HealthManagement
Promoting Management and Leadership

Volume 13, Issue 5/2011 - Matrix

Clinical Laboratory Business Analysis

An increase in expenses has led to the introduction of rationalisation in healthcare. With this comes the emergence of business operation analytics of each entity with a view to improve the business operations with unaltered quality of work. A hospital-based clinical laboratory is part of the healthcare system, but it can also be viewed as an independent unit. The goal of the clinical laboratory as a unit is the accuracy and reliability of laboratory tests. Today, the benchmarks of financial business operations are becoming more important; productivity evaluation, i.e. efficient business operations.

Laboratory business operation analytics provide us with an insight into a successful business performance. The increase in productivity of clinical laboratories relates to the technical development of the laboratory diagnostics, which can at first be viewed as an expense, because it requires a financial investment. The introduction of an IT system into the laboratory leads to a better control of work procedures, improvement of work organisation, saving time and subsequently affects productivity. The laboratory business operation analytics, as well as the financial cost-effectiveness of the investment can be seen by developing an economic model, i.e. model of a laboratory as an economic entity. The creation of the model of a laboratory as an economic entity implies the identification of revenues and expenses and their comparison in a specific time period, typically one year.

A sum that shows whether the laboratory performs its business operations profitably or not is obtained by comparison of total revenues and all expenses of the clinical laboratory. It is the starting point from where the measures for business performance improvement shall be taken.

The introduction of an IT system into the laboratory leads to a better control of work procedures, improvement of work organisation, saving time and subsequently affects productivity.

The goal of this study was the analysis of the clinical laboratory business operations as an economic entity over one year, as well as the analysis of business operations of the model, with a potential improvement and deterioration of business performance compared to the basic model. The models were made using SWOT analysis; the model of deterioration was based on weaknesses and threats, and the model of improvement on strengths and opportunities of the laboratory, as shown in one previous study.

Materials and Methods

Institution

The institution chosen for this research was Clinical Laboratory of the General County Hospital (GCH) Našice, Croatia. It is a typical provider of laboratory services for all hospital in-patients, hospital outpatients, and patients referred from primary healthcare providers in the region. GCH Našice is a non-profitable institution funded from the State Budget of the Republic of Croatia through the Croatian Institute for Health Insurance (CIHI).

Profit and Loss Account

The analysis of laboratory performance was carried out using the method of profit and loss account, which shows the profitability of the laboratory. The basic elements of the profit and loss account are revenues and expenses, and the difference between them represents profit or loss in business operations and proves profitability. The total revenues consist of the fees charged for the tests performed and the expenses are all expenses necessary for earning the revenues. The revenues and expenses are categorised.

Graded profit in the profit and loss account is shown using the contribution margin, gross profit, and operating profit. Contribution margin is total revenue less direct material expenses. Gross profit is the difference between total revenue and total production expenses. Operating profit with a positive number sign indicates profitable business operations, whereas negative number sign indicates unprofitable business operations.

Economic Sensitivity Analysis

Economic sensitivity analysis was used to show how business operations may be altered by changing one or more parameters in the profit and loss account. Three models with changed operating profit as compared to the basic model were shown, i.e. the economic sensitivity analysis was performed, for which the data had been obtained through the SWOT analysis.

Results and Discussion

The profit and loss account for 2008 showed profitable business operations of the laboratory and the positive operating profit in the amount of 470,423 euro. Using the economic sensitivity analysis, three models with modified operating profit were developed:

- Reduced tests;
- Technological improvement (automation with informatisation); and
- Technological improvement with three employees less and additional tests.
-

Weaknesses and opportunities represent internal characteristics of the laboratory, whereas the strengths and threats are derived from the clinical laboratory environment, in other words the geographical surroundings in radius of fifty kilometers with 100,000 inhabitants.

In the reduced tests model, the number of tests was reduced for all specialist tests in outpatient services and none were performed for primary healthcare. The operating profit would amount to only 21,542 euro.

The technological improvement model, due to the expenses for automation and informatisation, would reduce the operating profit to 431,464 euro.

In the increased operating profit model, conditioned by the technological improvement that would facilitate the work with three employees less with simultaneous addition of tests, it would amount to 535,804 euro.

This research shows that the clinical laboratory GCH Našice performed its business operations profitably in 2008. Profitable business operations were shown in the profit and loss account, where the operating profit was positive and amounted to 470,423 euro. The profit realised in the clinical laboratory GCH Našice in the amount of 470,423 euro represents operational earnings that would remain to the owner of a business entity on the market.

The SWOT analysis tested the threats for the laboratory arising from its surroundings. The threat to the analysed laboratory is loss of patients, i.e. reduced tests, which could become real by the establishment of a new clinical laboratory in the radius of 50 km with 100,000 inhabitants. The establishment of such a laboratory, which could take over patients from the primary healthcare providers and provide specialist tests for outpatients, would decrease the operating profit to only 21,542 euro. In order to prevent such threats from becoming real, it is necessary to continuously develop the laboratory and to perform market research.

The technological improvement model that would introduce potential automation and informatisation showed the reduction in operating profit to 431,464 euro in comparison to the basic model. This reduction in the operating profit is actually the price for potential automation and informatisation, which is not high compared to its benefit, since the difference in the operating profit is only 38,959 euro. Regardless of the price, potential automation and informatisation significantly improve the quality of service. The inexistence of total automation and informatisation in the laboratory is a weakness that could become an opportunity, because it facilitates work with three employees less as well as performing additional tests. Those additional tests in the researched laboratory are the ones performed by other laboratories in the radius of approximately 50 km, such as medical examinations, physician's certificates or laboratory tests that are directly paid. If the potential to carry out additional tests, work with three employees less with automation and informatisation, as shown in the technological improvement with additional tests and three employees less model, were realised, the operating profit would increase to 535,804 euro.

Business performance could be improved either by augmenting the scope of work, connected with the expansion on new markets, which is a customary practice in the US and market-oriented states or by reducing the costs through monitoring the work procedures in detail. Constant development, monitoring of market demands and reduction in operating costs can certainly lead to the improvement in business performance of the laboratory, independent of its funding.

Conclusion

The risks of reduced tests amount to 448,881 euro, the potential to increase the profit 65,381 euro. Hence, the risk of the decrease in profit is seven times higher than the potential increase based on opportunities. In other words, the results showed a potential decrease in the operating profit by 95 percent, because it would be reduced from 470,723 to only 21,542 euro, whereas the potential increase in the operating profit could be only to 535,804 euro or 14 percent. In conclusion, reduced tests due to the establishment of a new clinical laboratory would have a significant negative impact on the profitability compared to the potential increase of profitability.

Such business analysis can result in positive financial breakthrough even in the institutions where primary health system function is not making profit. It clearly shows the need for basic education in economics and its implementation by managers in individual departments in the healthcare system. The profitability of any clinical laboratory can be increased using the analytics shown in this report and using the knowledge in economics.

Published on : Fri, 30 Dec 2011