The Study of Quality Control Management that Influence the Implementation of Technical Standards for Class C Hospital Buildings in Tangerang Districts

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Abstract. Based on research issues regarding the implementation of hospital building technical standards that are often ignored, especially from the quality control process so that there is no improvement in quality, the research problems that will be resolved are analyzing the understanding and indicators regarding; quality control management, and the application of technical standards in class C hospital buildings. This study examines the main aspects of quality control management, quality control circles, and PDCA Cycles (plans, actions, checks, actions) as a program in the implementation of factors that affect quality control management. Applying the technical standard of class C hospital buildings was assessed based on the provisions of the ministry of health. As a consideration of this research examines the portrait of the project under study, which is a case study of Class C Hospital in Tangerang Districts and highlights relevant research results in the past 10 years. Qualitative methods sourced from secondary data will be used to study understanding and indicators in discussing research problems. In the results of this study it can be concluded that the factors of quality control management can hinder the application of hospital building technical standards so that it can affect the quality of the building which has an impact on the comfort and safety of building users. This research produces answers to research problems that will provide recommendations for improvement for service users so that it can have a positive impact on the implementation of the project.

1. Introduction
Good hospital services are certainly supported by good facilities and infrastructure and do not hamper the process of service to users as to minimize undesirable risks to building users. In this case the quality control of hospital buildings is not given enough attention by the hospital management. Many people assume that this part of the hospital maintenance maintenance does not generate profits or profits for the hospital and is considered a cost load. But with the maintenance and improvement of hospital services will increase the efficiency and good service quality of facilities and infrastructure.

According to Dr. Kuntjoro Adi Purjanto, Mkes as chairman of the association of hospitals throughout Indonesia explained about the management of facilities and infrastructure that are important for patient safety. Every hospital and health care have an easy interaction and have potential errors, unexpected potential accidents and any potential related to the risks that will be obtained by patients including employees and the environment.

Quality management is well controlled, the results of the project will get the best quality as well. However, the implementation of established standards is often ignored, and is not in accordance with the management of basic quality control and the provisions of applicable
technical standards so that this will have an impact on the quality of the building and affect the comfort and safety of the users of the building.

1.1. Research Question
From the background that has been described previously, it will produce a problem statement that will be answered in this research.

a. What are the definitions and indicators of quality control management?

b. What are the definitions and indicators of the application of building technical standards?

1.2. Quality Control Management
Effective quality control reduces the chances of changes (variation), errors, and oversight. On the other hand, quality control is a series of specific procedures including planning, coordination, testing, supervision, review and scheduling of work. Quality control is needed to provide indicators at various stages of the project to show the requirements and specifications that have been achieved. Quality control serves as a useful input and allows early detection of defective parts that need repair or correction.

1.2.1. Quality Control Circle (QCC)
QCC is an activity in improving the company or project. This activity has several benefits that can provide a fairly good for companies that want to increase the number of companies. Along with the benefits provided in the application of the QCC, the general purpose of the QCC is;
(1) Develop working relationships with members (2) Promote more effective group cooperation (teamwork), (3) Improve problem-solving skills, (4) Develop personal relationships with leadership, (5) Instill awareness about addressing problems, (6) Reducing mistakes and improving work quality, and (7) Increasing employee motivation.

QCC has a process or a common implementation step. Broadly speaking, the process or stages in the QCC consists of seven steps to resolve. The step starts from the identification of problems that exist in the object of research to the implementation of solutions in real systems. The steps in QCC according to (Welekar & Kulkarni, 2013) are explained in the following diagram:

![Figure 1 Step Chart in QCC](source: IJERA vol.3 Issue 2)

1.2.2. PDCA Cycle (Plan, Do, Check, Action)
PDCA cycle as part of efforts to improve a quality by helping to solve problems found in the company. In line with the objectives of the QCC, this PDCA cycle can be used in carrying out continuous improvement and quality management. This is interconnected and used as a method of solving problems.

- Plan; the planning process can be done in the form of determining the problem of a system that will be carried out further research to find alternative solutions to improve the system for improving the performance of the system.
- Do; implementing changes on a small scale first so that the results obtained can be learned more easily.
• Check; analyze the results of changes that have been made to determine what has been obtained and studied by comparing the results before implementation and after implementation is done.

• Act; implement changes and make adjustment if the results obtained are good and do not implement it if the results are not good. If the results are not appropriate, further analysis is needed for new alternative solutions.

1.3. Technical Standards for Hospital Buildings Class C
Standards in hospital buildings must meet the technical requirements of hospital facilities and infrastructure that supports health care in a perfect manner. All the requirements must be planned according to the applicable standards and rules. This is intended so that hospitals can carry out health services efficiently and effectively in accordance with the needs of health services to the community. In general, what is meant by means is all things related to the physical building/building and room. While infrastructure is everything that makes these facilities can function like the provision of clean water, electricity, waste water installations and others.

2. Research Methodology
This research is the result of descriptive identification sourced from various literatures, portrait studies of class C hospital building projects in Tangerang Districts and relevant research results in the last 10 years related to quality control management and the application of technical standards for class C hospital buildings. the results of the identification study in this paper are expected to open a discourse of understanding for all parties.

3. Results and Discussion
3.1. Portrait of the Project Under Research
Portraits of the projects examined in this study are several hospitals in Tangerang District. The following is a portrait of a research project:

a. T hospital; is a hospital that was developed with a focus on aspects of land efficiency. This building has 4 floors with a building area that only uses 20% of the total land area. This provides an opportunity for building capacity development in the future by using the available land.

b. S Hospital; is a hospital that was built based on the problem of the high demand for health services in the area. The image of the modern and functional building is displayed in the facade and lay-out of the room which emphasizes the efficiency and effectiveness of the performance of the hospital's health services.

c. R Hospital; is a hospital that was built with the aim of becoming a superior hospital in its coverage area. The vision and mission of this hospital is to be able to compete in this globalization era, efforts to improve the quality of services, and run a professional hospital management.

d. U Hospital; is a hospital under the auspices of the Tangerang Districts government and was built to adapt to inter-Districts needs. Although the regional public hospital, this hospital is very slow development, unlike other regional public hospitals. But this hospital always provides optimal services and seeks to improve better quality
services.

3.2. Discussion
The research study provides results regarding answers to research problems. There are two issues regarding the understanding and indicators of quality control management, and the application of technical standards for class C hospital buildings. The following are the results and discussion that answer the research problem.

The understanding of quality control management is the cause or which influences a series of processes of effective quality management and application so as to achieve fitness for use, which aims at achieving quality requirements on projects without repetition in an effective and economic manner. The indicators of quality control management are:

- The quality control plan determines how quality control will be and what is needed, techniques and processes carried out in quality control and control. This quality control plan contains several components such as; project documents, approved change requests, deliveries, performance data, company business environmental factors, and organizational process assets.
- Data and quality control techniques are a collection of facts or records in the form of data that can be used in quality control activities in specific procedures or ways to solve quality problems found in carrying out quality management procedures. There are several data components and quality control techniques, namely; data collection, data analysis, inspection, product testing / evaluation, data representation, and meetings.
- The results of quality control determine whether the project output can be carried out in accordance with the quality control plan and achieve quality objectives such as complying with applicable standards, requirements, regulations and specifications. This result is an important relationship and as a benchmark for the success of planning and quality control. The following are the results of quality control; quality control measures, related to shipping, work performance information, change requests, project management plan updates, and project document updates.

Understanding the application of technical standards for class C hospital buildings is the implementation in meeting the technical requirements of hospital facilities and infrastructure. This requirement is intended so that hospitals can carry out health services effectively and efficiently in accordance with the needs of health services to the community. Post-habituation evaluation is a method of assisting the performance of health facilities by knowing the potential and existing problems, so that corrective measures can be taken. Indicators of the application of the technical standards of C class hospital buildings are:

- Short-term use; improvement in terms of problem identification and solution in facility management.
- Medium-term use; improvement in terms of facility development capabilities in accordance with organizational growth, cost savings, and building maintenance.
- Long-term use; improvement in terms of facility performance, such as improving database, standards, facility design criteria, and improving the facility's evaluation system.

4. Conclusion
Based on the results and discussion it can be concluded that quality control management as a cause of quality management problems has indicators. These indicators are; quality control plan, data and quality control techniques, and quality control results. These indicators are often ignored and are not evaluated on an ongoing basis so that the objectives of the project do not match what is expected. Therefore, quality control management must always be done so that defective parts can be detected in order to be repaired.

The research problem regarding the understanding and indicators of the implementation of the technical standards of class C hospital buildings it can be concluded that the activities in the application of the technical standards of class C hospitals can meet the requirements of facilities and infrastructure. Implementation of post-occupancy evaluation method that can help improve the performance of the hospital. This application there are indicators namely; short-term uses, medium-term uses, and long-term uses. With these indicators so as to know the steps of implementation and improvement that will be carried out in improving the facilities and infrastructure of class C hospital buildings.

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