SUNTEXT REVIEWS

SunText Review of Medical & Clinical Research
ISSN: 2766-4813

Open Access
Original Article
Volume 2:4

# Medical and Economic Efficiency of Hospitals in the COVID-19 Pandemic

**Startseva J[1,*] and Startseva S[2]**

[1]*CEO of the consulting company, PROXY, more than 19 years of experience of cost optimization and the introduction of a controlling system at the enterprise, a patent for a cost optimization methodology, Ph.D. medical sciences, Russia*

[2]*Project management specialist PROXY, risk management, project performance analysis, strategic marketing, market analysis, Russia*

[*]**Corresponding author:** Startseva J, CEO of the consulting company, PROXY, more than 19 years of experience of cost optimization and the introduction of a controlling system at the enterprise, a patent for a cost optimization methodology, Ph.D. medical sciences, Russia; E-mail: Startsevapsma@mail.ru

**Received date:** 06 November 2021; **Accepted date:** 15 November 2021; **Published date:** 15 November 2021

**Citation:** Startseva J, Startseva S (2021). Medical and Economic Efficiency of Hospitals in the COVID-19 Pandemic. SunText Rev Med Clin Res 2(4): 141.

**DOI**: https://doi.org/10.51737/2766-4813.2021.041



## Abstract

In 2020, due to the global pandemic COVID-19, the burden on hospitals has significantly increased. Many medical institutions had to seriously think about the re-planning of departments and personnel changes. We have developed a design matrix based on ABC and XYZ analysis. This method allows you to obtain information about the resources (material and personnel) used in the process of medical and diagnostic measures, about their effectiveness, determine the degree of workload, plan and redistribute the efforts of personnel depending on qualifications and experience.

**Keywords:** COVID-19; Pandemic

## Introduction

We used a combination of ABC and XYZ analysis to identify information about resources (material and human) used in hospitals during the COVID-19 pandemic (Certificate registered in IREG #2083517). In this case, ABC-analysis is considered as the ratio of quantity and result, and XYZ-analysis as the ratio of quantity and structure of consumption. The parameters of ABC - analysis were determined according to the degree of importance of the contribution of personnel to achieve the goal - the medical result: A - high 80% and above, B - average 40% - 80%, C - low 40% and lower significance of the contribution for the main production of goods or services.

***Table 1:*** *Design matrix template.*

| | A 80% or more | B 40-80% | C from 40% or less |
|---|---|---|---|
| X 80% or more | | | |
| Y 40-80% | | | |
| Z 40% or less | | | |

The contribution is calculated as: B = T x Kn x Kw, where T is the ratio of the actual rate / hour, Kn is the coefficient of irreplaceability (work cannot or can be performed by others Kn = 100% irreplaceable, Kn = 50% partially replaceable, Kn = 25% are completely replaceable), Kw - time coefficient (works can be postponed Kw = 1 cannot be postponed, Kw = 0.5 can be postponed for a day, Kw = 0.25 can be postponed for more than a day).

Parameters of XYZ - analysis: the degree of participation of the department, laboratory in the general process of treatment and

diagnostic measures: X - 80 % or more, Y - 40% - 80%, Z - 40% or less. The degree of participation is calculated as: Y = Cch x Kp where Cch is the share of the department among all departments in the patient's recovery process, Kp is the coefficient of constancy (need for services), Kp = 100% - constantly when the patient is in the hospital, Kp = 50% according to the degree of development of the disease, Kp = 25% when a patient calls for help. We have created a calculation matrix: Combinations AX, AY, AZ, BX, BY, BZ, CX, CY, and CZ form a calculation matrix (Table 1).

***Table 2:*** *Template of the calculation matrix.*

| | A 80% or more | B 40-80% | C from 40% or less |
|---|---|---|---|
| X 80% or more | | Department of General Medicine | |
| Y 40-80% | | Department of Clinical Analysis | |
| Z 40% or less | Intensive care unit | | Department of physiotherapy exercises |

Combinations of CY, CZ, and BZ have low contribution significance and low degree of participation. Combinations of BY and CX have medium degree of participation and medium contribution significance. Combinations AX, AY, AZ, BX have a high contribution value and a high degree of participation. An example of calculation using the ABC - and XYZ-analysis matrix. Intensive care unit (doctor) V = 1x100% x1 = 100%, Q = 0.5x50% = 25%; Department of general therapy (doctor) V = 1x100% x0.5 = 50%, Q = 1x100% = 100%; Department of physiotherapy exercises (doctor) V = 0.5x50% x0.25 = 6%, Q = 1x25% = 25%; Department of clinical analyzes (doctor) V = 1x50% x1 = 50%, Q = 0.5x100% = 50% (Table 2).

## Conclusion

The use of a design matrix based on ABC and XYZ analysis makes it possible to bring subjective assumptions closer to clear objective design criteria. This, in turn, will reduce the number of managerial errors and financial costs in achieving medical results.

## References

1. Total Toyota Production System, TPS Certification Institute. 2013.
2. Falko SG. Controlling for a manager. M Controlling Institute. 2006; 194.
3. Harvard Business Review Managing Uncertainty Alpina Business Books. 2006; 210.
4. Budarin SS, Vatolin DO, Elbek YV. Cross-country analysis of financing models for medical organizations in the context of the COVID-19 pandemic. Vestnik MGIMO-University. 2020; 13: 352-374.