
Assessment of the process of minor repairs of hospital structures by the maintenance unit in De Soysa Hospital for Women: A Case Study

Abeynayake AMJ¹, Wijemanne WMUS²

1Post Graduate Institute of medicine

2De Soysa Hospital for Women

EXECUTIVE SUMMARY

De Soysa Hospital for Women (DMH) is one of the oldest hospitals in Sri Lanka situated in the heart of Colombo. It is a specialized hospital for maternity care. Many services in the hospital are still operating in the old buildings constructed almost 100 years ago. This has led to the frequent occurrence of minor repairs which cost a fair portion of the recurrent budget of the hospital. This case study focused on studying the process of minor repairs completed by the maintenance unit in DMH. The objective of the study was to identify the key issues in the current process and to establish a mechanism to audit the process carried out by the maintenance unit of the hospital. The problem was further analyzed using problem analysis techniques. Designating a subject clerk in the establishment branch, implementing a job card system, and preparing a standard operating procedure for the minor repair process were found to be workable solutions for the existing problems.

provides fertility services to women who are expecting a pregnancy. DMH is a teaching facility for undergraduate and postgraduate medical, nursing, and midwifery students. It has a bed strength of 343 with an average bed occupancy rate of 62.3%.

Maintenance Units in Government Hospitals

From time-to-time hospital buildings, electrical systems, and plumbing systems may need minor repairs which could be easily addressed by the staff of the maintenance unit of a hospital. These repairs should be addressed promptly to ensure the smooth functioning of the institution and also to prevent further damage which can cause an enormous cost to the institution. Moreover, well-maintained buildings give a safe place for patient care and a better working environment for staff.

INTRODUCTION

De Soysa Hospital for Women which is also known as De Soysa Maternity Hospital (DMH) is a government hospital that comes under the line Ministry. It is a specialized hospital for maternity and childcare and provides antenatal, intrapartum, and postnatal care for pregnant mothers and their babies. It also functions as a referral center for high-risk pregnant mothers and also

What is meant by maintenance?

Maintenance includes inspection, assessment, and carrying out necessary measures to sustain the intended functions. It helps to sustain uninterrupted operations by preventing damage due to natural agents or events, wear and tear effects, and other causes that can impair the working conditions of the premises.

The Maintenance work can be classified as:

a) Preventive maintenance

This refers to the maintenance work that is done before occurring any defects or damage. It includes service maintenance attended periodically.

b) Corrective or remedial maintenance

It is the maintenance that is done after the damage or defect occurs with a view to restoring its operations or usability.

What is Repair?

Repair is the technical aspect of rehabilitation. It refers to the modification of a structure partly or wholly, which is damaged in appearance or serviceability.

OBJECTIVE

DMH is one of the country's oldest hospitals, still operating in the oldest buildings built since its inception. One of the main constraints to the smooth operation of the hospital is the frequent occurrence of minor repairs. Therefore, the objectives of this case study were to assess the process of minor repairs of the hospital carried out by the maintenance unit of the De Soysa Maternity Hospital, and to implement measures to improve it further.

METHODOLOGY

In this study, a problem-oriented analysis was made based on data collected through key informant interviews (with the Director, Administrative Officer, Accountant, respective subject clerks, In-charge of the

maintenance unit, In-charge Nursing Officers of the wards/units), and observatory visits to identify the process of minor repairs conducted by the maintenance unit and the problems encountered in carrying out such work. The nominal group technique was used for problem identification, problem prioritization, and cause prioritization. A Fishbone diagram was used for root cause analysis. Peer group brainstorming sessions and a small literature review were conducted to come out with proposals for solutions.

Problem Analysis

There are four healthcare assistants working in the maintenance unit of the DMH who attend to minor repairs related to masonry, plumbing, electrical, welding, and carpentry. Petty cash imprest is used to fund minor repairs. Major repairs are usually identified in the latter part of the previous year, and required budgetary allocations are obtained from the Ministry of Health on an annual basis. Duties of the maintenance unit include:

1. Routine maintenance
2. Minor repairs
3. Guardianship of necessary tools
4. Giving estimates

The materials needed for repair are acquired from the general store which is manned by a storekeeper attached to the accounts department of DMH. Materials are purchased from the registered suppliers with or without calling for quotations depending on the cost of the material. Materials are issued to the maintenance work in H500, which is a mandatory issue order required to be maintained in the wards or units.

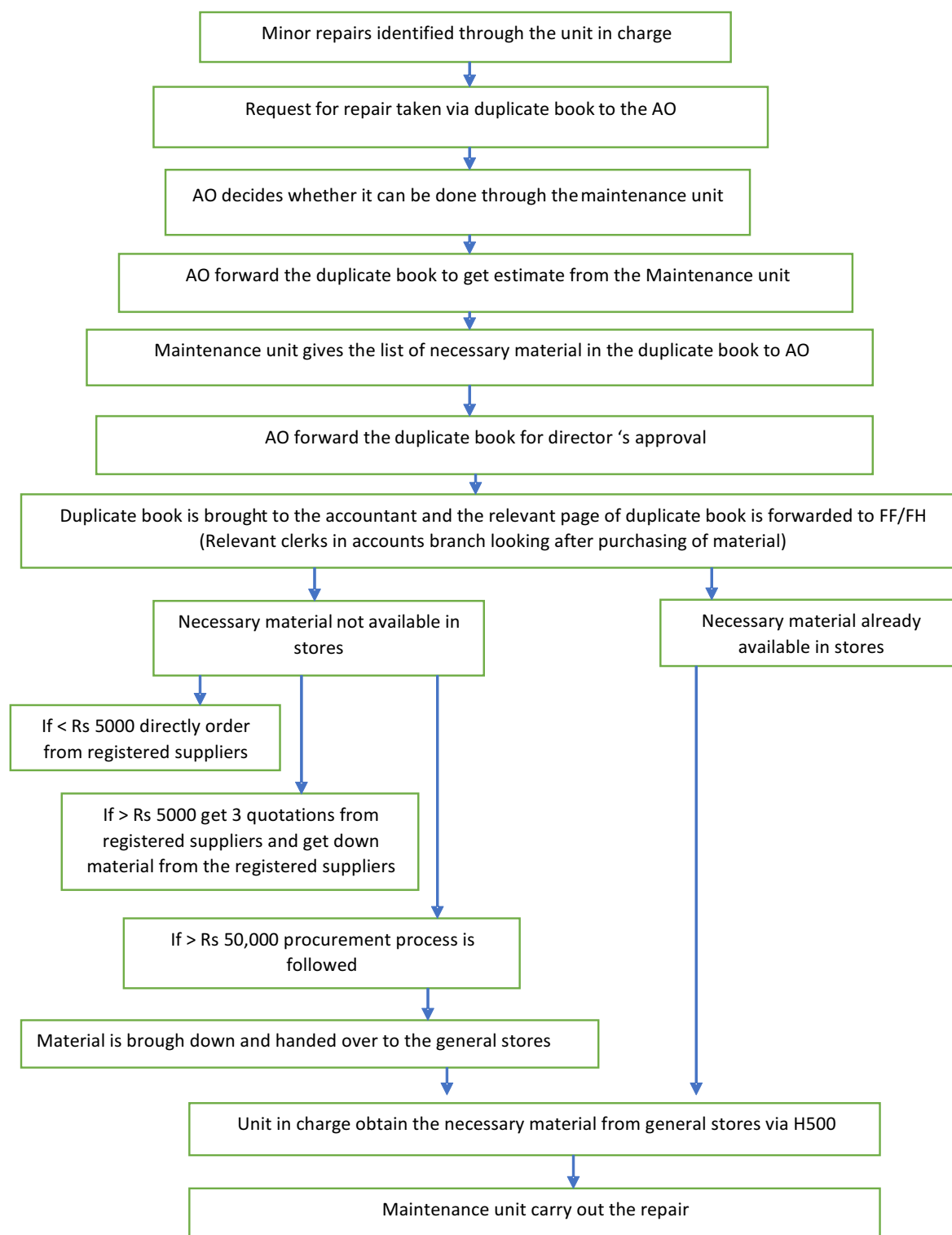
Process of minor repairs carried out by the maintenance unit of the DMH

Problem identification

The following problems were identified with respect to the process of minor repairs.

1. There is no subject clerk assigned in the establishment branch to handle minor repairs carried out by the maintenance unit.

Process of Minor repairs at DMH



2. The previously used job card was not in use anymore. Thus, there was no mechanism to follow up the minor repair process from start to end.
3. There was no appropriate mechanism to audit the minor repairs done for each unit.
4. There was no mechanism to track duplicate requests.
5. There was no mechanism to double-check and verify the estimates made by the maintenance staff.
6. Staff in the maintenance unit did not have appropriate vocational training in maintenance work.
7. Occurrence of minor repairs was frequent as the buildings are old.
8. Some requests for repairs were forwarded to the Director first and then to the Administrative Officer causing a delay in the process.
9. Delays in getting the repairs done.

Problem prioritization using a priority matrix

Considering the value to the user groups and the feasibility, the above key problems were prioritized.

Based on the prioritization, “*No appropriate mechanism to audit the minor repairs at DMH*” was considered for further analysis.

Root cause analysis

The underlying causes for the identified problem were analyzed using a fishbone diagram (Figure 1).

Policy

There is a Ministry policy to have a maintenance unit in each hospital with the existing staff with special skills. Therefore, in DMH, four workers in the maintenance unit are healthcare assistants who have some skills in electric, plumbing, carpentry, and welding work but are not appropriately trained or certified. There is no emphasis in government hospitals for audits of minor repairs carried out by the maintenance units. Minor repairs are frequent as many of the government structures are old and poorly maintained, accounting for a major portion of the recurrent expenditure. Also, there is a high chance of pilferage and other unlawful practices if these are not monitored. No proper audit guide is available for administrators on building maintenance in the hospital.

Table 1: Priority Matrix for problem prioritization

Problem	Factors		Prioritized value
	Technical feasibility	Impact	
- No clerk was assigned in the establishment branch to handle repairs	6	5	30
- No mechanism to follow the minor repair process from start to end	5	8	40
- No mechanism to audit the minor repairs	6	8	48
- There is no mechanism to track duplicate requests.	3	4	12
- Inability to verify estimates	3	5	15
- Unqualified workers in maintenance unit	3	7	21
- Occurrence of frequent minor repairs as the buildings are old.	2	6	12
- Unnecessary prolongation of the process due to duplication of work.	6	6	36
- Delay in getting the repairs done.	3	8	24

Place

DMH is one of the country's oldest hospitals, still operating in the oldest buildings built since its inception. Though new building complexes have been planned for the hospital, they would take another long period to come up. One of the main constraints for the smooth operation of the hospital is the frequent occurrence of minor repairs which must be dealt with until the new buildings are available.

Man

No designated subject clerk was available in the establishment branch to handle the minor repairs in the hospital. Therefore, maintaining records of requests made for repairs, repairs completed, and issues

occurring during the minor repair process was not satisfactory.

Methods

The process followed for minor repairs was implicit and the steps were sometimes duplicated. Some units brought the duplicate book to the Director first and then get referred to the AO for further attention. Therefore duplication, and unnecessary motion, contributed to the delay of repairs.

Cause Prioritization

A priority Matrix was used for cause prioritization (Table 2).

The “Method” arm with a total mark of 50 became the most prioritized cause. Therefore, the interventions were designed to target its elements.

Proposed solutions

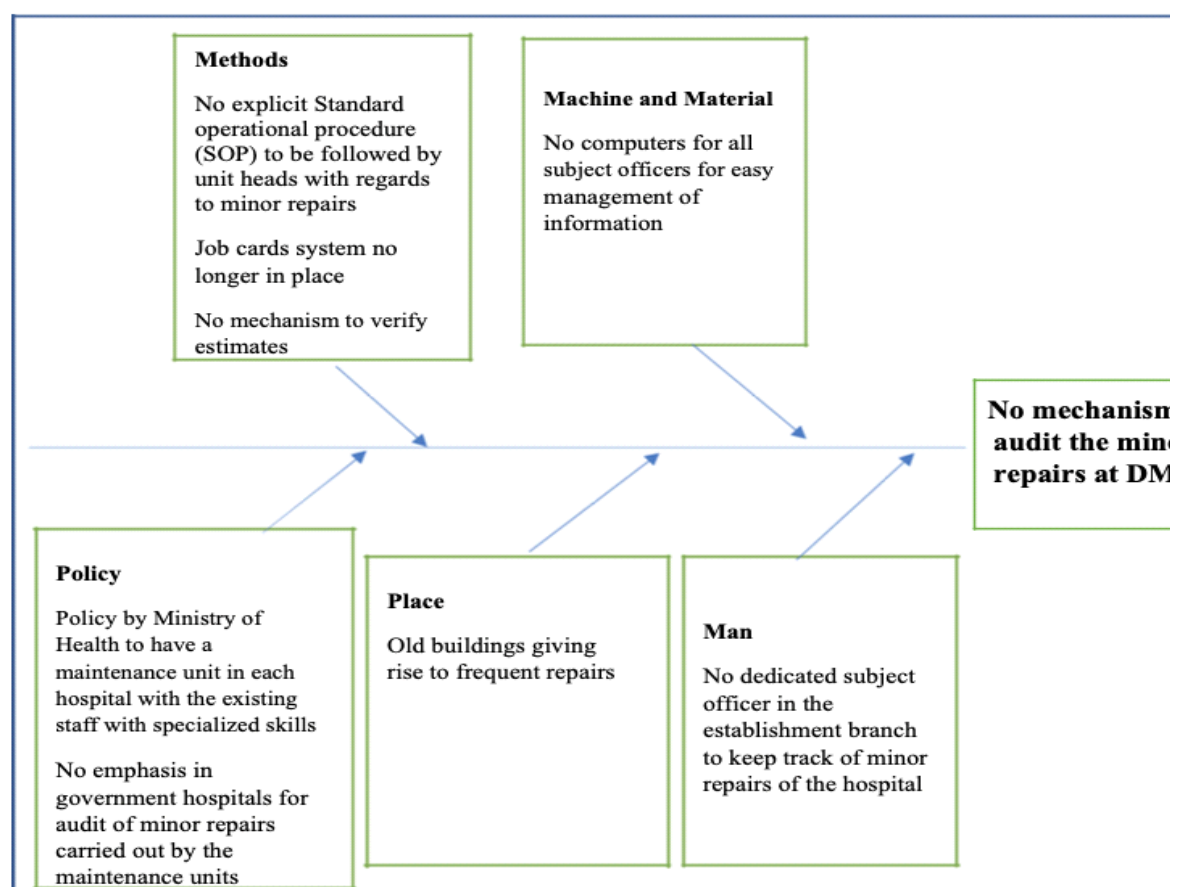


Figure 1: Fishbone diagram for problem analysis

Table 2: Priority Matrix for Cause prioritization

Aspects of causes (Marks Given out of 10)								
Causes identified								Total
	Technical feasibility to intervene	Administrative feasibility	Financial Feasibility.	Practical possibility.	Impact factor	Time factor.	Acceptance	
Man	03	03	01	02	07	01	06	23
Policy	04	05	03	04	08	02	03	29
Place	01	01	01	02	01	01	02	09
Machine	07	08	08	05	06	07	05	46
Method	07	08	07	06	08	06	08	50

The following solutions were eventually developed and implemented.

1. Appointing a designated subject clerk in the establishment unit to keep a record of the minor repairs in the hospital and to carry out periodic audits.
2. Preparing an SOP for the process of minor repairs requested from the maintenance unit.
3. Introducing a job card.
4. Providing a computer for the subject clerk
5. Obtaining approval from the Ministry of Health for the repair estimates amounting to more than Rs 5000/=.

JOB CARD

සුළු නඩත්තු අංශය - ද මහාසීතා කාන්තා රෝහල
 මහානගාභිලිංගි, පිදුලි හා සුළු නඩත්තු කටයුතු සඳහා ඉල්ලුම් පත්‍රය

අංකය : 2021 / /

1. අංකය වාරිදුර :

2. දෙවන නඩත්තු කටයුතු පිළිබඳ විස්තර

.....

.....

.....

දිනය

විෂය නිලධාරී විසින් විමර්ශන යුතුය.

☐ මහානගාභිලිංගි
 ☐ පිදුලි
 ☐ පලය
 ☐ මෙල්ලන්

අංක ප්‍රධානී අත්සන

3. අනෙකු නඩත්තු කටයුතු සඳහා පහත සඳහන් උපකරණ අවශ්‍ය වේ. (Duplicate මහානගාභිලිංගි පිදුර පිළිබඳව)

.....

.....

.....

දිනය

4. අනෙකු නාභේය මිලදී ගැනීම අනුමත කරමි.

.....

.....

.....

නඩත්තු අංක නිලධාරී

අධ්‍යක්ෂ

කළකාරිකාරී

5. නඩත්තු උපකරණ දෙවන අංශය වෙත නිකුත් කිරීම

.....

දිනය

.....

.....

සබ්කාර නිලධාරී

6. දෙවන නාභේය මහානගාභිලිංගි වෙත ඉදිරි කල මිල දෙවර්ෂ.

.....

දිනය

.....

.....

නඩත්තු අංක වෙත

අංකාර ප්‍රධානී

7. අනෙකු නිලධාරී වෙත ඉදිරි කල කර ඇත.

දිනය

විෂය නිලධාරී

Implementation

The following were implemented.

1. A job card was prepared with the consensus of the stakeholders and was introduced to the staff (Figure 2).
2. An SOP was developed for the minor repair process with the involvement of the stakeholders and introduced to the staff (Figure 3).

Figure 2. The job card

CONCLUSION

Not having an appropriate mechanism to

Standard Operational Process of Minor repairs at DMH

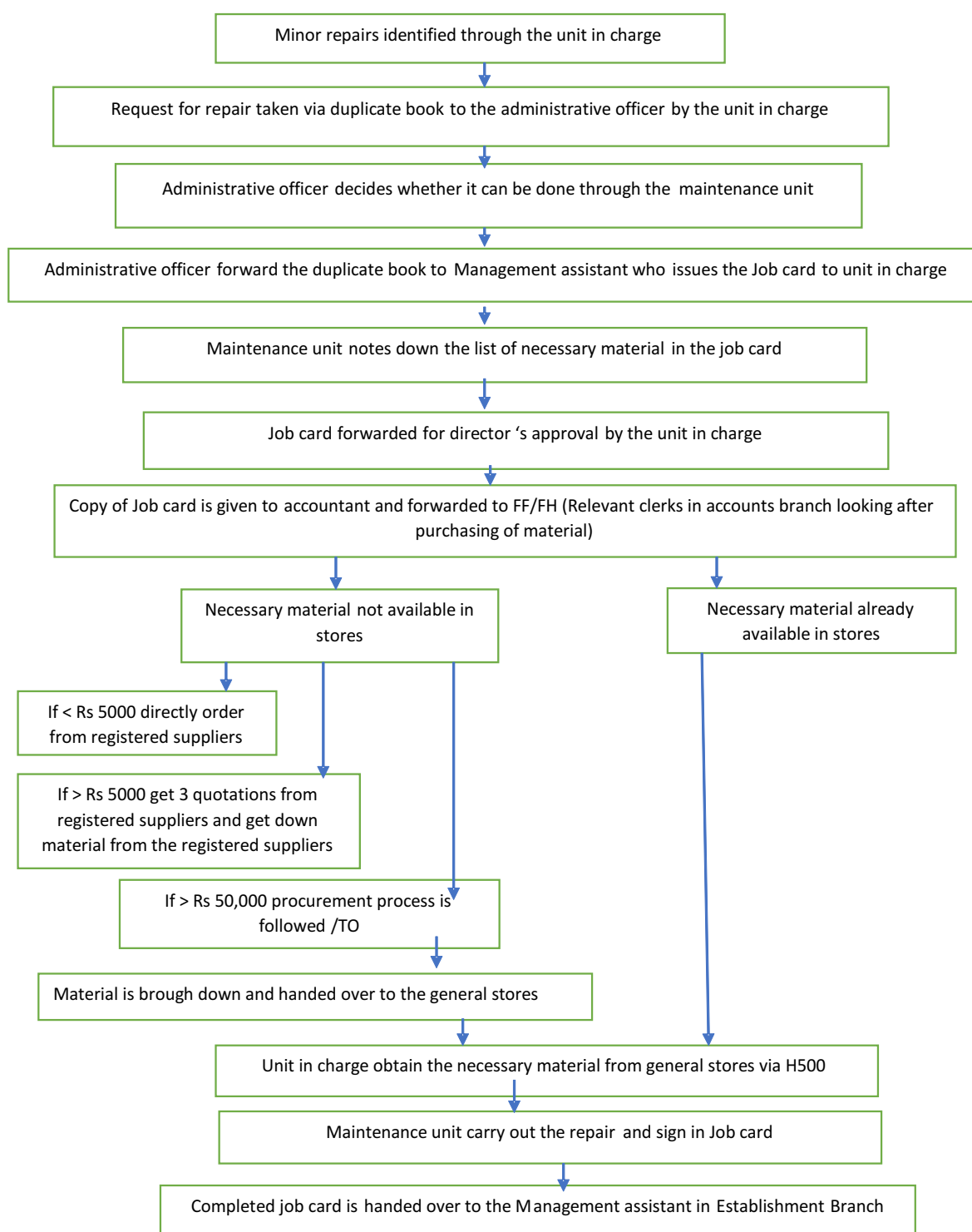


Figure 3: Standard Operational Procedure

audit the cost and the process of minor repairs carried out by the maintenance unit of DMH was found to be an issue. Appointing a designated subject clerk, introducing a job card system, and executing a standard

operating procedure for minor repair process were found to be workable solutions for those problems and was successfully implemented at the De Soysa Maternity Hospital.

REFERENCES

- (1) Annual Report of De Soysa Maternity Hospital 2020
- (2) CE 2031: Repair and Rehabilitation of Structures VIII Semester Elective
Prepared by Vijayalakshmi M, Michael F
- (3) Shelton RD. Engineering department uses 'quick slip' to handle minor repairs in hospital. *Hospitals*. 1982 Jan 16;56(2):67. PMID: 7053354
- (4) Welch K. Tracking systems maintenance. *Comput Healthc*. 1986 Jul;7(7):37-8. PMID: 10278859.