



**VMMC & Safdarjung Hospital,  
Ministry of Health & Family Welfare,  
Government of India, New Delhi.**



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Document No.	TITLE		
E/ NABH/ SJH/ QSP/ 14	Policy on Equipment Maintenance		
Effective Date: 20/07/2020			
Function	Name	Designation	Signature
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**Distribution:** Quality Cell, Medical Superintendent, In-charge Equipment Stores, HOD all department

**REVISION SUMMARY**

Version No.	Effective Date	Revision History
1.0	20/07/2020	00

VMMC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

## 1.0 INTRODUCTION

Equipment management can be defined as a process of purposeful and effective utilization of equipment with a view to maximize their up-time and accomplish the pre-determined objectives. Further, it will be almost impossible to achieve the objectives in the absence of adequate facilities/ infrastructure for regular maintenance and repair of the equipment.

## 2.0 PURPOSE

This QSP explains the procedure on how equipment can be efficiently managed and utilized, with minimum down-time and wastage. These procedures are being followed in order to prevent equipment breakdown and keep them in adequate functional working condition throughout its lifetime.

## 3.0 SCOPE

This document is applicable to all the health care workers of various departments procuring and using equipment and also to all the officers and engineers designated to maintain these equipment.

## 4.0 DEFINITION

**Equipment:** the set of articles or physical resources serving to equip a person or thing to accomplish a particular task.

**Corrective maintenance:** Action taken to repair equipment, improve a procedure, improve performance, calibrated/recalibrated etc.

**Preventive maintenance:** Periodical checks and tasks of proactive processes to identify the potential source of non-conformance in order to prevent sudden breakdown of instrument.

VMHC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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**Test Equipment:** Devices used during the calibration of instruments. These devices must be traceable to known standard.

**Calibration:** The operations which assure that instrument readings are accurate and referenced to known standard.

**Validation:** Proving that a system (equipment, procedure, process, material) will yield expected results.

**Qualification:** Assuring that the equipment can produce expected results.

**Accuracy:** The closeness of agreement between the nominal value (selected volume) and the measured value.

## 5.0 ABBREVIATION

AMC: Annual Maintenance Contract

CMC: Comprehensive Maintenance Contract

PPM: Planned Preventive Maintenance

## 6.0 RESPONSIBILITY

The staff and organizational structure for equipment management are defined (**Annexure A**).

- The user of the equipment is responsible for proper usage, maintenance and safety of the equipment.
- The Head of Department supervises and is responsible for the functioning and maintenance of all the equipment in the department.

VMMC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP / 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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- The Equipment Purchase Committee assesses the need for equipment, and helps in procuring an equipment with latest technology with facilities for upgradation, repair, steady supply of consumables, suitable warranty/ CMC and reasonable operating cost.
- The Inspection committee supervises the receipt and installation of equipment and its supplies.
- The equipment repair and maintenance committee takes care of repair of non-functional equipment and also of their preventive maintenance.
- Un-serviceable equipment are condemned by the equipment condemnation committee once the life of equipment is complete.

## 7.0 PROCEDURE

### Installation of Equipment

Once the equipment is supplied and tested for proper functioning its installation plays a very important role in determining its performance. Improperly installed equipment are likely to have breakdowns more frequently than the equipment that has been very meticulously installed and delicately used.

### Training the user Department

Once installed an equipment logbook is prepared for every equipment and is updated regularly. These equipment log books have a standard approved format and are available in the General Stores of the hospital. The master equipment log of the department is also updated (**Annexure B**).

During installation the health care staff handling the equipment is trained in proper handling of the equipment including regular cleaning of equipment, use of controls and calibration. The user is also expected to familiarize himself with the user manual. If the staff is not properly trained, the incidence of incorrect results as well as break down is likely to be high.

VMHC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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### **Planned Preventive Maintenance of Equipment**

A concept more important than repairing the equipment is preventive maintenance of the hospital equipment. With proper preventive maintenance the incidence of breakdowns leading to emergencies comes to a minimum, the life of the equipment increases and cost of repairing comes down. Hence, in contrast to the concept of maintenance when breakdown actually occurs, we have the concept of Planned Preventive Maintenance (PPM) the role of which start even before the finalization of equipment. The terms for a 2-5 years warranty followed by 5 years CMC are finalized at the time of purchase itself. A period of 5 years warranty followed by 5 years CMC is preferred to ensure proper functioning for a minimum of 10 years life of the equipment.

After successful installation the equipment store ensures regular check-up of the equipment in terms of proper cleaning, oiling if needed, replacement of worn out parts and other preventive aspects which varies from equipment to equipment. Accordingly, under the preventive maintenance scheme, the maintenance department plans an annual maintenance schedule for every equipment, the records of which are made in the equipment log book.

Since hospital services are frequently life saving in nature, it becomes imperative to ensure proper functioning of all equipment at all times. They should be calibrated annually (or as per recommendations), to ensure that they give correct results. All this can be achieved through planned preventive maintenance.

- Quotations are invited from authorized service agents for preventive maintenance of the equipment according to the terms of contract in the notification for award for the equipment concerned. These quotations are verified by the HOD of the user department.
- A Form requesting for putting up the Comprehensive Maintenance Contract (CMC)/ Annual Maintenance Contract (AMC) (**Annexure C**) is filled in completely along with certification of

VMHC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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service authorization and verified quotations is put up to the Repair and Maintenance Committee for approval. Once approved the service order is provided to the firm and records are maintained.

- Upon receiving the service order the authorized firm provides timely preventive maintenance and breakdown services for the equipment. It is the duty of the user department to maintain proper records of equipment breakdown and downtime. **(Annexure D)** If the downtime of the equipment exceeds the desirable period and the service providing firm does not provide proper timely services the PPM money is deducted and not paid to the firm.
- Every bill put up for payment to the accounts department is first verified by the user department for satisfactory services, recorded in equipment log book and then payments are made by account payee cheques.

#### **Advantages of Planned Preventive Maintenance**

1. With planned down time the period of non-availability of equipment is known, thus enabling the hospital to make alternative arrangement for patient services.
2. Break-down in emergency situations is avoided.
3. Equipment maintenance expenses are lower.
4. Employees are careful and more meticulous in using the equipment.
5. Schedules can be planned so as not to interfere with the normal work of the equipment.
6. High performance can be achieved.
7. By referring to the equipment record, the right time for condemnation of equipment can be determined.

VMMC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP / 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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## Repair of Equipment

- Any item not in working order is put up for repair. If under warranty/ CMC/ AMC the authorized form is informed. The service engineer visits the site, inspects the equipment and furnishes the service report.
- Equipment under warranty and CMC are charged for consumables and repaired free of cost; while those under AMC are charged for spares. The repair quotation provided by a authorized service agent is put up in a prescribed format (**Annexure E- Equipment Repair Form**). The charges are verified by the Head of Department and the request form is put up along with service report, Authorization certificate and Repair quotation. Once approved the repair order is given and the equipment is repaired.
- Any spare part if needed is indented through the equipment stores, inspected and approved for indenting by the user department. The spare is indented and the equipment is repaired.
- Once repaired the equipment is calibrated and validated before use. It is supervised for satisfactory performance for 15 days only after which a satisfactory repair and working report is released and payments made by the accounts department.
- The details of the repair are also entered in equipment log book and records are maintained.

## Condemnation of Equipment

Unserviceable items are condemned by the Equipment condemnation committee which meets regularly in the hospital usually every 3-6 months. A condemnation certificate is obtained from the authorized service firms and the items presented for condemnation to the board are looked into details for their functional status, life span and cost being spent to keep it functional. Then a decision for either accepting or rejecting its condemnation is made.

VMMC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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### Monthly Non-functional Equipment data

In order to keep a check on the functional status of all equipment in the department a report on Non-functional equipment is shared every month with the Medical Records Department of the hospital. (Annexure F)

### Guarantee/ Warranty

- a) The equipment to be supplied under this supply order shall have to be guaranteed for 95 percent uptime by the company/ Indian agent for the period specified in the supply order, from the date of installation, commissioning and handing over to the authorities of the concerned department. If during the guarantee period any of the spare part becomes defective or does not work properly it shall have to be rectified/ replaced by the company/ Indian agent at your cost and care.
- b) The engineer for servicing of the equipment shall have to be deputed immediately on receiving the intimation from the purchaser for any spare part required, same shall be arranged by the company/ Indian agent at your cost and care.
- c) The period during which the equipment remains non-functional or unserviceable for want of engineer or non-availability of spare part shall not be counted towards the guarantee period and has to be extended accordingly by that period.
- d) During the guarantee period the company shall depute their specialist and trained engineer to make atleast 4 compulsory maintenance visits for routine check up and preventive maintenance of the equipment in addition to any number of emergency calls from the purchaser for servicing of the equipment to ensure 95% uptime of the equipment.
- e) Full support shall be made available by the company/ Indian agent for the maintenance of the system and its quality assurance during the guarantee and AMC period.

VMHC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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## CMC/ AMC

It is the responsibility of the department to put up an AMC/ CMC for the equipment before the expire of warranty of the equipment. The terms of the contract shall be finalized for the

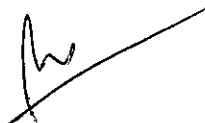
- i. Schedule of visits: The trained engineer of the company visits the institute for servicing the equipment with prior information. Minimum 4 preventive maintenance visits are made.
- ii. Scope: Covers repair maintenance, spares and their installation etc. is pre decided.
- iii. Time: Start and end (Usually annual)
- iv. Uptime of equipment: 95%uptime of the equipment of 365 days (24 hours basis) has to be ensured.
- v. Payment clause: shall include mode of payment (usually 6 monthly) on the basis of the user department certifying 95%uptime of the equipment during the AMC period.

### Uptime of the equipment

- a) 95% uptime of the equipment shall be 365 days (24 hours basis)
- b) Downtime of the equipment beyond the above period shall be added to the guarantee/ AMC period.
- c) For downtime of equipment beyond 15 days at a stretch the administration shall impose penalty as per agreement.
- d) Penalty for downtime may not be applicable in the following cases or as per agreement:
  - i. Non-availability of spares which need to be imported.
  - ii. Up-gradation of the unit.
  - iii. Force majeure clause

VMMC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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- iv. Time spent by the company engineer for routine maintenance/ testing.

## 8.0 REFERENCES

- The draft Indian Standard on Quality Management for Hospital Services- Guidelines- Part 5 Hospital Equipment Management, Bureau of Indian Standards, New Delhi.
- Distance Learning in Certificate Course in Hospital Management, Theme II Resource Management & Quality Control, Block 2 Equipment and Materials Management.

## 9.0 APPENDICES AND FORMS

- AMC/ CMC Form
- Equipment Repair Form
- Important contact no. for Equipment
  - Medical & Equipment Stores: 0354, 0507
  - Equipment Inspection Store: 0658

## 10.0 VALIDITY STATEMENT

This document is valid for one year from the date of issue.

## 11.0 APPENDICES AND FORMS

- \* Annexure A: Organizational Structure for equipment management
- \* Annexure B: Format for maintaining master equipment log
- \* Annexure C: AMC/ CMC Form of Safdarjung Hospital
- \* Annexure D: Format for maintaining Equipment Downtime record in the Department
- \* Annexure E: Equipment repair form
- \* Annexure F: Non-functional equipment record Format
- \* Annexure G: Amendment sheet
- \* Annexure H: Training log

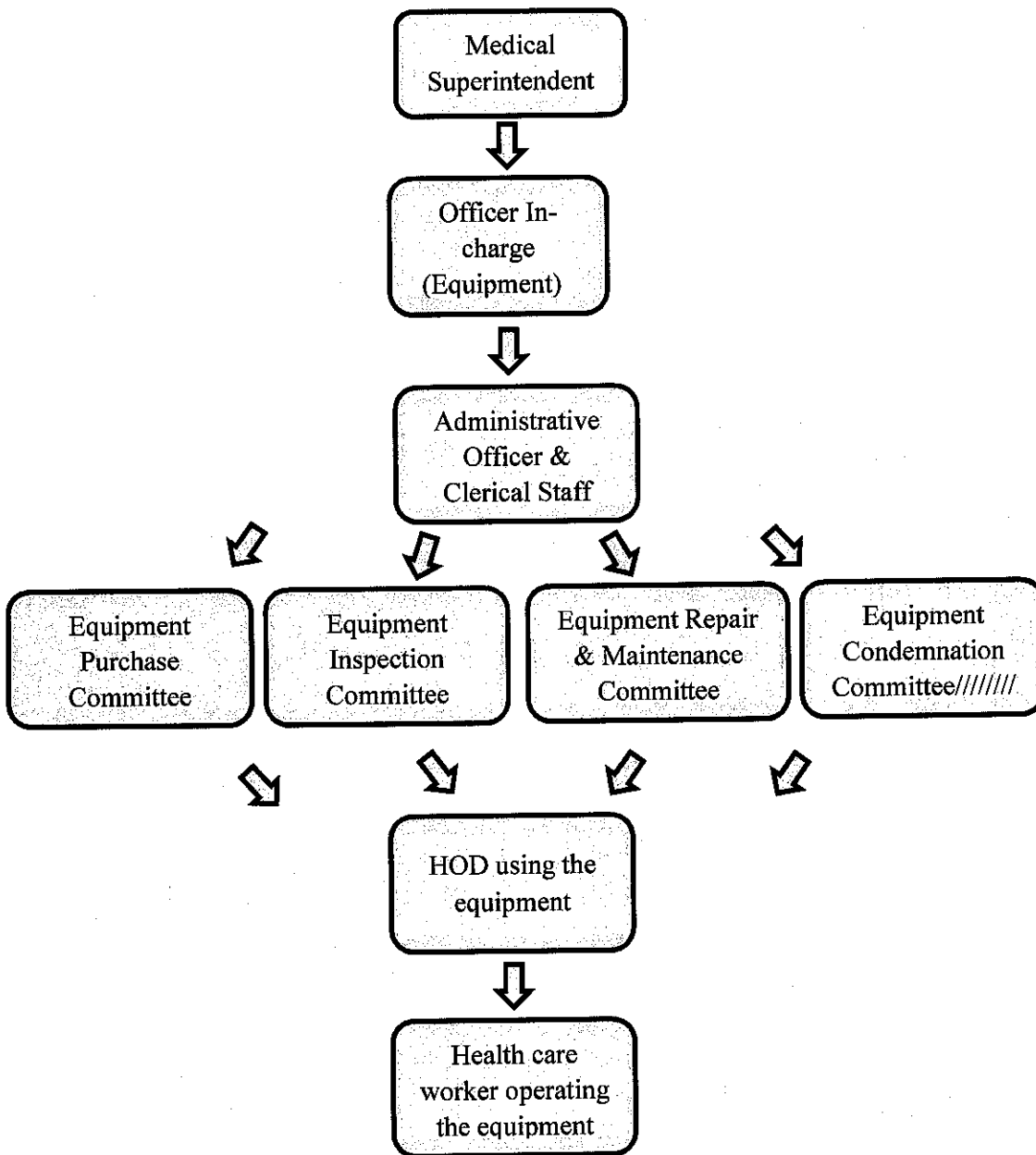
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Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
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Annexure A

**Organizational Structure for Equipment Management**



VMHC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP / 14	<b>Policy on Equipment Maintenance</b>
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Annexure B

**Format for maintaining master equipment log**

The history sheet of equipment must have: (Equipment Identification No.)

1. Name of equipment:
2. Make/ Model:
3. Serial No.:
4. Date of Purchase:
5. Date of Installation:
6. Cost of equipment:
7. Name, address and contact no. of supplier/ service agent:
8. Warranty/ CMC/ AMC status:
9. Date of renewal of CMC/ AMC
10. Calibration status of equipment:
11. Due date for calibration:
12. Remarks:

VMHC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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Annexure C

AMC/ CMC Form of Safdarjung Hospital

GOVERNMENT OF INDIA  
OFFICE OF THE MEDICAL SUPERINTENDENT  
SAFDARJUNG HOSPITAL, NEW DELHI-110 029.

Last year an A.M.C. No. \_\_\_\_\_ dt. \_\_\_\_\_ for the maintenance and servicing of \_\_\_\_\_ installed in the Deptt. of \_\_\_\_\_ was awarded to M/s. \_\_\_\_\_ Rs. \_\_\_\_\_ P.A. which was expired on \_\_\_\_\_ will expire on \_\_\_\_\_.

Now, M/s. \_\_\_\_\_ has submitted A.M.C. proposal No. \_\_\_\_\_ dt. \_\_\_\_\_ for renewal of the contact for the period from \_\_\_\_\_ to \_\_\_\_\_.

The details of the contract are as under-  
Charges :  
Spares :  
Visits :

In comparison to the last year contract, there is an enhancement of Rs. \_\_\_\_\_.

Before the proposal is put up to JPC(R), of approved, we may obtain the comments of Head of the Deptt. of \_\_\_\_\_ and also request him to furnish the following information:-

1	Date of Receipt/Installation of the equipment (s) in the deptt.	
2	Cost of the equipment (s)	
3	Whether the equipment (s) is/are in working order.	
4	Whether the AMC of the equipment(s) is inevitable.	
5	Whether the AMC charges seem to be reasonable.	
6	Whether the firm is the authorized agent/manufacturer/supplier	
7	Whether authority letter enclosed?	
8	Whether the term & condition for AMC are acceptable to HOD of the deptt.	
9	Whether the last years AMC was given to same firm?	
10	Whether the firm has been providing continuous services since the expiry of last AMC i.e after	

SIGNATURE OF HOD WITH SEAL

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Document No.: E / NABH / SJH / QSP/ 14	Policy on Equipment Maintenance
Document Type: <b>Controlled</b>	

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Annexure D

**Format for maintaining Equipment Downtime record in the Department**

Sr. No	Date	Name of Equipment, Sr. No. and Model	Problem Identified	Root Cause Analysis	Corrective Action	Preventive Action	Validation details	Breakdown Downtime	Follow up	Signature & Remarks

VMHC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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**Annexure E**  
**Equipment repair form**

Repair/Spares/Accessories/Consumables/Reagents Requisition Form

Placed below an estimate No. \_\_\_\_\_ Dated \_\_\_\_\_  
for Rs. \_\_\_\_\_ in words Rupees \_\_\_\_\_ for  
the Repair/Spares/Accessories/Consumables/Reagents for \_\_\_\_\_  
received from  
M/s. \_\_\_\_\_ in response of our/HOD letter No.  
\_\_\_\_\_ dt. \_\_\_\_\_ (the details of the estimate may be seen in the  
attached quotation).

We may obtain the following information from the HOD user so that the same may be put up for further procurement action.

1	Name of the Department	
2	Name of the basic equipment with its Model/S.No. for which spares/accessories is required.	
3	Cost of the equipment	
4	Present cost of the equipment	
5	No. of Similar equipments in the Deptt. with Model & S.No. with functional status	
6	Date of installation of the equipment	
7	Date since equipment is non-functional	
8	Total Amount spent on its repair till date	
9	Whether same items were procured Previously if so that date of Purchase	
10	Amount of Present estimate & whether the same is reasonable and recommended for Procurement (also verify the same in Estimate of firm)	
11	Whether the repair job and purchase of stores is proprietary in nature if yes Attached PAC form	
12	Whether the equipment is under AMC	
13	To confirm that replacement part(s) is/are not repairable/serviceable.	
14	To confirm that the defective parts spares will be kept in the deptt. for further condemnation.	

HOD Signature with seal

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Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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**PROPRIETARY ARTICLE CERTIFICATE**

1. The equipment/stores wanted is/are manufactured by  
M/s. \_\_\_\_\_
2. No other make is acceptable for the following reasons:-
  - i)
  - ii)
3. Approval of the Head of the Department of competent authority has been obtained.
4. The associated Financial Advisor has concurred in the proposal.

SIGNATURE OF THE INDENTOR  
With Seal

Dated: \_\_\_\_\_

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Document No.: E / NABH / SJH / QSP/ 14	Policy on Equipment Maintenance
Document Type: <b>Controlled</b>	

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Annexure F

**Non-functional equipment record Format**

1	2	3	4	5	6	7	8	9	10	11
S. No	Name of the equipment with Model & Serial No.	Total No. of equipment	Cost of Equipment	Date of Purchase	Name of the supplier with contact details	Date from which equipment is/ are non-functional	Whether equipment is under AMC/ CMC/ warrant, if not reasons thereof	Reason for non-functioning if any	Details of part required for repair along with estimate expenditure	Action Taken

VMMC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.	
Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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Annexure G

**AMENDMENT SHEET**

**VMMC & Safdarjung Hospital, New Delhi**

Sr No.	Page No.	Clause No.	Date of Amendment	Amendment Made	Reasons	Signature of Officer In-charge	Signature of Medical Superintendent
1							
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Document No.: E / NABH / SJH / QSP/ 14	<b>Policy on Equipment Maintenance</b>
Document Type: <b>Controlled</b>	

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Annexure H

VMMC & Safdarjung Hospital, New Delhi

TRAINING LOG (Contents, Deviation and Amendment)



Sr .No	Training Attendee	Date	Signature
1			
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Officer In-charge

VMMC & Safdarjung Hospital, Ministry of Health & Family Welfare, Govt of India, New Delhi.

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