very profit-
able for certain laboratory areas, that is, molecular
biology and pathology. Moreover, molecular biol-
ology and pathology are currently the fastest grow-
ing fields of laboratory medicine, and many new
procedures are being introduced.

LABORATORIES FROM 2010 TILL TODAY

In response to the 2009 sharp rise of salaries
in the laboratory sector, the sickness funds and
the Ministry of Health significantly decreased
the point value (to CZK 0.7/point for up to 100%
of the reference number of points and CZK 0.36/
point for over 100% of the reference number
of points). To prevent further escalation of labo-
atory testing, especially on the part of chains
of laboratories, in 2011 a limit on the reim-
bursement of services per patient was intro-
duced. The limit was set at one diagnostic pro-
cedure per patient per half a year. Such a regu-
lation is accepted by laboratories primarily due
to the fact that each laboratory has its own range of methods, physicians, and health care facilities. In this case the number of points per patient is constant over a period of time. Therefore, if a laboratory gains and retains new clients/patients, then it will be reimbursed accordingly, and vice versa. If the number of points per patient per half a year exceeds 100% of the reference number of points, e.g., due to the introduction of new tests, then the laboratory will receive a lower payment, which will cover the variable costs. The introduction of a limit on reimbursement of services prevents a situation where the number of expensive tests increases in those laboratories or health care facilities that do not have a sufficient number of patients.

Chart 1. Reimbursements for services in the health care system (in CZK 000)

Source: Committee for analysis consisting of representatives of the medical community and sickness funds

Chart 2. Reimbursements to non-hospital laboratories (in CZK 000)

Source: Committee for analysis consisting of representatives of the medical community and sickness funds

Chart 3. Percentage share of non-hospital laboratories in total health care spending

Source: Committee for analysis consisting of representatives of the medical community and sickness funds
**Development of the System of Sickness Fund Reimbursements**

Since 2000, the financing for the health care system has almost doubled (Chart 1), and the financing for in-house analytical laboratories in clinics has increased similarly (Chart 2), mostly due to the fact that the percentage of financing used by the laboratories has been constant (Chart 3).

Czech laboratories consume about 10% of the total health care budget, while for some time in-house analytical laboratories in clinics have been using about 3.8% of the total resources of the sickness funds (Chart 3).

**Summary**

Czech laboratories and the entire health care system have undergone a major transformation since the beginning of the 1990s. The adopted laws have ensured such levels of financing for laboratories that they are now at the same technological level as those in Western Europe. Prices for particular services included in the IHCS have been set. The IHCS is the basis for regulation of financing of individual medical facilities, as well as for auditing health care service reports and adjusting the number of services provided. The development of a just system of financing for laboratories is complicated, especially that they are not able to plan the number of diagnostic procedures, and so they cannot regulate the number of services provided, as opposed to physicians. The simplest reimbursement method would be service-based payments, but in the past this method caused an uncontrolled increase in the number of laboratory tests performed. On the other hand, the lump-sum reimbursement method meant unequal financing of different laboratories. As the system evolved, limits on the number of points were introduced, followed by degressive payments, and finally by limiting the reimbursement of services per patient.

This method seems to be the most appropriate, because payment concerns directly a given patient.

In order to increase the revenues of the entire health care system, it is necessary to reform it as a whole. It is to be expected that the diagnosis-related groups (DRG) model will be implemented at hospitals. This model uses payments for “standard” cases based on an individual diagnosis. This should lead to channeling health care services to those facilities that are best equipped

<table>
<thead>
<tr>
<th>Year</th>
<th>1st Half Year</th>
<th>2nd Half Year</th>
<th>1st Half Year</th>
<th>2nd Half Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>7,280,000</td>
<td>0.728</td>
<td>7,280,000</td>
<td>0.728</td>
</tr>
<tr>
<td>2000</td>
<td>7,280,000</td>
<td>0.728</td>
<td>8,640,000</td>
<td>0.864</td>
</tr>
<tr>
<td>2001</td>
<td>8,640,000</td>
<td>0.864</td>
<td>8,640,000</td>
<td>0.864</td>
</tr>
<tr>
<td>2002</td>
<td>9,158,400</td>
<td>0.916</td>
<td>9,070,200</td>
<td>0.907</td>
</tr>
<tr>
<td>2003</td>
<td>9,616,320</td>
<td>0.961</td>
<td>9,434,880</td>
<td>0.943</td>
</tr>
<tr>
<td>2004</td>
<td>9,616,320</td>
<td>0.961</td>
<td>9,434,880</td>
<td>0.943</td>
</tr>
<tr>
<td>2005</td>
<td>9,616,320</td>
<td>0.961</td>
<td>9,434,880</td>
<td>0.943</td>
</tr>
<tr>
<td>2006</td>
<td>9,616,320</td>
<td>0.961</td>
<td>9,434,880</td>
<td>0.943</td>
</tr>
<tr>
<td>2007</td>
<td>9,712,480</td>
<td>0.971</td>
<td>9,623,580</td>
<td>0.962</td>
</tr>
<tr>
<td>2008</td>
<td>9,906,720</td>
<td>0.991</td>
<td>9,816,040</td>
<td>0.982</td>
</tr>
<tr>
<td>2009</td>
<td>8,800,000</td>
<td>0.88</td>
<td>8,800,000</td>
<td>0.88</td>
</tr>
<tr>
<td>2010</td>
<td>7,000,000</td>
<td>0.7</td>
<td>7,000,000</td>
<td>0.7</td>
</tr>
<tr>
<td>2011</td>
<td>7,000,000</td>
<td>0.7</td>
<td>7,000,000</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**Source:** Committee for analysis consisting of representatives of the medical community and sickness funds
to provide such services. It is also hoped that health care services will be restructured in hospital inpatient units. Considerable changes are expected to take place in the chain laboratory sector: inpatient units will not be reimbursed for patient hospitalization, and reimbursement will be included in DRG payments. Laboratory services for patients of clinics should be financed in the same way, irrespective of whether they are provided by hospital laboratories or laboratories attached to clinics, because reimbursement will be calculated taking into account limits on the reimbursement of services per patient and the reference number of points. Despite the general demand for laboratory diagnostics, sickness funds continue to exert enormous pressure for further reduction of reimbursement in the laboratory sector.

a) Reimbursement indexes for physicians for physicians

<table>
<thead>
<tr>
<th>Index</th>
<th>Index value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Physician after graduation from university</td>
</tr>
<tr>
<td>2</td>
<td>1.8</td>
<td>Physician with postgraduate education (according to the principles of the Czech Chamber of Medical Doctors)</td>
</tr>
<tr>
<td>3</td>
<td>3.5</td>
<td>Physician who has passed a specialization exam</td>
</tr>
</tbody>
</table>

*Source: Index of Health Care Services with Point Values 1992-2011*

b) Reimbursement indexes for other medical personnel with higher education

<table>
<thead>
<tr>
<th>Index</th>
<th>Index value</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Other university graduates</td>
</tr>
<tr>
<td>2</td>
<td>2.5</td>
<td>Other university graduates who have passed a specialization exam or with equivalent qualifications</td>
</tr>
</tbody>
</table>

*Source: Index of Health Care Services with Point Values 1992-2011*

c) Reimbursement indexes for middle-level medical personnel (MLMP)

<table>
<thead>
<tr>
<th>Index</th>
<th>Index value</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.08</td>
<td>MLMP working under professional supervision</td>
</tr>
<tr>
<td>2</td>
<td>1.8</td>
<td>MLMP working without professional supervision</td>
</tr>
<tr>
<td>3</td>
<td>2.25</td>
<td>MLMP with post-secondary specialized education</td>
</tr>
<tr>
<td>4</td>
<td>2.5</td>
<td>Nurses with higher education</td>
</tr>
</tbody>
</table>

*Source: Index of Health Care Services with Point Values 1992-2011*
ANNEX 1

The algorithm for calculating the value of 1 point in the Index of Health Care Services with Point Values (IHCS) is presented below. This algorithm is used for calculating point values (Z) for all services listed in the IHCS.

\[ Z = A + \text{costs} \]
\[ \text{(costs)} = (\text{cost per minute of service}) \times (\text{time of service provision}) \]

Cost per minute of service is defined in accordance with the regulation issued by the Czech Ministry of Health, while the time of service provision is determined in the record card for every service. The costs include the reimbursement of the worker who is necessary for the provision of a given service, and who is not a health care provider at the same time. Furthermore, the costs include expenditures on the maintenance of the medical facility and non-disposable devices and apparatus (e.g., pipettes, centrifuges, refrigerators, etc.). The qualifications of laboratory personnel are valued at 2.75 points per minute of performing a laboratory procedure. The flat rate per minute of performing a laboratory procedures was set on the basis of the regulation and is always raised on July 1 each year by the mean annual inflation rate (measured by the consumer price index, CPI) in the previous year, which is published by the Czech Statistical Office.

Calculation of direct costs (A)

Direct costs are the sum of personal cost (B), cost of disposable devices used for the laboratory procedure (C), cost of use of medical materials (D), and cost of medicines used during the laboratory procedure (E).

\[ A = B + C + D + E \]

1. Personal cost (B) of the service provider is calculated as the product of the basic minute rate (F), reimbursement index for the service provider (G) and service provider time (H). The qualifications of laboratory personnel are calculated as the personal cost of only one service provider. The costs of other workers, including other university graduates who participate in a given laboratory procedure, are included in general costs.

The basic minute rate (F) depends on the category of personnel. Higher education = 2.216 CZK/min, secondary education = 1.32 CZK/min.

\[ B = F \times G \times H \]

2. The reimbursement index for service provider (G) is set for particular groups of workers according to bachelor’s degree or postgraduate degree (Table 5). Service provider time (H) is specified in each record card.

3. Equipment. Costs of disposable equipment (C) are the sum of the amortization cost of the device (I) and its servicing (J)

\[ C = I + J \]

The cost of equipment amortization (I) depends on the ratio of the price of the device (K) to the degree of its usage (L)

\[ I = K / L \]

The cost of a device (K) is specified in the record card, while the degree of usage (L) is the rate of total time of device use (M) to the time of performing procedures using the device (N).

\[ L = M / N \]

The total usage time of a device (M) depends on the product of the useful life of the device expressed in years (O), the number of working days in a year (P) and the time of usage of the device (R)

\[ M = O \times P \times R \]

The useful life of a device expressed in years (O) is defined in the record card for each type of test, number of working days in a year (P) is set to 233 and usage time (R) is defined in the following way:

• 240 minutes a day for a device worth up to CZK 1 000,000,
• 360 minutes a day for a device worth CZK 1 000,000-5 000,000,
• 720 minutes a day for a device worth over CZK 5 000,000.

The cost of servicing a device (J) is calculated as a product of the cost of device maintenance for one year expressed as a percentage (S) and the useful life of the device in determined years (O) divided by the degree of device usage (L)

\[ J = S \times O / L \]
4. Directly used medical material (D)

The cost of directly used medical material is calculated as the product of the unit price of the material (T) and the number of units used (U). The price and number of units of the material directly used are given in the service record card.

\[ D = T \times U \]

5. Directly used medicinal preparations

The cost of directly used medicinal preparations is calculated as the product of the packet price of the medicinal preparation (V) and the number of packets used (X). The price and number of packets of the medicinal preparation are given in the service record card.

\[ E = V \times X \]

REFERENCES

4. Sláma P. Veřejné zdravotní pojištění, Hospodaření zdravotnických subjektů, Informační systémy ve zdravotnictví, Učební text, verze 1.2. 2009: 3-23.