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# Briefs in Assessing the Adequacy of Health Care Facilities' Fixed Assets

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**Abstract.** This work considers some procedures to assess the adequacy of fixed assets for Health Care facilities activity. In terms of effectiveness, equitable distribution examines whether limited resources are directed toward improving the health of the population in the delivery of health care services. Assessing the adequacy of health care resources examines the extent to which resources are used to provide health system outcomes and/or achieve health system goals. The results of such an assessment: on the one hand can prevent waste of limited health care resources, and another hand to increase effectiveness of health care services.

**Keywords:** health care, facilities, nonfinancial assets, assessing, adequacy, effectiveness, efficacy, evaluation.

## 1. Introduction

Health Care facilities are an important part of the healthcare system. They are critical infrastructures that provide essential services to the social functioning of a community [1]. Health Care facilities have to ensure the highest standards by delivering routine health service [2], and they must continue to operate during disasters [3]. Indeed, communities are at risk of disasters due to hazardous events including biological, environmental, geological or geophysical, hydrometeorological, societal and technological hazards [4]. Therefore, the properly functioning of health care, i.e., hospital facilities and the reduction of consequences due to disasters are vital for local, national, and global health security [5]. This reduces the cascading effects and helps build the resilience of communities, countries, and health systems [6]; this has been particularly evidenced by the COVID-19 pandemic [7] since the COVID-19 pandemic is a timely reminder of how hazards within the complex and changing global risk landscape can affect lives, livelihoods and health [4].

In this context, the World Health Organization (WHO) states that 'measures to ensure the safety, security and functionality of health infrastructure are needed at both national and community levels. Countries and communities need to prioritize the protection of new and existing hospitals and other health facilities from identified hazards and should ensure the physical integrity of buildings, equipment and critical hospital systems [3]. More and more attention has been paid to creating comfortable and functional hospital environments, where the patients can feel good and at ease maintaining the same efficiency of medical activities. In addition, flexibility has been particularly considered because hospital facilities must adapt to the continuous needs of change. [8]

In some cases, higher costs of equipment are justified by patients requiring more complex care. In other cases, differences in costs are caused by differences in

medical practice. A difference could be caused, for example, by the use of different equipment or other tools, but also by different surgical techniques. Such differences, once visible, form the basis of discussions among clinicians aimed at confirming a shared understanding of when variation is appropriate, and align diverse clinical practice where evidence shows a clinically determined balance of health outcomes and cost. Discussions around comparisons of costs between the service lines of different facilities can also reveal differences in resource/assets consumption for indirect costs. If activity-based costing is in place, decision-makers can then spot more easily the origin of such differences and potentially make services more efficient. While activity-based costing has been shown to reduce overall costs, its main advantage may actually lie in using the existing resources/assets more effectively. This is particularly important in a context of coping with rising demand without increasing the available resources.[15]

The Care Pathway Simulator (CPS) allows the design and comparison of different configurations of services to assess benefits and resource needs. Users can specify different care pathway models to determine parameters of interest including resource usage and patterns of care for each scenario. The simulation, which is based on discrete event modelling, allows predictions of capacity constraints in restructuring care pathways and mapping of performance to resource needs. The CPS has been used to redesign an outpatient clinic for vascular surgery in Good Hope Hospital, United Kingdom. In this application, the model used three inputs: patient lists to represent demand at the clinic; the care pathway or sequence; and the resources required to carry out the necessary care. The model was then applied to predict performance under different clinic process designs.[15]

But assessment methodologies of the adequacy of Health Care Facilities' Fixed Assets with specific focus on performance evaluation are limited. While primary care remains the principal point of patient contact with the delivery system for most citizens, itis the hospital sector that, because of the scale of the facilities and their resource requirements [14], has elicited the bulk of academic and official focus on the adequacy of these resource (fixed assets). This work considers the Adequacy of Health Care Facilities' Fixed Assets. For ease of perception of this study, fixed assets will refer to as resources.

## 2. Data and Methodology

The data was obtained from financial and statistical reports of health care facilities for time period 2005 – 2022 with once-a-year frequency of the data observations and calculation. From the organizational point of view, the authors have organized and participated multidisciplinary and thematic meetings (management, engineering, technical, logistic, health area, artificial intelligence). Experts and stakeholders were involved in the working groups with different purposes according to the development phase of the methodology. All key points of these measures as a part of future methodology (strategic goals, reference standards, algorithms and outcomes) were discussed in periodic meetings during nine International Conferences 2017-2021.

## 3. Results

The pursuit of efficiency is one of the central preoccupations of health policymakers and managers, and it is justifiably a cause for such concern. Most immediately, inefficient care can lead to unnecessarily poor outcomes for the patients directly affected, measured either in terms of their health improvement, or in their broader satisfaction with the health system. More generally, inefficiency somewhere in the health system is likely to deny treatments and health improvement to patients

who would otherwise have received treatment if resources had been better used, especially in systems operating with a fixed global budget. [15].

To assess the adequacy of a medical facilities' resources, we must understand what those resources are and how and what they are used for. Some of these resources are illustrated in Fig. 1.

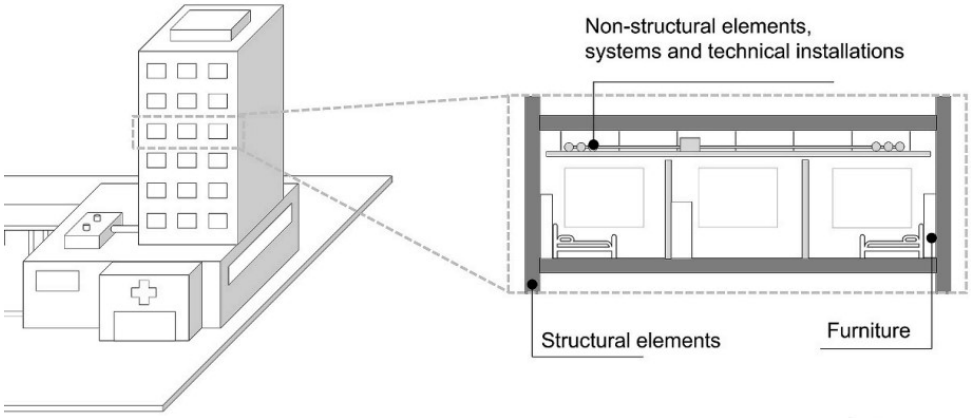


Fig.1. Example of health care facility's fixed assets.
Source: authors' interpretation of Fig.3 [8].

Fig.1 shows that all of highlighted elements (Non-structural elements, systems and technical installations; Structural elements (part of building), and Furniture) include into fixed assets in any Russian hospital according to Russian legislative. So, we can see that facilities' fixed assets include:

Dwellings
Buildings and Constructions
Investment property
Machinery and equipment
Transport vehicles
Inventories
Biological resources
Other fixed assets.
More details of fixed assets considered in previous work [10].

Before we can use resource performance measures, we need to make sure that resources are available, secure, and sufficient. The only way to verify the actual availability of the resources accounted for is through an inventory. If it is not possible to conduct an inventory at the current moment, the results of a recent inventory (e.g. at the end of the previous year) can be used.

When securing resources, a strong internal control system is necessary to ensure rational access to resources, accountability for non-compliance.

Access to resources and reports should be limited to a list of persons authorized and responsible for their preservation and use. It can avoid inefficient use of resources.

Inefficient use of health system resources poses serious concerns, for a number of reasons:

- it may deny health gain to patients who have received treatment because they do not receive the best possible care available within the health system's resource limits;

• by consuming excess resources, inefficient treatment may deny treatment to other patients who could have benefited from treatment if the resources had been better used;

• inefficient use of resources in the health sector may sacrifice loss of consumption opportunities elsewhere in the economy, such as education or nutrition;

• wasting resources on inefficient care may reduce society's willingness to contribute to the funding of health services, thereby harming social solidarity, health system performance and social welfare.[15]

To avoid above, mandatory periodic inventory of resources must be organized and conducted. Accountability must be provided to reduce risk due to possible errors, fraud, or misuse.

Let us consider basic assessing procedures for resource preservation.

1. Verification of the completeness and accuracy of accounting facts. At this stage it is necessary to make sure that the measurement (or calculation) of quantitative indicators is made with a sufficient degree of accuracy when accounting for resources. It is also necessary to make sure that all resources without exception are measured or counted. The procedure is performed using the methods of observation and counting. If necessary, you can use the method of interviewing personnel. The researcher should determine the methods, techniques and technical means used in the institution to measure resources, assess the condition of the weighing facilities and measuring instruments, and check how often the instruments should be checked and when they were last checked. Find out whether facilities' warehouse employees are satisfied with the state of the hand-held instruments and whether, in their opinion, these instruments ensure completeness and accuracy in measuring and counting operational facts. It is helpful to review the job descriptions of facilities' warehouse employees and the liability agreements they have in place. It is advisable to conduct a survey of facilities' warehouse employees and resource recipients.

The results of this survey will assist the researcher in evaluating the use of resources and the need for recommendations to optimize this process.

In addition, restricting access to the warehouse is important. Without access restrictions, an organization's warehouse is like a large store with no prices-just take whatever you want. This by no means that employees are taking goods for personal use, but they may be taking excessive quantities of them for medical purposes, leading to piling up in the warehouse area. It also puts managers in the difficult and almost impossible task of trying to determine what is in stock and what needs to be purchased for today's medical needs. Consequently, there must be mandatory control of inventory, as well as tightly restricted access to it.

Only a very narrow circle of well-trained employees should have access to documents containing raw material and inventory records. This will minimize the risk of accidental or intentional changes to these critical records. The security system should also retain the user passwords of everyone who has had access to these records, in case evidence is needed to prove that fraudulent activity has taken place.

If the researcher has doubts about the efficiency of the resources and there is a possibility of failures and irregularities, then an additional procedure should be carried out to identify the possibility of errors and irregularities.

2. Verify the promptness of recording resources on the media. It is possible to obtain such information (with an appropriate degree of reliability) using digital technology. As a rule, several users have access to records in the medical facilities.

3. Verification of the reliability of primary accounting records that formalize resources. The purpose of this procedure is to obtain sufficient evidence that the entire body of primary resource records is legally valid. The following sources of information are used during the procedure:

claims - bills of lading or limit - intake cards;

material accounting cards;

orders on approval of persons entitled to sign primary documents.

Particular attention should be paid to documents in which the following requisites are missing or corrected:

name of the structural subdivision - the recipient;

name of the type of activity (type of work) for which resources are requested;

the number of resources requested and especially the number of resources released;

personal signatures of the participants of the operation.

Summarizing the results of all analytical procedures described above, the researcher should group all detected errors and violations, give recommendations for their elimination, if possible, as well as indicate the main ways to optimize the internal control system.

When the availability, integrity and adequacy of resources are assured, it is possible to move on to the assessment of resource efficiency.

The concept of achieving resource efficiency and its application is carried out in various organizational contexts:

* Introduction of managerial responsibility for action;

* Implementation of a results-oriented strategy;

* Development and approval of the standard of accountability (individually and departmentally) for top managers.

Assessment of compliance of the goals of providing budget funds with the goals of their use.

Since medical facilities are participants of the budgetary process and receive funds directly from the budget, a great role is played by compliance with the objectives for which these funds were allocated. The goals of allocating budgetary funds to medical facilities are determined by the state assignment for providing a certain type of services [9].

Therefore, first of all, it is necessary to analyze the compliance of the types of activities of a medical institution with the state assignment. The analysis can be conducted in two directions: by volume and by content.

Analysis by volume involves assessing whether the amount of expenses is equal to the number of subsidies or subventions provided.

Some additional negative events or transactions that might be anticipated or projected include the following:

- Health care facilities may misrepresent their financial or other circumstances to change the qualifications for grants or subsidies.

- health care facilities may miscalculate the number of required budgets in order to receive more budgeted funds than necessary.

Assessment by content includes an evaluation of the purpose of spending budget funds.

After the calculation and analytical activities, it is necessary to implement the results of the performance evaluation. In this case, there are two options depending on the nature and obligation of performance evaluation:

1) if the performance evaluation is carried out at the initiative of the state, not satisfied with the activities of the use and disposal of its property or funds, then its results will also be mandatory for subsequent application. In this regard, it is possible

to complete its conduct with a report, and the implementation of the recommendations will be traced by the relevant state authorities;

2) evaluation of activities is carried out at the initiative of the object itself. In this case, the use of the recommendations reflected in the report is left to the discretion of the management of the medical facilities.

## 4. Conclusion

The aspects to assess have been identified to provide decision-makers with an overview of the situation of health care facilities. The overview is finalized to modernization and to outline how to increase the physical environment contribution to the resilience of the entire health care system.

Implementing modernization strategies of health care facilities to ensure high standard care and effective using of given resources is one of the duties of the decision-makers. This process aimed to elicit expert reasoning by using the modern equipment, i.e., magnetic resonance scanner, computer scanner, etc. The customization has concerned objectives of the assessment, main aspects, algorithms, metrics, and outcomes representation. Aspects with reference to specific established goals and they are based on a hierarchy of main indicators which assign greater importance to safety and functionality. In addition, the algorithms take into account the relationships between the hospital facilities parts, considering them as complex systems of result-oriented health care.

The safety of utility employees, contractors, and the public is paramount during this time, while addressing the new power system operating challenges [11].

This will be achieved by adopting the Integration with municipal/federal disaster response structures, as appropriate.

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