UNIVERSITY OF PÉCS

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THE EFFECT OF PERFORMANCE-VOLUME LIMIT ON FINANCING HEALTH CARE INSTITUTIONS

Doctoral (Ph.D.) Thesis

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1. INTRODUCTION

In order to compensate the provision of health care services in the frame of health insurance the health insurer pays to the health service provider – this is health insurance financing.

In the history of Hungarian health care financing the changes in the last 20 years brought us to significant milestones.

Health care financing was taken over in 1990 by the social security (SC). In 1992 neutral financing was introduced which meant that health care providers received their amount due regardless of their proprietory and economic form.

In 1993 health funds were introduced. The next change was the switch to performance-based financing. Concerning in-patient care Hungary was the first to introduce homogenous disease groups based financing. This is the normative financing of in-patient care which is based on the American theory of DRG and which is founded on the system of base fees fixed in advance. The classification had two main aspects: the first was economic which meant the cost of health care, and the other was professional knowledge. The number of the current version: HBCS 5.0.

In 1996 the act on clinical care capacity passed. As the next crucial stage the health act and the act on eligibility for social security benefits and private pensions and the funding for these services were created in 1997. According to the act on social security benefits the Hungarian state guarantees the provision of health care even if the neccessary expenses could not be covered from the Health Insurance Fund. The budgeting of this Health Insurance Fund takes place during the creation of the state budget so its deficit to a certain extent is always calculated with by the codifier. In 1999 the rules of financing from the Health Insurance Fund was regulated on an executive order level.

In April 2004 the financing based on the frame of performance volume limit (PVL) was intruduced concerning active in-patients and out-patient clinical care on the basis of the year 2003 which limited the possibility of overspending of the Health Insurance Fund by specifying PVLs for each and every health care institution. Between 2004 and 2006 in regards of performances above the limit theory of degression was introduced. It was determined based on the performance of year 2003 as a basis period (98% of that year's performance), up to 5% overspending with 60%, between 5–10% with 30%, and above

10% with 10% financing ratio. In 2006 the TVK degression ceased. In 2007 new capacity indexes were allocated which meant greater harmony concerning capacities, patient turnover, performance and financing.

In 2009 the technique of preannounced performance base-fee (PPBF) could be applied for only a short period. Within the frame of PPBF 70% of performance was financed by a fixed amount of HUF while the remaining 30% of the perfomance was financed in a so-called floating fee system by a monthly varying amount of HUF.

In 2010 PVL was reapplied, and the base-fee decreased to the level of 146 000 HUF/cost-weights. The National Health Insurance Fund Administration (NHIFA) switched from three-monthly settlement to two-monthly settlement which resulted in that performance of one month was payed by the NHIFA to the health care service providers. In 2011 the structure of in-patients care was modified, the base-fee increased to 150 000 HUF/cost-weights, and the maximum 10% of performance surplus above PVL was reimbursed by the 30% of base-fee. In 2011 more PVLs were assigned, the season index could not be modified. From July 2012 along the health care reform measures by execution of recommendations of the Semmelweis Plan concerning structure changes a new structure of in-patients care was introduced, which also modified the already published PVL numbers. Concerning one day surgery and out-patient care 50% of the remaining PVLs of functionchanging health care providers and concerning non-surgery treatment 50% of the whole PVL got rearranged to the service provider taking over the task. The remaining 50% got into a central reserve fund which according to the recommendations of National Institute for Quality and Organizational Development in Healthcare and Medicines (GYEMSZI) got reassigned to health care providers determined in a decree. The circle of health care types exempt from PVL was expanded by 05P 2081 AMI PCI (by one or more stent)*HBCS, by 05P 2082 AMI PCI, without stent*HBCS, 01M 015D cerebrovascular diseases (except for TIA), by praecerebralis embolism, by rtPA treatment*HBCS. In order to compensate health care types exempt from PVL the PVL already assigned to service providers got withdrawn in the ratio of earlier performance. Even the season index can be modified to the extent of +/–20%.

I summarize my motivation behind the subject choice as follows.

The financing of health care public services are dual, they both have maintainer and health insurance sides. Financing health care public services are provided on the basis of conctracts concluded with NHIFA. The owner’s requirement concerning the

administration of budget institutions is to break even. There are many possible reasons for an administration with a budget deficit. Financing might have been insufficient. PVL as a system for financing indeed provides an upper limit, however, may result in unfavourable economic effects concerning institutional functioning. PVL's rule in the appearance, increase and reproduction of debt stock must not be analized in itself.

In regards to stabilizing institutional administration the increase of the PVL frame might mean the increase of revenues. The analyses in my thesis might provide reasons for the increase of the PVL frame.

My analyses are helpful in determining the basic principles of internal institutional allocation. According to the regulations of section 27/B of Government Decree No. 43/1999. (III. 3.) on certain aspects of the social insurance financing of health care services in the course of meeting their contractual liabilities service providers are obliged to consider the priority order determined in points a)–e):

a) urgent care in the circle determined by professional and vocational competences (henceforth: professional competences) according to operational licenses,

b) progressive care in the circle determined by professional competences and territorial supply obligation area (TSOA) determined by Act CLII of 2009 on simplified employment,

c) non-progressive care in the circle determined by professional competences and territorial supply obligation area (TSOA) determined by Act CLII of 2009 on simplified employment,

d) progressive care in the circle determined by professional competences and beyond territorial supply obligation area (TSOA) determined by Act CLII of 2009 on simplified employment,

e) non-progressive care in the circle determined by professional competences and beyond territorial supply obligation area (TSOA) determined by Act CLII of 2009 on simplified employment.

Thus PVL may cause not only economic but professional anomalies, too, since by means of internal institutional allocation management also determines the order of insurees obtaining health care services (waiting list, list for taking patients).

In my daily work the knowledge of financing techniques and their effects may support making the best decisions.

2. OBJECTIVE

The introduction of PVL was the technical answer to performance steadily growing since 2001. As a counter-incentive to the increase of performance the introduction of PVL and degressive financing was the tool, however, these methods have not prevented everywhere the increase of patient turnover.

After the introduction of PVL the cost-weights settled up for in-patients clinical care surpassed the limit. Between 2004 and 2006 performance above PVL was financed by the NHIFA by a reduced amount of money – this was the method of degression. In 2007 degressive financing ceased, for every cost-weights above the limit there was no available financing. In order to minimize the loss due to performance above the limit institutions needed to hold back performance. In 2008 PVL numbers were announced in every 3 months, however, higher PVL numbers were assigned. The characteristic of PPBF financing in 2009 – due to extremely low floating fees – is that the PVL assigned in 2009 was the lowest in 6 years. When determining PVL for 2010 the modification of the structure (e.g. the "integration" of Baranya County Hospital) has not been taken into consideration. In 2010 performances above PVL were not financed.

Though the above is well-documented in laws and polity the effect of it has neither been analyzed professionally nor elaborated scientificly. The different health policy and financing policy debates were going on only the administrative evaluation level of the processes.

The objective of this thesis is to analize the effect of the upper limit of PVL/PPBF applied to active in-patients clinical care based on homogenous disease groups and performance, and to reveal the effects of financing on both national level and on the level of the Clinical Centre of the University of Pécs.

I summarize the objective of this thesis as follows:

- to demonstrate the numerical effects of finance change caused by the introduction of the performance volume limit financing method between 2004 and 2008 on a national level,
- to demonstrate the differentiation of the effects of performance volume limit on institutional groups (university clinics) between 2004 and 2008,
- to demonstrate the numerical effects of finance change caused by the introduction of PVL broken down by profession/profession groups between 2004 and 2008,
- to determine the institutional (University of Pécs, PTE) revenues lost between 2004 and 2008 due to the performance volume limit,
- to introduce the effect of preannounced performance base-fee (PPBF) in financing policy in 2009,
- to introduce the entering of PPBF (2009) to exclusively fix compensation of PVL (2010) and the partly degressive PVL (between 2011 and 2012), and the effects of those on national and institutional level.

3. DATA AND METHODS

3.1. In my thesis I analyze the numerical effects of performance volume limit (PVL) financing method to the traditional performance indicators of active in-patients clinical care. We at the Clinical Centre of the University of Pécs surveyed the data of active in-patients clinical care concerning cost-weights, number of cases and nursing days between 2003 and 2008, with an emphasis on regression trends showing in the period under survey. We determined the loss of revenue of medical specialities and hospital types due to PVL/degression.

3.2. The objective of this thesis is to define the effects of performance volume limit (PVL) to the financing of active in-patients clinical care in the Clinical Centre of the University of Pécs (henceforth: PTE KK) on an institutional level. The data in this analysis are based on the reports sent to the National Health Insurance Fund Administration (NHIFA), always refer to active in-patients clinical care and cover the period between 2004 and 2008. In PTE KK we determined the NHIFA fee for one cost-weight and the loss of revenue due to PVL. We analyzed both the ratio of the number of cases beyond the territorial supply obligation area (TSOA) and the urgent cases broken down to clinics.

3.3. In this thesis we would like to demonstrate the effect of preannounced performance base-fee (PPBF) to the institutional level financing of PTE KK. The data in this analysis are based on the reports sent to the National Health Insurance Fund Administration (NHIFA), always refer to active in-patients clinical care and cover the 7-month period between April 2009 and October 2009. We determined the loss of revenue due to preannounced performance base-fee (PPBF) compared to the previously announced NHIFA fee. We analyzed both the ratio of the number of cases beyond the territorial supply obligation area (TSOA) and the urgent cases broken down to clinics.

3.4. In the last phase of our analysis we'd like to demonstrate the effect of reintegration of performance volume limit (PVL) towards degressive settling between 2010 and 2012. The data in this analysis are based on the reports sent to the National Health Insurance Fund Administration (NHIFA), always refer to active in-patients clinical care. In this analysis we primarily refer to period between 2009 and 2012. We analyzed the ratio of the (due to PPBF or degressive PVL) partly paid active in-patient cost-weights to total cost-weights, we determined PTE KK's loss of revenue in the period under survey, and also determined the ratio of the number of cases beyond the territorial supply obligation area (TSOA) and the urgent cases in PTE KK between 2008 and 2011.

4. RESULTS

4.1. It is clear that the number of cases in regards of city hospitals (99,6 %) and hospitals in the capital ("City hospitals of Budapest", 98,2 %) and county hospitals (102,7 %) have not changed or increased to only a minimal extent compared to 2003, however, the number of cases in university clinics (113,3%) and national institutions (114,3 %) increased significantly. This has proven true the opinion that from hospitals of lower progressivity levels patient turnover shifted to university clinics and national institutions.

Due to the effect of PVL in 2004 5.8 billion HUF, in 2005 9.1 billion HUF, in 2006 12.1 billion HUF, in 2007 18.8 billion HUF, and in 2008 11.2 billion HUF has not been payed to hospitals.

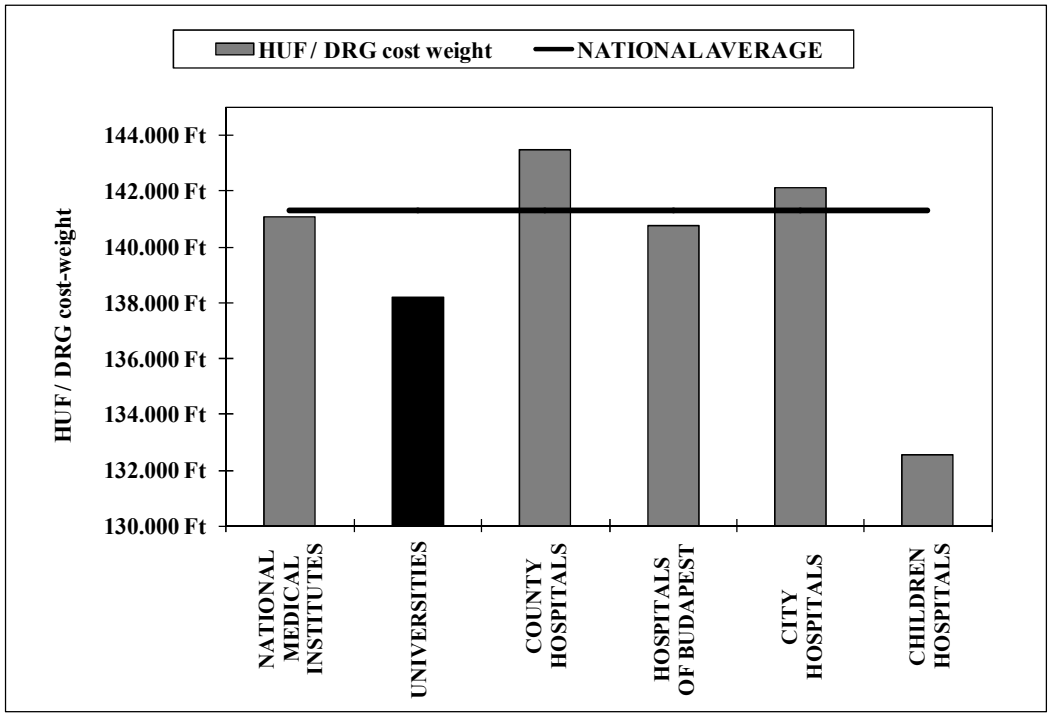

Figure 1.

The annual average HUF allowance reimbursed for an active cost-weight broken down by progressivity levels (2008).

4.2. After the introduction of PVL the NHIFA fee actually paid to PTE KK for one cost-weight fell behind the fee previously announced by NHIFA. During the 5-year period under survey, ie. between 2004 and 2008 in case of PTE KK the loss due to PVL reached 3.256 billion HUF which by 2012 exceeded the 8 billion HUF level. Regarding PTE KK the 25.3% of the number of cases and the 24.5% of accomplished cost-weights were attributed to the treatment of patients coming from beyond the territorial supply obligation area (TSOA). In regards of the ratio of urgent cases to total number of cases shows that 31.5% of the number of cases and 36.1% of cost-weights were due to treating emergency cases.

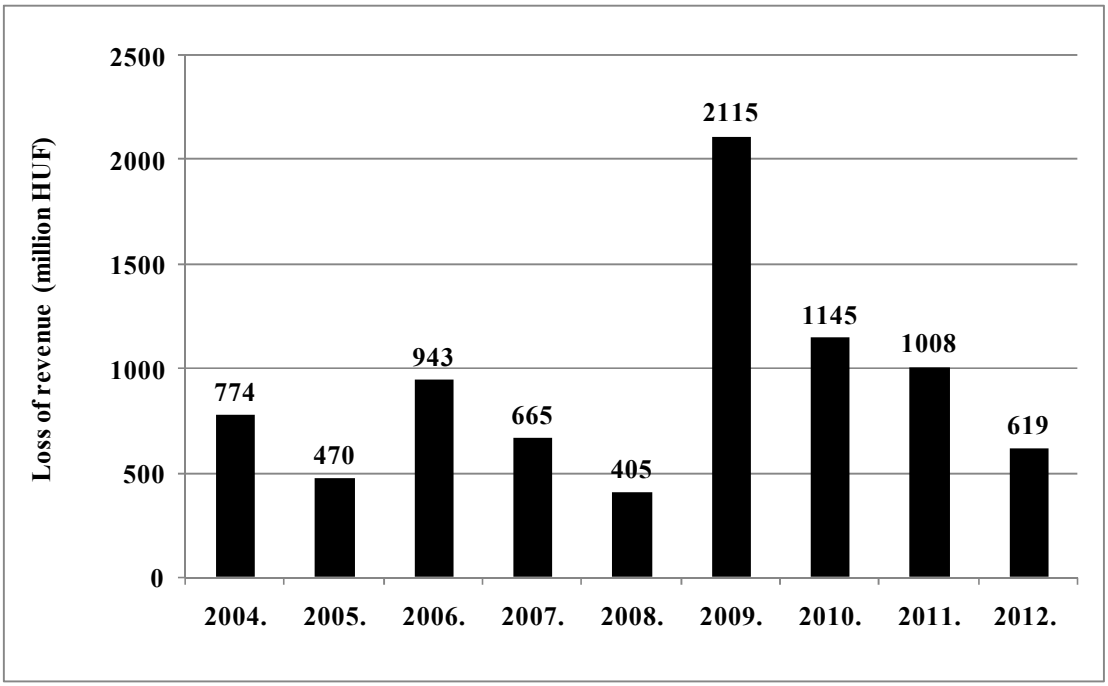

Figure 2.

Loss of revenue of the Clinical Centre of the University of Pécs between 2004 and 2008.

4.3. After the introduction of PVL the NHIFA fee actually paid to PTE KK for one cost-weight fell behind the fee previously announced by NHIFA. In 2009, the period under survey in case of PTE KK the loss of revenue due to PVL and PPBF reached 2.1 billion HUF. Regarding PTE KK the active in-patients clinical care 23.2% of the number of cases and 22.8% of accomplished cost-weights were attributed to the treatment of patients coming from beyond the territorial supply obligation area (TSOA). In regards of the ratio of urgent cases to total number of cases shows that 33.8% of the number of cases and 39.2% of cost-weights are due to treating emergency cases.

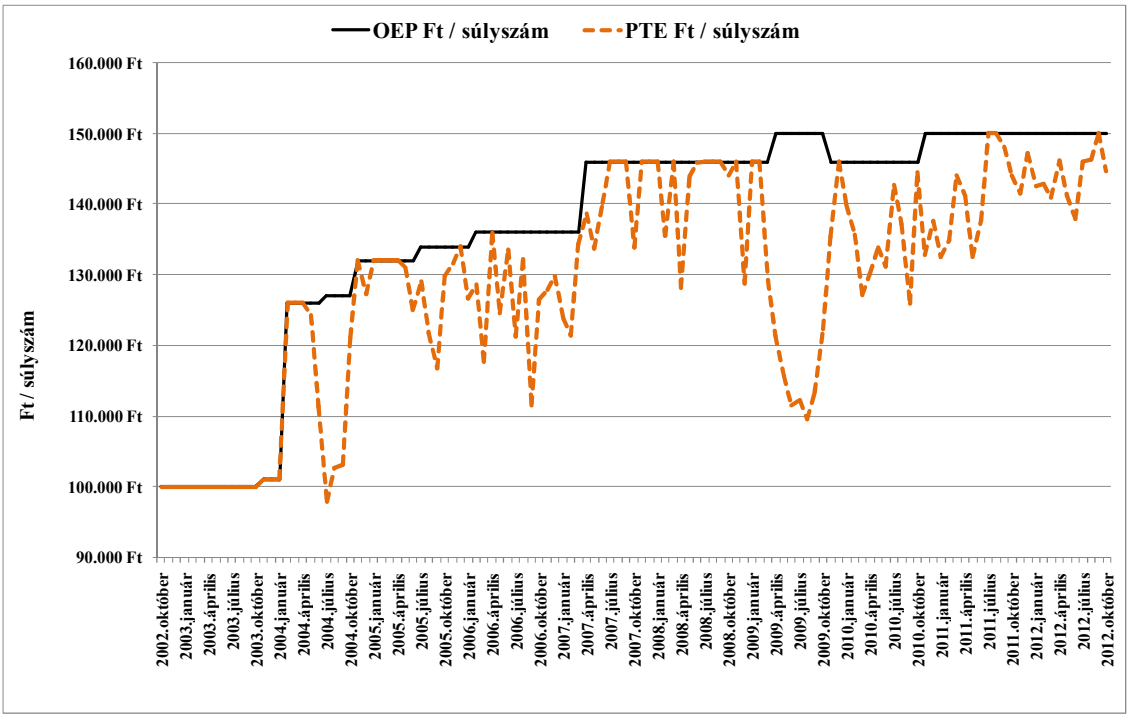

Figure 3.

Reimbursement announced by NHIFA and HUF/cost-weights actually realized by the Clinical Centre of University of Pécs between 2004 and 2009 in monthly breakdown.

4.4. Due to PPBF or degressive PVL the ratio of partly paid active in-patient cost-weights to total cost-weights is extremely divergent. In 2009 in the case of PPBF the 25–30% of the financed national performance fell under floating fee financing. And in the case of degressive PVL from 2011 1–7% of the financed national performance was settled up in the degressive strip with the predictable value of 45 000 HUF/cost-weights. For the Clinical Centre of the University of Pécs the biggest loss (2.1 billion HUF) in 2009 arose when the system of PPBF was introduced during the year. In 2010 and 2011 the loss of revenue of PTE lessened compared to 2009, however, it still was quite high (1.46 and 1.3 billion HUF respectively). As the effect of partial financing between 2004 and 2012 the University of Pécs suffered a 8.1 billion HUF loss of revenue.

Month	**Ratio of PPBF**	**Ratio of degressive PVL**		
	2009	**2010***	**2011**	**2012**
January	0,0%	0,0%	5,1%	4,8%
February	0,0%	0,0%	5,9%	4,8%
March	0,0%	0,0%	4,5%	7,3%
April	30,0%	0,0%	4,6%	5,1%
Máy	28,0%	0,0%	6,6%	6,5%
June	29,1%	0,0%	6,4%	5,9%
July	30,3%	0,0%	2,7%	3,2%
August	27,4%	0,0%	1,5%	2,2%
September	25,9%	0,0%	3,5%	1,1%
October	27,5%	0,0%	3,8%	–
November	0,0%	0,0%	5,7%	–
December	0,0%	0,0%	4,6%	–

Table 1.

The ratio of active in-patient cost-weights partly paid due to PPBF or degressive PVL compared to total cost-weights

(There was no degression in 2010)*

5. DISCUSSION, SUMMARY

In my thesis I aimed at demonstrating the finance switching due to performance volume limit with a special regard to the numerical effects of finance switching due to performance volume limit, on a national level, broken down by profession/profession groups, and in relation to the Clinical Centre of the University of Pécs on an institutional level.

I summarize the main conclusions of my analysis as follows.

5.1. PVL as a mechanic, solely fiscal tool has liven up to expectations concerning the moderation of performance. However, it differed from the usual "lawnmower theory" tools and had quite a divergent effect on different institutions, especially the financing of university clinics was affected negatively. The accentuated result of our analysis is the numerical evidence and verification that from the hospitals of lower progressivity levels (city and county hospitals and that of the capital) patient turnover shifted to university clinics and national institutions.

5.2. Between 2004 and 2008 the introduction of performance volume limit decreased significantly the financing of the Clinical Centre of the University of Pécs by the NHIFA. The main problem can be identified in the fact that since the initial establishing of the PVL (2003–2004) neither has it been followed-up, nor analized, nor corrected according to actual patient turnover. This discrepancy has been increased by the new hospital capacity assigning coming into effect on April 1, 2007. As a result of all the above capacities (number of beds), patient turnover (number of cases actually treated), performance (performed cost-weights) and financing (actually financed cost-weights) have totally been separated from each other.

5.3. The introduction of preannounced performance base-fee (PPBF) decreased health insurance financing significantly in 2009 which was not sufficient beforehand either.

5.4. The application of PPBF – compared to PVL – has made financing of institutions more uncalculable. In case of PPBF more than the quarter of the institutional revenue is financed in a so-called floating fee system thus causing a major uncertainty on the revenue side. On the contrary in the frame of degressive PVL from 2011 substantially less part of the financed performance, 1–7% was financed degressively (partly), and moreover with a fixed fee (45 000 HUF). Due to the reapplication of degressive PVL in 2011 institutional financing became more calculable, though the extent of the extraction of sources could be reduced, however, it could not been stopped.

In our analysis we proved and numerically demonstrated that patient turnover shifted to university clinics and national institutes. The losing parties of the introduction of PVL system are national institutes, university clinics and children's hospitals, they suffered the greatest loss of revenues compared to potential extent of revenue. However, in case of performances of county and city hospitals regarding one active cost-weight the paid average annual HUF amount was taken into consideration with a higher value.

Table 2 summarizes the effects of PVL.

Market participants	Positive effect	Negative effect
Health policy (NHIFA budget, Ministry)	▪well-calculable expenses ▪simple technic of calculation ▪little administration ▪transferring health policy conflicts to within the institution	▪appearance and expansion of waiting lists ▪unjustified ways of patient flowing, distortions ▪needs, capacities, patient turnover and financing have totally separated from each other
Total system of hospitals	▪change in cost of ownership ▪change towards being more cost-sensible ▪stronger urge to implement planable processes	▪extraction of sources ▪delegation of management conflict between institutional management and professional management
University clinics	▪change in cost of ownership towards being more cost-sensible ▪stronger urge to implement planable processes	▪extraction of sources to the extent higher than the average ▪increased patient turnover ▪delegation of management conflict between institutional management and professional management

Table 2.

The summary of the effects of PVL.

6. NEW RESULTS, PRACTICAL UTILIZATION

Our researches demonstrated in this thesis produced new results and new ways of possible practical utilization.

The *new results* can be summarized as follows.

1. We determined the amount of health insurance financing partly paid or totally unfinanced due to performance volume limit (PVL).
2. We demonstrated the effects of the introduction of PVL broken down by professions/profession groups.
3. In case of the Clinical Centre of the University of Pécs we calculated the loss of revenue due to PVL on an institutional level.
4. We made evident the anomaly in financing caused by the PPBF („floating fee") system.
5. We pointed out that the introduction of PVL transferred the financial conflicts from the level of national health policy to the level of institutional management.
6. We pointed out that compared to PVL the PPBF floating fee system has made hospital financing even more uncalculable.

As for the *practical utilization* of our results we composed the following suggestions.

1. Those *elements of PVL that damage effectiveness need to be eliminated* since many health care institutions (e.g. university clinics) have educated professionals and often valuable machines and instruments, however due to lack of financing (PVL) operations cannot be carried out, thus operating theatres are empty.
2. There is a need of actual, real, reasonable *expenditure-based financing parameters* because by the introduction of PVL the cost maintenance of the system of homogenous disease groups has been omitted. This led not only to PVL becoming a little unfounded methodologically but even the cost items of the homogenous disease groups being the basis of the preceding break from reality.
3. Since 2007 the fee of homogenous disease groups remain in the range of 146 000–150 000 HUF/cost-weights. It would be important that instead of expanding PVL the *fee should be increased, too*, since institutions are assigned with more PVL to no effect because fee for performance units does not change.
4. *Follow-up of patient turnover* is absolutely reasonable in the PVL system. If a city or a county hospital or that of Budapest send their patients to higher progressivity level institutions (to university clinics, national institutions) then these patient turnovers cannot be handled by the system because the institution taking the patient treats the patient beyond PVL system (which means with no funds). It is of crucial importance to examine the cases under "guarantee" since unfortunately in the terminology of patient care transfer between health care institutes and guarantee between health care providers are often merged into one another.
5. Instead of progressivity fee terminated earlier it would be suitable and practical to *restore the acknowledgement of progressivity* in financing.

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