

**MID-TERM EVALUATION**  
**OF**  
**BIOMEDICAL EQUIPMENT MAINTENANCE AND**  
**MANAGEMENT PROGRAM**  
**Mizoram**  
**2022-23**



**Conducted by:**

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## Executive Summary:

The state of Mizoram has implemented the Biomedical Equipment Management & Maintenance Program (BMMP) through Public Private Partnership (PPP) mode from District Hospital to PHC level. BMMP in Mizoram has been rolled out in 2016 (MoU dated 12-04-2016) through PPP mode and subsequently extended for another 5-year by signing MoU between Mizoram State Health Society (represented by State Mission Director, NHM Mizoram) and HLL Infra Tech Services (HITES) on 28<sup>th</sup> May 2021 comprising participant included Medical Officers, Pharmacists, Nursing Superintendent and Facility in charge.

State has designated one Nodal Officer to implement, monitor and strengthen the programme. Dr Mary Zohmingliani, the Nodal Officer of the programme since August 2018 is looking for BMMP in addition to other assignments. There is only one Consultant (MBBS) assisting her for all the above programmes. Bio-Medical Engineer has not been engaged either at State or District level to support the State Nodal Officer / BMMP team. The last state level review meeting was held during 11<sup>th</sup> May 2022.

It was noticed that end users across the department including the doctors/ staffs are well conversant with the BMMP in both the visited districts. Pharmacists and Nursing Superintendents at District Hospitals and CMO office are detailed to look after BMMP and Medical Officers and Pharmacists/ Ward Superintendents at PHC/ CHCs are detailed to look after BMMP. There is a sense of reliability among the staffs/doctors on the programme as far as the equipment maintenance and management is concerned.

Service provider has provided one hotline number in addition to the toll-free number, which may be used in case toll-free number is busy, out of reach etc.

It was observed that Service Engineer also advocated and created awareness about use of toll-free number among the staffs. The staffs and doctors are aware about the Toll-free number. The end user satisfaction was noticed across the visited health facilities during visit.

The service provider (Trimed Solutions India Private limited) had achieved the NABL 126 specific criteria (ISO/IEC 17025:2017) for calibration of medical devices for Mizoram (site and permanent facility) on 16/12/2022.

The service provider has established equipment repairing workshop at the Civil Hospital Aizawl. In addition to the repair workshop an office cum Tollfree centre is also opened in a rented building in Aizawl. Requisite calibration tools and equipment to perform the calibration of equipment are available in the office. The service provider has engaged one Regional Manager to look after the programme, presently the post is lying vacant. The "Operation Manager", a post senior to Regional Manager who was in charge for J&K, Ladakh and Mizoram is directly looking for the Mizoram also for time being. The service provider needs to engage one Regional Manager stationed at Mizoram, at the earliest to look after the BMMP in Mizoram.

Service provider has engaged 16 (Four) Service Engineers to look after the BMMP in Mizoram. Out of 16 engineers, 2 are Bio Medical Engineers, 7 are diploma in electronic and communication engineering, 4 engineers are from other branches, one is master's in computer application, and one from ITI degree to look after refrigerators. The service provider has done agreement for comprehensive maintenance of equipment with 3 Original Equipment Manufacturer (OEM) viz. Healthware India Pvt Ltd for the Lithotripsy Machine, Alcon – for the phaco-machine and Fresenius for Haemodialysis machines.

More number of trained, skilled engineers need to be recruited by the service provider considering the geographical location in the State to maintain the oxygen concentrator and PSA oxygen plant as it is part of BMMP, and the existing staffs are also required to be given regular capacity trainings to develop skill. The state may also recruit one biomedical engineer starting from State level and upto one at each district to look after the BMMP as per IPHS guideline 2022.

*Year wise distribution of downtime of the non-functional equipment shows that downtime within 24 hours (more than 50%) has been increased with respect to year, which is encouraging for BMMP.*

Although it was observed that the percentage of calls registered in the Saiha and Lawngtlai districts against the respective equipment is low in comparison to other districts. Awareness generation about call registration during the breakdown of the equipment for the service provider of the health facilities in the review meeting may be done for the Saiha and Lawngtlai districts.

MoHFW has approved Rs. 604.04 Lakh in NHM RoP, Mizoram for BMMP for the FY 2022-23. Timely payment is one of major contributors for the efficient functioning of any projects/programme, including Public Private Partnership mode. It was observed that payment to the service provider was delayed for longer period. Although the state has approval under NHM RoP for the BMMP, the finance department's fund flow is very slow which causes payment delays. Till now the Payment are made until April 2022 and still pending from May 2022 to March 2023.

# Chapter I

## Introduction:

A vast variety of specialized equipment, devices, and medications in health facilities are being used to serve patients better treatment<sup>1</sup>. Increased sophistication, specialization and integration with electronic circuit & network, medical equipment become complex day by day<sup>2</sup>. Maintenance of this critical biomedical equipment such as oxygen concentrators, lasers, ventilators, MRI scanners, insulin pumps, implantable pacemakers to instruments as straightforward as stethoscopes, injections, and thermometers to get compliance, safety, reliability, and accuracy is very important<sup>2</sup>. From this perspective, maintenance is a key process throughout the life cycle of every medical device.

Numbers of problems such as deprivation of services to patient on time, accurate measurement, correct diagnostic report may occur because of poor equipment maintenance and these may be avoided through implementation of a routine equipment maintenance program<sup>3</sup>.

To reduce downtime of the medical equipment, traditionally preventive maintenance and corrective maintenance are two prime components in equipment maintenance programme<sup>4</sup>. The third prime component under equipment maintenance programme is calibration to enable a reliable, accurate and valid services by the equipment. Preventive maintenance of equipment is a scheduled event according to the risk ranking of the medical device<sup>4</sup>.

Breakdown of a critical equipment in operation theatre may force to shut down the Operation Theatre<sup>5</sup>. Monitoring of downtime of critical equipment is an index for operationalization of the different division in a hospital.

Preventive maintenance has a great role not only providing regular services by the equipment by minimizing breakdown but also in increasing the life span of the equipment. For instance, if properly maintained, a microscope can last for about 15 years but only for eight years if not maintained properly<sup>6</sup>. Similarly, sterilizers can last around six years whereas weighing scales and refrigerators for about eight years.

Medical equipment brings along with it associated benefits and problems. The problem that draws the most attention is maintenance. Lack of a maintenance policy can result in no advance planning for maintenance budgets and thus non/delayed availability of spares and accessories. Many laboratories and health care programs suffer because the installation and maintenance requirements are not planned. This renders many equipment unusable, and many devices stay idle because of lack of spares or funds.

Inexpensive units can be replaced or repaired if they break down<sup>7</sup>, to reduce costs preventive maintenance involves proper selection of the equipment. Cost effectiveness should be taken care of equipment maintenance programme.

It is essential that State plan the resources required for maintenance including repair and planned preventive maintenance. Proper maintenance of medical equipment is essential to obtain sustained benefits and to preserve capital investment. Medical equipment must be maintained in working order and periodically calibrated for effectiveness and accuracy.

In general, the life of medical equipment varies from 5 – 10 years. If the equipment is declared obsolete by the vendor, it may not be possible to get spare parts. Even if the parts are available, it can become too expensive to obtain them and repairing the equipment may no longer be economically viable. In such scenario, timely condemnation and disposal of equipment should be planned, and the necessary steps should be taken in advance to arrange replacement.

### **Indian Public Health context:**

Till a couple of years back there was no proper facility or provision in the public sector for maintenance of health care equipment in the states. It was observed during the supportive supervisory visits to the states that much equipment in hospitals and other health facilities are either unused or there is no maintenance resulting wastage of resources. This led to the Ministry of Health and Family Welfare (MoHFW), Government of India to consider framing guidelines for maintenance and management of the equipment.

To address, MoHFW had consultative meetings with officials from states to devise appropriate mechanisms to ensure that medical equipment already purchased are properly maintained. An extensive exercise was undertaken to map the inventory of all bio-medical equipment including their functionality status. The mapping was undertaken in 29 States under the guidance of NHSRC. A total of 7,56,750 numbers of equipment in 29,115 health facilities costing approximately Rs. 4564 Crores were identified. Equipment in range of 13% to 34% was found dysfunctional across states.

Medical Equipment Maintenance Manual, A first line maintenance guide for end users, Ministry of Health and Family Welfare, New Delhi was documented in October 2010.

Comprehensive guidelines were designed on Biomedical Equipment Management and Maintenance Program (BMMP), linked with uptime of equipment (95% in District Hospitals, 90% in Community Health Centres, and 80% in Primary Health Centres). The guidelines along with the model tender document were developed in 2014.

Under BMMP the financial support is provided under NHM to State Governments to outsource medical equipment maintenance comprehensively for all its machinery across all the facilities.

After equipment mapping, RFPs/tenders are being rolled out to award maintenance contract by the respective states. A total of 22 States including 7 North-eastern States Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Sikkim, Tripura have implemented the program in Public Private Partnership (PPP) mode.



The state of Mizoram implemented Biomedical Equipment Management and Maintenance Program (BMMP) through PPP mode. State had floated the tender in the year 2016 and subsequently the L1 bidder was identified and MoU was signed on 12-04-2016 between Mizoram State Health Society and HLL Infra Tech Services (HITES). In the year 2021 the MoU was further extended for 5 years with a new contract price of 12.8 % of asset value excluding GST.

### **Scope of work as per MoU:**

As per the contract the scope of work includes:

1. Maintenance of biomedical equipment in all the public health facilities up to the PHC level supported by 24 x 7 call centre.
2. To provide round the clock service 365 days in a year with uptime of 95 % for all medical equipment in DH, 90% in CHCs and 80 % in PHCs. A single break should never exceed 7 days; otherwise, penalty will be levied.
3. Medical devices which are under warranty, the Service Provider shall administer all maintenance activities on behalf State health department for the entire duration.
4. The Service Provider may choose to take authorization for doing maintenance of such equipment from existing AMC/CMC contract holders.
5. Service Provider shall not be including cost of maintaining any equipment which is under warranty/AMC/CMC in its proposal till the existing contract.
6. The sole service provider shall however be liable to ensure upkeep time of all equipment irrespective of any AMC/CMC/warranty status for any equipment.
7. Providing preventive and corrective maintenance for all equipment up to the PHC level.
8. Operationalization of 24 X 7 Centralized Call centre with Toll free number.
9. To be present as representative in condemnation committee appointed by the authority at district/State level for the condemnation of medical equipment.

### **Methodology:**

#### **Objective**

The evaluation was done as a part of continuous monitoring of BMMP programme with the following objectives:

1. To assess the implementation status of Biomedical Equipment Management & Maintenance Program (BMMP) in different level of health facilities in Mizoram.
2. To evaluate Service Providers compliance to the prescribed clauses as per the MoU between NHM Mizoram & the services provider considering the BMMP guideline.
3. To understand the issues related to the implementation of the program from State & Service Provider's lenses.

#### **Methodology of assessment:**

- a. Discussion with State Program Nodal Officer and Service Provider about the Program.

- b. Field visit to different level of Health Facilities to assess the functional status of the equipment.
- c. Discussion with Medical Superintendent/ Head of the health facility to understand about the implementation process of the program.

Study Design:

- a. In Mizoram, Biomedical Equipment Management & Maintenance Program (BMMP) is being implemented through Public Private Partnership (PPP) mode.
- b. Health Facilities Covering 3 districts viz. Aizawl, Mamit (Aspirational District) and Serchhip based on numbers of equipment and call frequency for the last two years were selected for the evaluation of Biomedical Equipment Maintenance Program (BMMP).
- c. In the districts visit was conducted in 2 District Hospitals (DH), 2 CHC and 2 PHCs. List of visited facilities are below:

| Day        | Districts        | Facilities                         |
|------------|------------------|------------------------------------|
| 20-03-2023 | Aizawl           | 1. DH Aizawl                       |
| 21-03-2023 | Aizawl /Serchhip | 1. PHC Aibawk<br>2. CHC Thenzawl   |
| 22-03-2023 | Mamit            | 1. Mamit DH                        |
| 23-03-2023 | Mamit            | 1. CHC Kawrthah<br>2. PHC Thenzawl |

Tools for data collection:

- a. Quantitative data & other relevant information were collected through structured questionnaire with multiple choice answers from key informants, i.e. State Nodal Officer, Medical Superintendent, MO i/c and Lab. Technician, Nursing Staff of OT / labour room, Radiographers and other persons like store keeper etc.
- b. Separate Tools were used for State Nodal Officer, Medical Superintendent, MO i/c and Service Providers.
- c. Total equipment list corresponding to each facility as per the dashboard was also reviewed and used for evaluation purpose.

**Few Technical Definitions have been used in the report:**

**Downtime** is the time interval throughout which an item is not capable of performing its function. **Uptime** is the time interval throughout which an item is fully functional. The well-known **mean time to restoration** (MTTR) and **mean time between failures** (MTBF) are the average times to restoration of function and the average time between consecutive failures, respectively.

## General Observation: -

1. The BMMP services are available in 84 health facilities ((11 district hospital, 10 CHC and 63 PHCs). There are 7277 medical equipment under the BMMP as per the dashboard, as on date 12/4/2023. Around 354 equipment are recommended for Beyond economic repair category and 19 equipment are under warranty/AMC.

Around 977 (more than 10 %) of the total equipment as per the dashboard are not found at the health facilities after initial tagging during 2016-17. It may be due to shifting of equipment from one health facility to another without necessary updating, may be non-functional equipment dumped in the storeroom, error during tagging. However, service provider removed the equipment from the asset value.

2. Year wise distribution of downtime of the non-functional equipment shows that downtime within 24 hours (more than 50%) has been increased with respect to year, which is encouraging for BMMP.
3. State has designated one Nodal Officer to implement, monitor and strengthen the programme. Dr Mary Zohmingliani, the Nodal Officer of the programme since August 2018 is looking for BMMP in addition to other assignments. is also looking after other programmes like Free Drugs & Diagnostic, ECRP II, Snake Bite, Teleconsultation and DVDMS in addition to BMMP. There is only one Consultant (MBBS) assisting her for all the above programmes. Bio-Medical Engineer has not been engaged either at State or District level to support the State Nodal Officer / BMMP team.
4. It was observed that, all the visited health facilities, one staff has been designated by the facility in charge as the nodal person to look after the BMMP. He/she is either calling directly at the Tollfree number/WhatsApp group of service provider or intimating the facility in-charge who register the call via Toll number. Sometimes they also call the service engineer's personal contacts.
5. Medical Officers, other staffs of the health facilities are aware about the programme in general. There is a sense of reliability on the programme as far as the equipment maintenance is concerned. It is also found that most of the facilities are regularly monitoring the functionality of existing equipment and maintaining a separate register for record keeping.
6. It was found that a prior intimation letter regarding plan for Preventive maintenance and Calibration schedules from the service provider was given to the CMO for entire district.

## Recommendations:

1. The PPP service provider should conduct regular training on operating the new equipment to the end user of the health facilities.
2. All new equipment needs to be tagged and maintained under Biomedical Equipment Maintenance Programme after the completion of the warranty period considering the approval of the State authority. Annual equipment audit needs to be conducted and updated in the dashboard.
3. A Hospital Equipment Management Committee may be formed at DHs and CHCs. Medical Superintendent/MO i/c will be chairperson where facility nodal person, staff nurse and other end users of equipment will be the member of the committee. The committee will look after annual equipment audit, declaring condemnation of Beyond Economic Repair (BER) equipment and may support the Administrative Head for expedite condemnation and disposal of the BER articles/equipment as per the existing guidelines, reviewing the upkeep time of critical and sophisticated equipment on weekly basis/monthly basis, total number of breakdown call logged in a particular month, random inspection during routine filed visit etc for strengthen BMMP.
4. It was observed that service engineers recruited in Mizoram needs further capacity building regarding basic calibration and Planned Preventive Maintenances (PPM). Service provider at present has recruited only 4 specialist engineers, there is scope of engagement of more specialist engineer.
5. The state may also recruit one Biomedical engineer at the State level and later at district level to look after the BMMP as per IPHS guideline 2022.
6. The breakdown call volumes of high-end critical equipment are less in number, it is suggested that the State may categorize the high value critical and lifesaving equipment for extended warranty and Comprehensive Maintenance Contract with the Original Equipment Manufacturers.
7. Review/Sensitization meetings may be conducted for the Saiha and Lawngtlai districts as the utilization of the services of the Engineers is less.
8. State is suggested to plan & procure CR system in phased manner preferably from DH level to avoid use of chemicals. It will not only reduce the hazardous risk of utilizing chemicals but also can store & share the X-ray film for tele radiology services.
9. The state may recruit one biomedical engineer starting from State level and upto one at each district to look after the BMMP as per essential requirements for District Hospitals with more than 50 beds under the Indian Public Health Standard Guidelines 2022.
10. Service provider needs to conduct capacity building of existing service engineers at regular intervals to develop skill. Some service engineer may be selected and imparted with trainings for maintenance of specialised equipment.

## Chapter II

### About the PPP Service Provider & MoU:

The State of Mizoram has implemented the Biomedical Equipment Management and Maintenance Program (BMMP) since 2016. The state has signed the contract with HLL Infra Tech Services (HITES). through an open tendering process adhering to RFP provided in the NHM BMMP guidelines. The state had floated the tender was subsequently awarded to L1 bidder, that was HLL Infra Tech Services (HITES) who further subcontracted it to Trimed Solutions Pvt. Ltd. to take up the maintenance work in Mizoram for a period of 5 years in April 2016. The actual work commenced from May 2016. The contract price is 5,10,24,000 + service Tax at actual on basis of 14.13 % of the asset value of the equipment (Bid amount). Subsequently the contract period has been extended on 28<sup>th</sup> May 2021 for 5-years by MoU signed between Mizoram State health society (represented by State Mission Director, NHM Mizoram) and HLL Infra Tech Services (HITES) @ 12.8% of the asset value. Present Asset value is Rs. 58.71 crore.

MoHFW has approved Rs. 604.04 Lakh in NHM RoP, Mizoram for BMMP for the FY 2022-23.

**Table 1. Service provider Team-**

| Service Engineers | Specialization  | Qualification          | Date of Joining | Experience in Years | Location    |
|-------------------|---|------------------------|-----------------|---------------------|-------------|
| SE 1              | X Ray Specialist                                      | B. Tech (EEE)          | 10-Nov-22       | 18                  | Aizawl East |
| SE 2              | Laboratory Specialist                                 | Diploma(BME)           | 16-Nov-22       | 8                   | Aizawl East |
| SE 3              | Critical & Life support Equipment Specialist          | BME                    | 15-Jan-21       | 9                   | Aizawl East |
| SE 4              | Critical & Life support Equipment Specialist          | B.Tech (ECE)           | 09-Sep-22       | 13.6                | Aizawl East |
| SE 5              | General Medical Equipment                             | Diploma ECE            | 05-May-16       | 6.6                 | Serchhip    |
| SE 6              | General Medical Equipment                             | Diploma ECE            | 05-May-16       | 6.6                 | Lawngtlai   |
| SE 7              | General Medical Equipment                             | Diploma ECE            | 18-Jul-16       | 6.6                 | Champhai    |
| SE 8              | General Medical Equipment (refrigerator & cold chain) |                        | 19-Jul-16       | 6.6                 | Kolasib     |
| SE 9              | General Medical Equipment                             | Diploma ECE            | 01-Dec-16       | 6.2                 | Aizawl East |
| SE 10             | General Medical Equipment                             | Diploma ECE            | 01-Sep-17       | 5.5                 | Aizawl East |
| SE 11             | General Medical Equipment                             | Diploma ECE            | 30-Aug-17       | 5.5                 | Aizawl East |
| SE 12             | General Medical Equipment                             | Biomedical Engineering | 01-Jun-18       | 4.8                 | Champhai    |

| Service Engineers | Specialization            | Qualification       | Date of Joining | Experience in Years | Location    |
|-------------------|---------------------------|---------------------|-----------------|---------------------|-------------|
| SE 13             | General Medical Equipment |                     | 06-Sep-18       | 4.5                 | Aizawl East |
| SE 14             | General Medical Equipment | B Tech ECE          | 21-Nov-18       | 4                   | Aizawl East |
| SE 15             | General Medical Equipment | B.Tech (Electrical) | 11-Jul-22       |                     | Mamit       |
| SE 16             | General Medical Equipment | Diploma ECE         | 21-Nov-22       |                     | Lunglei     |

Below mentioned 10 equipment are there for the calibration purpose, although the need was observed that most of the service engineer present in Mizoram needs to be trained.

**Table 2. Analyser with the service provider for calibration**

| Sl | Equipment              |
|----|------------------------|
| 1  | Ventilator Analyzer    |
| 2  | Infusion Pump Analyzer |
| 3  | Defibrillator Analyzer |
| 4  | KVP Meter              |
| 5  | Vital Sign Simulator   |
| 6  | Lux Meter              |
| 7  | Tachometer             |
| 8  | Thermometer            |
| 9  | Irradiance meter       |
| 10 | Pressure Guage         |

# Chapter III

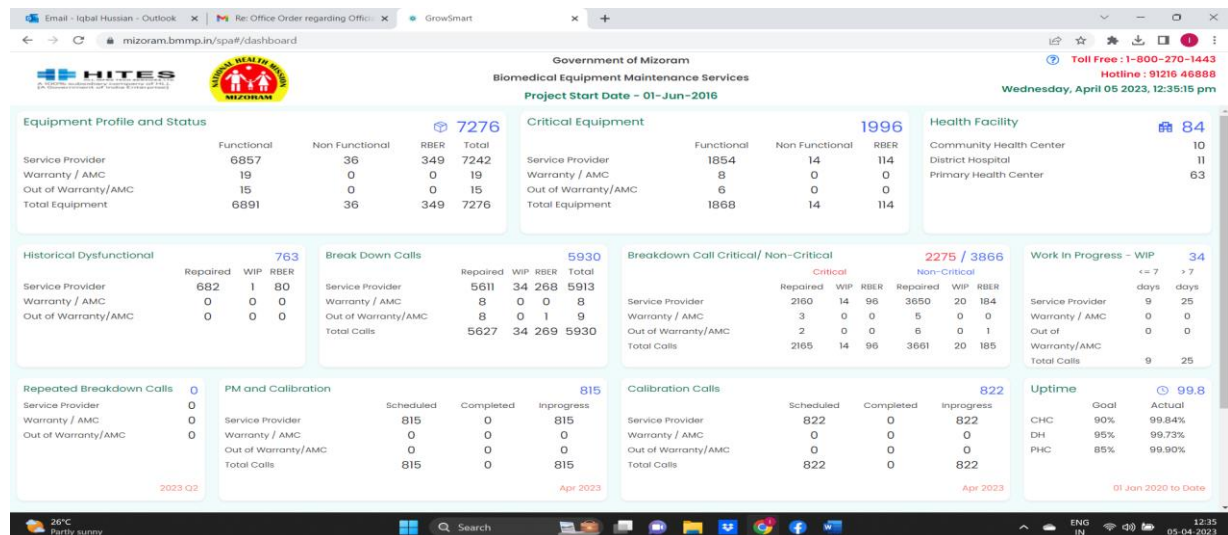
## Desk Review:

### Equipment Management Information System – Dashboard: -

A real-time dashboard has been developed by the service provider which has been linked with NHM Mizoram website, but the link was not working.

Few basic information like total equipment, numbers of equipment under warranty, number of breakdown calls etc can be accessed by public. Access is required to download any other information. The Nodal person of service provider mentioned that all the basic information automatically updated by the software.

Figure 1: Screenshot of the dashboard



Login-id and password is required to download few specific information from the dashboard. At present the access is limited to State Officials and Administrative staff of Trimmed Solution (service provider) team. The State Nodal Officer BMMP was informed that they utilized the dashboard for monitoring the functionality of the equipment, procurement of equipment based on repeated breakdown, calculation of penalty, shifting of equipment from one health facility to another during emergency etc.

The dashboard can provide the below mentioned reports:

1. Breakdown and Penalty Report,
2. List of Equipment added to contract
3. List of equipment proposed for condemnation
4. List of equipment removed from contract
5. Billing summary.

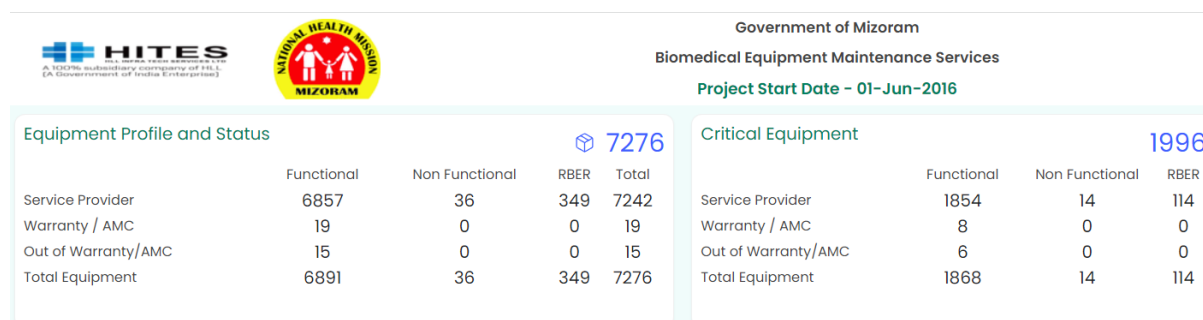
The Nodal Officer also stated that the information on health facility wise equipment in the Dashboard was quite helpful during management of health services and rationalizing old & new medical devices during COVID pandemic. Information on health facility wise number of

calls registered list for any selected time span is available in the dashboard and it can be downloaded by State / District Officials.

The State officials are utilising the dashboard information for procurement of new equipment and BMMP budgeting in the State PIP, stated by the State Nodal officer. But the awareness and utilization of the dashboard at the district level is varied.

At present there is 7276 medical equipment under the BMMP as per the dashboard. 349 equipment has been declared as BER. It is also seen that 1996 equipment has been identified as critical equipment. Out of the total 1996 critical equipment 1854 are functional.

Figure 2: Total equipment



The dashboard has the provision to download scheduled preventive maintenance and calibration details of equipment.

Figure 3: Total call registered till now as per the state dashboard:



It was mentioned by the service provider nodal person that the dashboard has options to identify the equipment added and deleted at a given time. This will help the State to monitor the actual asset value of the equipment for any period.



**Table 3. Distribution of equipment across the districts**

| District     | Total Equipment | Functional  | Non Functional | Proportion of Total equipment | RBER       | Proportion of BER | Equipment with warranty |
|--------------|-----------------|-------------|----------------|-------------------------------|------------|-------------------|-------------------------|
| Aizawl East  | 2080            | 1909        | 10             | 28.72                         | 161        | 46.13             | 8                       |
| Aizawl West  | 494             | 475         | 0              | 6.82                          | 19         | 5.44              | 13                      |
| Champhai     | 1065            | 1037        | 3              | 14.70                         | 25         | 7.16              | 8                       |
| Kolasib      | 645             | 615         | 8              | 8.90                          | 22         | 6.30              | 0                       |
| Lawngtlai    | 513             | 484         | 3              | 7.08                          | 26         | 7.44              | 0                       |
| Lunglei      | 1005            | 940         | 8              | 13.87                         | 57         | 16.33             | 1                       |
| Mamit        | 576             | 559         | 1              | 7.95                          | 16         | 4.58              | 4                       |
| Saiha        | 352             | 345         | 1              | 4.86                          | 6          | 1.71              | 0                       |
| Serchhip     | 512             | 493         | 2              | 7.06                          | 17         | 4.87              | 0                       |
| <b>Total</b> | <b>7242</b>     | <b>6857</b> | <b>36</b>      | <b>100</b>                    | <b>349</b> | <b>100.0</b>      | <b>34</b>               |

\* Equipment under warranty: Equipment with warranty have been added to Asset Register but not yet under BMMP maintenance cost.

Table 3 shows that that the maximum equipment have been concentrated in 3 districts, these are, Aizawl East (28.7 %), Champhai (14.70 %) and Lunglei (13.87%). The amount of equipment under BER is highest in Aizawl East (46.13 %) followed by Lunglei (16.3 %).

**Condemnation of BER equipment:** The life cycle of medical equipment will vary from 5-10 years. The equipment is declared obsolete i.e. BER by the vendor when it may not be possible to get spare parts. Even if the parts are available, it can become too expensive to obtain them and the equipment is no longer economical to repair.

It was observed that across the facilities that condemnation committees were formed, although not very functional.

Table 4 shows that, most of the BER equipment are basic equipment which cost is less than Rs. 50,000/- per equipment (64.2%). The cost distribution of BER equipment is like, less than Rs.10,000/- (30.94 %), Rs. 10,000/- to Rs. 50,000/- (33.23 %) and Rs. 1,00,000 to Rs. 5,00,000 is 22.34 %. Only 18 equipment declared as BER whose cost is above Rs. 5,00,000/-.

**Table 4: Cost wise distribution of BER equipment (in Rs.)**

| Equipment Cost         | Total      | % Distribution Total |
|------------------------|------------|----------------------|
| Less Than 10,000       | 108        | 30.94                |
| 1000 to 49,999         | 116        | 33.23                |
| 50,000 to 99,000       | 29         | 8.30                 |
| 1,00,000 to 5,00,000   | 78         | 22.34                |
| 5,00,000 to 10,00,000  | 7          | 2.0                  |
| 10,00,000 to 20,00,000 | 10         | 2.86                 |
| More than 50,00,000    | 1          | 0.28                 |
| <b>Total</b>           | <b>349</b> | <b>100.0</b>         |

## Call Register & Maintenance of Equipment:

*The Toll-free number is 1-800-270-1443 and Hotline Number is +91 91216 4688*

Call Centre is in Bungkawn, Tuikhur Veng, H No V-95, 3<sup>rd</sup> Floor, Reid Bulding, Aizawl 796 005, Mizoram. The call centre is operating in local language (Mizo) as well as English.

Once a call is registered in the Toll-free number (Aizawl based Call Centre), the administrative staff located in Aizawl assigned the task to the concerned Service Engineer to repair the equipment.

Table 5 shows that, number of calls registered 22.08 % against the total equipment in the year 2019-20 but it was came down to 12.50 % in and 11.80 % in the year 2020-21 & 2021-22 respectively. It may be due to the COVID period. It has again increased to 16.29 % in the year 2022-23.

It is also observed that the Kolasib district made highest calls has been registered (22.45 %) against the numbers of equipment in the year 2022-23 where less numbers in Saiha district (6.53%).

Awareness generation about call registration during the breakdown of the equipment for the service provider of the health facilities in the review meeting may be done for the Saiha and Lawngtlai districts.

Table 6. reflects year wise distribution of number of calls completed against call registered within 7 days and more than 7 days. It was seen that from the table, nearly or more than 80 % of the equipment repaired within 7 days.

**Table 5. Distribution of calls against the total equipment over the years**

| District     | 2019-20     |             |              | 2020-21     |            |              | 2021-22     |            |              | 2022-23     |             |              |
|--------------|-------------|-------------|--------------|-------------|------------|--------------|-------------|------------|--------------|-------------|-------------|--------------|
|              | Equipment   | Calls       | In %         | Equipment   | Calls      | In %         | Equipment   | Calls      | In %         | Equipment   | Calls       | In %         |
| Aizawl East  | 1706        | 562         | 32.94        | 1781        | 285        | 16.00        | 2036        | 338        | 16.60        | 2088        | 427         | 20.45        |
| Aizawl West  | 698         | 77          | 11.03        | 705         | 61         | 8.65         | 776         | 44         | 5.67         | 507         | 86          | 16.96        |
| Changha      | 698         | 118         | 16.91        | 718         | 84         | 11.70        | 803         | 65         | 8.09         | 1073        | 134         | 12.49        |
| Kolasib      | 512         | 128         | 25.00        | 531         | 64         | 12.05        | 574         | 94         | 16.38        | 645         | 142         | 22.02        |
| Lawngtlai    | 409         | 72          | 17.60        | 433         | 49         | 11.32        | 490         | 48         | 9.80         | 513         | 47          | 9.16         |
| Lunglei      | 710         | 160         | 22.54        | 779         | 62         | 7.96         | 899         | 112        | 12.46        | 1006        | 173         | 17.20        |
| Mamit        | 378         | 57          | 15.08        | 392         | 60         | 15.31        | 517         | 31         | 6.00         | 580         | 77          | 13.28        |
| Saiha        | 310         | 32          | 10.32        | 323         | 30         | 9.29         | 350         | 33         | 9.43         | 352         | 23          | 6.53         |
| Serchhip     | 452         | 91          | 20.13        | 483         | 73         | 15.11        | 511         | 56         | 10.96        | 512         | 76          | 14.84        |
| <b>Total</b> | <b>5873</b> | <b>1297</b> | <b>22.08</b> | <b>6145</b> | <b>768</b> | <b>12.50</b> | <b>6956</b> | <b>821</b> | <b>11.80</b> | <b>7276</b> | <b>1185</b> | <b>16.29</b> |

**Table 6. District Distribution of call status as per dashboard**

| District     | FY 2020-21       |                 |              | FY 2021-22       |                 |              | FY 2022-23       |                 |             |
|--------------|------------------|-----------------|--------------|------------------|-----------------|--------------|------------------|-----------------|-------------|
|              | Calls registered | Completed Calls |              | Calls registered | Completed Calls |              | Calls registered | Completed Calls |             |
|              |                  | <= 7 Days       | > 7 Days     |                  | <= 7 Days       | > 7 Days     |                  | <= 7 Days       | > 7 Days    |
| Aizawl East  | 285              | 211             | 74           | 338              | 305             | 33           | 427              | 386             | 41          |
| Aizawl West  | 61               | 51              | 10           | 44               | 42              | 2            | 86               | 80              | 6           |
| Champhai     | 84               | 71              | 13           | 65               | 55              | 10           | 134              | 119             | 15          |
| Kolasib      | 64               | 47              | 17           | 94               | 84              | 10           | 142              | 128             | 14          |
| Lawngtlai    | 49               | 36              | 13           | 48               | 36              | 12           | 47               | 37              | 10          |
| Lunglei      | 62               | 46              | 16           | 112              | 96              | 16           | 173              | 158             | 15          |
| Mamit        | 60               | 52              | 8            | 31               | 29              | 2            | 77               | 69              | 8           |
| Saiha        | 30               | 28              | 2            | 33               | 28              | 5            | 23               | 19              | 4           |
| Serchhip     | 73               | 57              | 16           | 56               | 48              | 8            | 76               | 67              | 9           |
| <b>Total</b> | 768              | <b>599</b>      | <b>169</b>   | 821              | <b>723</b>      | <b>98</b>    | 1185             | <b>1063</b>     | <b>122</b>  |
| <b>In %</b>  |                  | <b>77.99</b>    | <b>22.01</b> |                  | <b>88.06</b>    | <b>11.94</b> |                  | <b>89.7</b>     | <b>10.3</b> |

**Average downtime for Equipment:**

As per the MoU, the uptime for medical equipment should be 95 % in DH, 90% in CHCs and 80 % in PHCs and a single break down should never exceed 7 days (168 hrs), otherwise penalty will be levied on the Service Provider. The Service Provider has standby equipment for Electrocardiographs (ECG) (2 Nos), Oxygen Concentrator (2 Nos), Baby Warmer (7 Nos), Patient Monitor (3 Nos), Defibrillators (1 No), Infusion pump (2 Nos), BP Apparatus (4 Nos), Suction machine (1 No), though the number of back up equipment seems to be less.

Table 7 shows year wise distribution of downtime of the non-functional equipment and it shows that downtime within 24 hours has been increased with respect to year, which is encouraging for BMMP. Less down time of equipment helps the health facility service provider to function smoothly with the equipment and providing services to the patients / beneficiaries on time.

Down time of equipment less than 24 hours nearly 50% throughout the year. It is also found that down time of the equipment more than 7 days is nearly 15%.

Table 8 reflects district wise down time of equipment and that shows that all districts have down time more that 7 days is nearly 15% except Lawngtlai (29.6) and Lunglei (23.5).

**Table 7. Year wise distribution of downtime as per the Dashboard**

| Distribution of year wise downtime |                 |             |             |            |             |             |             |             |                  |             |             |              |
|------------------------------------|-----------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|------------------|-------------|-------------|--------------|
| Year                               | Less Than 12 Hr | In %        | 12 to 23 Hr | In %       | 1 to 3 days | In %        | 3 to 7 days | In %        | More than 7 days | In %        | Grand Total | In %         |
| 2016-17                            | 150             | 37.3        | 45          | 11.2       | 88          | 21.9        | 34          | 8.5         | 85               | 21.1        | 402         | 100.0        |
| 2017-18                            | 185             | 22.9        | 73          | 9.0        | 196         | 24.2        | 108         | 13.3        | 247              | 30.5        | 809         | 100.0        |
| 2018-19                            | 222             | 35.9        | 41          | 6.6        | 163         | 26.3        | 110         | 17.8        | 83               | 13.4        | 619         | 100.0        |
| 2019-20                            | 595             | 45.9        | 122         | 9.4        | 275         | 21.2        | 122         | 9.4         | 183              | 14.1        | 1297        | 100.0        |
| 2020-21                            | 309             | 40.2        | 49          | 6.4        | 149         | 19.4        | 86          | 11.2        | 175              | 22.8        | 768         | 100.0        |
| 2021-22                            | 400             | 48.7        | 77          | 9.4        | 171         | 20.8        | 75          | 9.1         | 98               | 11.9        | 821         | 100.0        |
| 2022-23                            | 590             | 49.8        | 88          | 7.4        | 221         | 18.6        | 163         | 13.8        | 123              | 10.4        | 1185        | 100.0        |
| <b>Total</b>                       | <b>2451</b>     | <b>41.5</b> | <b>495</b>  | <b>8.4</b> | <b>1263</b> | <b>21.4</b> | <b>698</b>  | <b>11.8</b> | <b>994</b>       | <b>16.8</b> | <b>5901</b> | <b>100.0</b> |

**Table 8. District wise distribution of downtime as per the dashboard**

| Distribution of district wise downtime |                 |             |             |            |             |             |             |             |                  |             |             |              |
|--|-----------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|------------------|-------------|-------------|--------------|
| District                               | Less Than 12 Hr | In %        | 12 to 23 Hr | In %       | 1 to 3 days | In %        | 3 to 7 days | In %        | More than 7 days | In %        | Grand Total | In %         |
| Aizawl East                            | 932             | 37.5        | 250         | 10.0       | 642         | 25.8        | 296         | 11.9        | 368              | 14.8        | 2488        | 100.0        |
| Aizawl West                            | 129             | 39.1        | 39          | 11.8       | 96          | 29.1        | 37          | 11.2        | 29               | 8.8         | 330         | 100.0        |
| Champhai                               | 287             | 57.6        | 34          | 6.8        | 59          | 11.8        | 44          | 8.8         | 74               | 14.9        | 498         | 100.0        |
| Kolasib                                | 288             | 53.7        | 25          | 4.7        | 82          | 15.3        | 56          | 10.4        | 85               | 15.9        | 536         | 100.0        |
| Lawngtlai                              | 119             | 33.9        | 22          | 6.3        | 54          | 15.4        | 52          | 14.8        | 104              | 29.6        | 351         | 100.0        |
| Lunglei                                | 277             | 39.6        | 46          | 6.6        | 131         | 18.7        | 81          | 11.6        | 164              | 23.5        | 699         | 100.0        |
| Mamit                                  | 155             | 47.8        | 25          | 7.7        | 51          | 15.7        | 39          | 12.0        | 54               | 16.7        | 324         | 100.0        |
| Saiha                                  | 96              | 39.0        | 16          | 6.5        | 51          | 20.7        | 41          | 16.7        | 42               | 17.1        | 246         | 100.0        |
| Serchhip                               | 168             | 39.2        | 38          | 8.9        | 97          | 22.6        | 52          | 12.1        | 74               | 17.2        | 429         | 100.0        |
| <b>Total</b>                           | <b>2451</b>     | <b>41.5</b> | <b>495</b>  | <b>8.4</b> | <b>1263</b> | <b>21.4</b> | <b>698</b>  | <b>11.8</b> | <b>994</b>       | <b>16.8</b> | <b>5901</b> | <b>100.0</b> |

Table 9 shows the distribution of breakdown calls till FY 2022-23 against each equipment type. It is observed that the highest 1434 calls were registered only for Blood Pressure monitor (24.3 %), Radiant warmer (8.0 % and 472 calls), Patient monitor (5.7 % and 335 calls), Autoclave (5.2 % and 307 calls). It is also found from the table that equipment with highest calls under the category of call resolved in more than 7 days is Patient monitor (59 calls) and Radiant warmer (128 calls).

Table 10 shows the weekly distribution call received & resolved. It was found that the average number of calls received & resolved is around 100/month. This implies that calls were made in a month for 1.5-2.0 % of the total equipment in the State and it was much lower side as estimated breakdown rate was high.

**Table 9. Distribution of Equipment by downtime (since inception to FY 2022-23)**

| Sl. | Equipment Name                        | Less Than 12 Hr | 12 to 23 Hr | 1 to 3 days | 3 to 7 days | More than 7 days | Total | In % |
|-----|---------------------------------------|-----------------|-------------|-------------|-------------|------------------|-------|------|
| 1   | A Scan Machine                        | 2               |             |             |             | 3                | 5     | 0.1  |
| 2   | Angiography Machine                   | 3               |             |             | 1           |                  | 4     | 0.1  |
| 3   | Audiometer                            | 2               |             | 1           | 1           | 5                | 9     | 0.2  |
| 4   | Audiometers                           | 7               |             | 1           | 2           | 7                | 17    | 0.3  |
| 5   | Autoclave                             | 98              | 25          | 75          | 52          | 57               | 307   | 5.2  |
| 6   | Automated Microbial Detection System  | 2               |             |             | 2           | 1                | 5     | 0.1  |
| 7   | Binocular Microscope                  | 83              | 15          | 42          | 24          | 20               | 184   | 3.1  |
| 8   | Blood bag Weighing Machine            | 2               |             |             | 4           | 9                | 15    | 0.3  |
| 9   | Blood bank Refrigerator               | 9               | 5           | 18          | 8           | 32               | 72    | 1.2  |
| 10  | Blood Gas Analyser                    | 27              | 1           | 3           | 5           |                  | 36    | 0.6  |
| 11  | Boyles Apparatus                      | 21              |             | 15          | 17          | 24               | 77    | 1.3  |
| 12  | Cardiac TMT Machine                   |                 |             |             |             | 2                | 2     | 0.0  |
| 13  | Cautery Machine                       | 17              | 6           | 15          | 6           | 22               | 66    | 1.1  |
| 14  | Centrifuge                            | 108             | 29          | 67          | 43          | 33               | 280   | 4.7  |
| 15  | Dental Chair                          | 36              | 14          | 45          | 17          | 22               | 134   | 2.3  |
| 16  | Chemiluminescent Immunoassay Analyzer |                 | 1           | 2           |             |                  | 3     | 0.1  |
| 17  | Coagulation Analyzer                  |                 |             |             |             | 1                | 1     | 0.0  |
| 18  | Colorimeter                           | 5               | 3           | 3           | 2           | 10               | 23    | 0.4  |
| 19  | Constellation Vision System           | 1               |             | 1           | 1           |                  | 3     | 0.1  |
| 20  | CT scan machine                       | 3               |             |             | 1           | 1                | 5     | 0.1  |
| 21  | Deep Freezer                          | 2               |             | 2           | 4           | 5                | 13    | 0.2  |
| 22  | Defibrillator                         | 9               | 3           | 10          | 3           | 4                | 29    | 0.5  |
| 23  | Dental Compressor                     |                 |             | 2           | 2           | 1                | 5     | 0.1  |
| 24  | Dialysis Machine                      | 4               |             | 4           | 3           | 4                | 15    | 0.3  |
| 25  | Electrical Air Bed                    | 3               |             | 4           |             | 2                | 9     | 0.2  |
| 26  | Electrocardiographs                   | 11              | 1           | 5           | 6           | 18               | 41    | 0.7  |
| 27  | Electrolyte Analyzer                  | 23              | 5           | 5           | 5           | 18               | 56    | 0.9  |
| 28  | Elisa Cell Washer                     | 3               | 1           | 2           | 1           | 3                | 10    | 0.2  |
| 29  | ELISA Reader                          | 1               |             | 1           | 3           | 5                | 10    | 0.2  |
| 30  | Endoscope                             | 3               |             |             | 3           | 4                | 10    | 0.2  |
| 31  | Fetal doppler                         | 1               |             | 2           | 1           | 2                | 6     | 0.1  |
| 32  | Freezers                              | 5               | 3           | 1           | 4           | 19               | 32    | 0.5  |
| 33  | Fundus Camers                         | 2               |             |             |             | 1                | 3     | 0.1  |
| 34  | Gastroscope                           |                 |             |             |             | 1                | 1     | 0.0  |
| 35  | General X Ray                         | 19              | 1           | 12          | 13          | 17               | 62    | 1.1  |
| 36  | Glucometer                            | 4               | 4           | 2           | 3           | 4                | 17    | 0.3  |
| 37  | Grossing Work Station                 | 1               | 1           |             | 2           |                  | 4     | 0.1  |
| 38  | Hematology Analyzers                  | 31              | 8           | 10          | 11          | 9                | 69    | 1.2  |
| 39  | Holter machine                        |                 |             |             | 1           | 1                | 2     | 0.0  |
| 40  | Holter Recorder                       |                 |             |             | 1           |                  | 1     | 0.0  |
| 41  | Hot Air Oven                          | 16              | 4           | 19          | 9           | 8                | 56    | 0.9  |
| 42  | Incubator                             | 6               |             | 4           | 5           | 8                | 23    | 0.4  |
| 43  | Keratometer                           | 1               |             | 1           |             | 5                | 7     | 0.1  |
| 44  | Lab refrigerator                      | 15              | 4           | 9           | 16          | 29               | 73    | 1.2  |

| Sl. | Equipment Name             | Less Than 12 Hr | 12 to 23 Hr | 1 to 3 days | 3 to 7 days | More than 7 days | Total       | In %         |
|-----|----------------------------|-----------------|-------------|-------------|-------------|------------------|-------------|--------------|
| 45  | Laminar Air flow           |                 |             | 1           | 3           |                  | 4           | 0.1          |
| 46  | Laryngoscope               | 6               | 2           | 8           | 1           | 4                | 21          | 0.4          |
| 47  | Light Fiberoptic           | 13              | 1           | 5           | 6           | 3                | 28          | 0.5          |
| 48  | Lights Surgical            | 28              | 13          | 25          | 10          | 24               | 100         | 1.7          |
| 49  | Lithotripsy machine        |                 | 1           | 1           |             |                  | 2           | 0.0          |
| 50  | Microtome                  |                 | 1           | 1           | 1           | 2                | 5           | 0.1          |
| 51  | Nd: Yag Laser              | 1               | 1           |             | 1           | 3                | 6           | 0.1          |
| 52  | Nebulizer                  | 144             | 21          | 55          | 13          | 6                | 239         | 4.1          |
| 53  | Operating Microscope       | 5               | 2           | 3           | 1           | 5                | 16          | 0.3          |
| 54  | Ophthalmoscope             | 1               |             |             | 1           |                  | 2           | 0.0          |
| 55  | Oxygen Concentrators       | 64              | 21          | 30          | 15          | 41               | 171         | 2.9          |
| 56  | Patient Monitor            | 135             | 48          | 74          | 19          | 59               | 335         | 5.7          |
| 57  | Phaco machine              | 2               | 1           |             | 2           | 4                | 9           | 0.2          |
| 58  | Photometer                 |                 |             |             |             | 4                | 4           | 0.1          |
| 59  | Phototherapy Units         | 19              | 4           | 22          | 12          | 11               | 68          | 1.2          |
| 60  | Plasma Extractor           | 2               |             |             |             |                  | 2           | 0.0          |
| 61  | Pulse Oximeter             | 8               | 2           | 1           | 5           | 7                | 23          | 0.4          |
| 62  | Radiant Warmer             | 139             | 27          | 112         | 66          | 128              | 472         | 8.0          |
| 63  | RO Plant                   | 5               | 1           |             |             | 3                | 9           | 0.2          |
| 64  | Semi auto analyser         | 32              | 4           | 14          | 9           | 17               | 76          | 1.3          |
| 65  | Slit Lamp                  | 4               |             | 3           | 5           | 4                | 16          | 0.3          |
| 66  | Sphygmomanometers          | 842             | 129         | 300         | 124         | 39               | 1434        | 24.3         |
| 67  | Suction Machine            | 79              | 8           | 52          | 18          | 20               | 177         | 3.0          |
| 68  | Syringe cutter             | 47              | 10          | 21          | 9           | 12               | 99          | 1.7          |
| 69  | Syringe Pump               | 65              | 19          | 36          | 21          | 51               | 192         | 3.3          |
| 70  | Tables OT / Ex             | 6               | 2           | 8           | 6           | 5                | 27          | 0.5          |
| 71  | Tissue Processor           | 2               |             | 2           | 1           | 4                | 9           | 0.2          |
| 72  | Ultrasound machine         | 1               |             |             |             |                  | 1           | 0.0          |
| 73  | Ultrasound Scanner machine | 9               | 1           | 8           | 3           | 11               | 32          | 0.5          |
| 74  | Ventilator                 | 1               | 2           |             |             | 3                | 6           | 0.1          |
| 75  | Ventilators                | 36              | 6           | 10          | 12          | 22               | 86          | 1.5          |
| 76  | Washer Sterilizing Units   | 6               |             | 1           | 1           | 1                | 9           | 0.2          |
| 77  | Water Bath                 | 48              | 9           | 15          | 9           | 12               | 93          | 1.6          |
| 78  | X Ray Dental               | 3               |             | 4           | 1           | 2                | 10          | 0.2          |
| 79  | X ray Digital              |                 |             | 1           |             |                  | 1           | 0.0          |
| 80  | X Ray film dryer           | 2               | 2           |             | 1           | 1                | 6           | 0.1          |
| 81  | X ray Film viewer          | 8               |             | 3           | 5           | 3                | 19          | 0.3          |
| 82  | X Ray Mobile               | 26              | 4           | 13          | 18          | 30               | 91          | 1.5          |
| 83  | X-ray C ARM                |                 | 1           | 3           | 1           | 3                | 8           | 0.1          |
| 84  | X-ray Mammography          | 2               |             |             |             |                  | 2           | 0.0          |
| 85  | <b>Others</b>              | <b>74</b>       | <b>18</b>   | <b>48</b>   | <b>16</b>   | <b>33</b>        | <b>189</b>  | <b>3.2</b>   |
| 86  | <b>Grand Total</b>         | <b>2451</b>     | <b>495</b>  | <b>1263</b> | <b>698</b>  | <b>994</b>       | <b>5901</b> | <b>100.0</b> |

**Table 10. Weekly status of equipment as per dashboard (November 2022 to March 2023)**

| Date      | Total Medical Equip | Functional Equip | Non Functional Equip | Proposed for BER | Total Calls Received since beginning | Total Calls Resolved since beginning | Increase of calls Received in a week | Calls Resolved in a week |
|-----------|---------------------|------------------|----------------------|------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------|
| 08-Nov-21 | 6435                | 6100             | 21                   | 314              | 4585                                 | 4330                                 | 10                                   | 8                        |
| 15-Nov-21 | 6435                | 6093             | 25                   | 317              | 4604                                 | 4342                                 | 19                                   | 12                       |
| 24-Nov-21 | 6435                | 6100             | 17                   | 318              | 4625                                 | 4370                                 | 21                                   | 28                       |
| 02-Dec-21 | 6435                | 6151             | 12                   | 318              | 4651                                 | 4402                                 | 26                                   | 32                       |
| 06-Dec-21 | 6435                | 6154             | 8                    | 318              | 4654                                 | 4408                                 | 3                                    | 6                        |
| 13-Dec-21 | 6435                | 6150             | 12                   | 319              | 4668                                 | 4419                                 | 14                                   | 11                       |
| 20-Dec-21 | 6435                | 6104             | 12                   | 319              | 4687                                 | 4437                                 | 19                                   | 18                       |
| 03-Jan-21 | 6435                | 6109             | 5                    | 321              | 4693                                 | 4449                                 | 6                                    | 12                       |
| 10-Jan-21 | 6435                | 6112             | 2                    | 321              | 4709                                 | 4468                                 | 16                                   | 19                       |
| 17-Jan-21 | 6435                | 6110             | 4                    | 321              | 4725                                 | 4482                                 | 16                                   | 14                       |
| 24-Jan-21 | 6435                | 6110             | 3                    | 322              | 4743                                 | 4500                                 | 18                                   | 18                       |
| 31-Jan-21 | 6435                | 6109             | 3                    | 323              | 4755                                 | 4511                                 | 12                                   | 11                       |
| 15-Feb-22 | 6683                | 6353             | 5                    | 325              | 4790                                 | 4542                                 | 35                                   | 31                       |
| 21-Feb-22 | 6683                | 6352             | 6                    | 325              | 4802                                 | 4553                                 | 12                                   | 11                       |
| 01-Mar-22 | 6683                | 6352             | 6                    | 325              | 4827                                 | 4578                                 | 25                                   | 25                       |
| 14-Mar-22 | 6683                | 6352             | 6                    | 325              | 4858                                 | 4609                                 | 31                                   | 31                       |
| 28-Mar-22 | 6683                | 6346             | 5                    | 332              | 4901                                 | 4646                                 | 43                                   | 37                       |
| 05-Apr-22 | 6683                | 6346             | 4                    | 333              | 4932                                 | 4676                                 | 31                                   | 30                       |
| 12-Apr-22 | 6683                | 6345             | 5                    | 333              | 4942                                 | 4685                                 | 10                                   | 9                        |
| 18-Apr-22 | 6683                | 6345             | 5                    | 333              | 4956                                 | 4699                                 | 14                                   | 14                       |
| 25-Apr-22 | 6683                | 6343             | 5                    | 335              | 4979                                 | 4720                                 | 23                                   | 21                       |
| 09-May-22 | 6788                | 6449             | 4                    | 335              | 5019                                 | 4761                                 | 40                                   | 41                       |
| 17-May-22 | 6788                | 6445             | 8                    | 335              | 5039                                 | 4777                                 | 20                                   | 16                       |
| 23-May-22 | 6788                | 6443             | 10                   | 335              | 5059                                 | 4795                                 | 20                                   | 18                       |
| 06-Jun-22 | 6881                | 6535             | 9                    | 337              | 5112                                 | 4847                                 | 53                                   | 52                       |
| 13-Jun-22 | 6881                | 6536             | 7                    | 338              | 5150                                 | 4886                                 | 38                                   | 39                       |
| 20-Jun-22 | 6881                | 6535             | 7                    | 339              | 5165                                 | 4900                                 | 15                                   | 14                       |
| 28-Jun-22 | 6881                | 6531             | 11                   | 339              | 5181                                 | 4912                                 | 16                                   | 12                       |
| 07-Jul-22 | 6451                | 6111             | 14                   | 326              | 5202                                 | 4930                                 | 21                                   | 18                       |
| 12-Jul-22 | 6451                | 6114             | 11                   | 326              | 5214                                 | 4945                                 | 12                                   | 15                       |
| 18-Jul-22 | 6451                | 6112             | 13                   | 326              | 5219                                 | 4948                                 | 5                                    | 3                        |
| 25-Jul-22 | 6451                | 6110             | 15                   | 326              | 5237                                 | 4964                                 | 18                                   | 16                       |
| 25-Jul-22 | 6451                | 6110             | 15                   | 326              | 5237                                 | 4964                                 | 0                                    | 0                        |
| 01-Aug-22 | 6451                | 6105             | 20                   | 326              | 5265                                 | 4987                                 | 28                                   | 23                       |
| 08-Aug-22 | 6670                | 6325             | 19                   | 326              | 5063                                 | 4798                                 | -202                                 | -189                     |
| 31-Aug-22 | 6670                | 6325             | 15                   | 330              | 5138                                 | 4873                                 | 75                                   | 75                       |
| 05-Sep-22 | 6670                | 6329             | 11                   | 330              | 5158                                 | 4897                                 | 20                                   | 24                       |
| 13-Sep-22 | 6670                | 6324             | 16                   | 330              | 5184                                 | 4918                                 | 26                                   | 21                       |
| 19-Sep-22 | 6670                | 6330             | 10                   | 330              | 5207                                 | 4947                                 | 23                                   | 29                       |
| 06-Oct-22 | 6670                | 6329             | 11                   | 330              | 5282                                 | 5020                                 | 75                                   | 73                       |
| 24-Oct-22 | 6929                | 6587             | 12                   | 330              | 5329                                 | 5067                                 | 47                                   | 47                       |
| 09-Nov-22 | 6948                | 6599             | 17                   | 332              | 5385                                 | 5114                                 | 56                                   | 47                       |
| 17-Nov-22 | 6950                | 6602             | 14                   | 334              | 5410                                 | 5140                                 | 25                                   | 26                       |

| Date      | Total Medical Equip | Functional Equip | Non Functional Equip | Proposed for BER | Total Calls Received since beginning | Total Calls Resolved since beginning | Increase of calls Received in a week | Calls Resolved in a week |
|-----------|---------------------|------------------|----------------------|------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------|
| 21-Nov-22 | 6950                | 6606             | 10                   | 334              | 5423                                 | 5157                                 | 13                                   | 17                       |
| 29-Nov-22 | 6960                | 6615             | 11                   | 334              | 5453                                 | 5186                                 | 30                                   | 29                       |
| 08-Dec-22 | 7027                | 6684             | 9                    | 334              | 5476                                 | 5211                                 | 23                                   | 25                       |
| 12-Dec-22 | 7028                | 6687             | 7                    | 334              | 5491                                 | 5228                                 | 15                                   | 17                       |
| 29-Dec-22 | 7047                | 6687             | 26                   | 334              | 5550                                 | 5268                                 | 59                                   | 40                       |
| 02-Jan-23 | 7047                | 6690             | 23                   | 334              | 5554                                 | 5275                                 | 4                                    | 7                        |
| 10-Jan-23 | 7047                | 6693             | 20                   | 334              | 5571                                 | 5294                                 | 17                                   | 19                       |
| 24-Jan-23 | 7075                | 6708             | 30                   | 337              | 5626                                 | 5338                                 | 55                                   | 44                       |
| 30-Jan-23 | 7075                | 6704             | 34                   | 337              | 5644                                 | 5352                                 | 18                                   | 14                       |
| 07-Feb-23 | 7082                | 6705             | 37                   | 340              | 5692                                 | 5394                                 | 48                                   | 42                       |
| 20-Feb-23 | 7109                | 6727             | 41                   | 341              | 5743                                 | 5440                                 | 51                                   | 46                       |
| 27-Feb-23 | 7109                | 6723             | 43                   | 343              | 5776                                 | 5469                                 | 33                                   | 29                       |
| 06-Mar-23 | 7129                | 6749             | 37                   | 343              | 5794                                 | 5493                                 | 18                                   | 24                       |
| 13-Mar-23 | 7173                | 6795             | 35                   | 343              | 5829                                 | 5530                                 | 35                                   | 37                       |
| 27-Mar-23 | 7210                | 6825             | 40                   | 345              | 5887                                 | 5581                                 | 58                                   | 51                       |

RRC-NE is continuously monitors the BMMP dashboard on every week, mostly on Monday. It is observed from the above table that monthly on an average 200 calls are resolved. It was found that 430 equipment were removed in July 2022; the service engineer did not find this equipment during PPM schedule for 2 consecutive years and this equipment had been removed from the asset after discussion with the State.



**Finance:**

Timely payment is one of major contributors to efficiently operate any projects/programme, also through Public Private Partnership mode. It may be observed from the below payment details that a large amount is yet to be paid to the service provider. It is generally observed, during evaluation of BMMP other states also that delayed payments hamper the progress and efficiency of the programme. State needs to strive to pay on time after due verification of the document. The finance department needs to take the cognisance and try to do the payment within the time.

**Table 11. Payment details**

| Date Of Invoice | For the Year | Amount Submitted by SP | Amount Paid to SP | Penalty if Any    |
|-----------------|--------------|------------------------|-------------------|-------------------|
| 22/06/2022      | May- 2022    | 63,22,666/-            | 0                 | 0                 |
| 25/07/2022      | June-2022    | 63,30,656/-            | 0                 | 0                 |
| 20/08/2022      | July-2022    | 66,34,465/-            | 0                 | 33,000/-          |
| 16/09/2022      | Aug-2022     | 66,36,379/-            | 0                 | 17,000/-          |
| 29/10/2022      | Sep-2022     | 70,31,530/-            | 0                 | 0                 |
| 29/11/2022      | Oct-2022     | 70,69,668/-            | 0                 | 0                 |
| 31/12/2022      | Nov- 2022    | 73,27,302/-            | 0                 | 4,000/-           |
| 31/01/2023      | Dec-2022     | 72,58,979/-            | 0                 | 80,000/-          |
| 27/02/2023      | Jan – 2023   | 71,70,920/-            | 0                 | 1,10,000/-        |
| <b>TOTAL</b>    |              | <b>6,17,82,569/-</b>   |                   | <b>2,44,000/-</b> |

**Table 12. Amount (Rs. in Lakh) approved for medical equipment maintenance in consecutive RoP under NHM is indicated below:**







| Sl. | Year    | BMMP    | NPCB&VI | NOHP | RNTCP | NVDCP | Others |
|-----|---------|---------|---------|------|-------|-------|--------|
| 3   | 2020-21 | 1071.77 | -       | -    | -     | -     | 8.0    |
| 4   | 2021-22 | 632.61  | -       | -    | -     | -     | 12.75  |
| 5   | 2022-23 | 604.04  | -       | -    | -     | -     | -      |
| 6   | 2023-24 | 622.15  | -       | -    | -     | -     | -      |

## Chapter IV

### Facility wise field observation:

#### **A. DH Aizawl :**




1. All the staffs were aware about the BMMP programme, they were satisfied with the services of the service engineers.
2. Every department was maintaining the equipment records and breakdown call to the Toll-free number or the Hotline number.
3. It was informed that the warranty of dialysis machines will be expired shortly.
4. Service engineer of Trimed Pvt Ltd. has done preventive maintenance and calibration of equipment.
5. The workshop of the service provider was in the Aizawl civil hospital.
6. The hospital had a functional CT scan machine.

|   |  |   |
|---|--|---|
|   |   |   |
| <b>CT scan machine</b>  | <b>Dialysis department</b>   | <b>Dialyser Reprocessor</b>   |
|  |  |  |
| <b>Patient monitor</b>  | <b>Bacterial identification and Antibiotic-susceptibility testing machine.</b>       | <b>Tissue processor machine at Histopathology laboratory</b>                          |

#### **B. PHC Aibawk:**

1. The 10 bedded 24\*7 PHC.
2. Human resource comprises of MO-1, SN-4, Lab Tech-1, radiographer-1, pharmacist-1, ambulance driver-1, grade IV-3, block account manager-1.
3. The facility covers for 5 subcentre and 3 clinics.
4. Around 60 out of 81 state EDL drugs were present in the facility during the visit.

- The Pharmacist was the nodal person for the BMMP. He registers the call during break down of equipment.
- It was encouraging to observed that the nodal person monitored the dashboard on regular basis and had the updated list of equipment of the PHC.
- The power switch of the X-ray machine was broken.
- The radiographer was utilising the conventional method (dark room using chemicals) for film formation.

|   |  |   |
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|  |  |  |
| <b>X ray machine</b>  | <b>Phototherapy machine, calibrated and PM done</b>                                | <b>Suction machine</b>  |

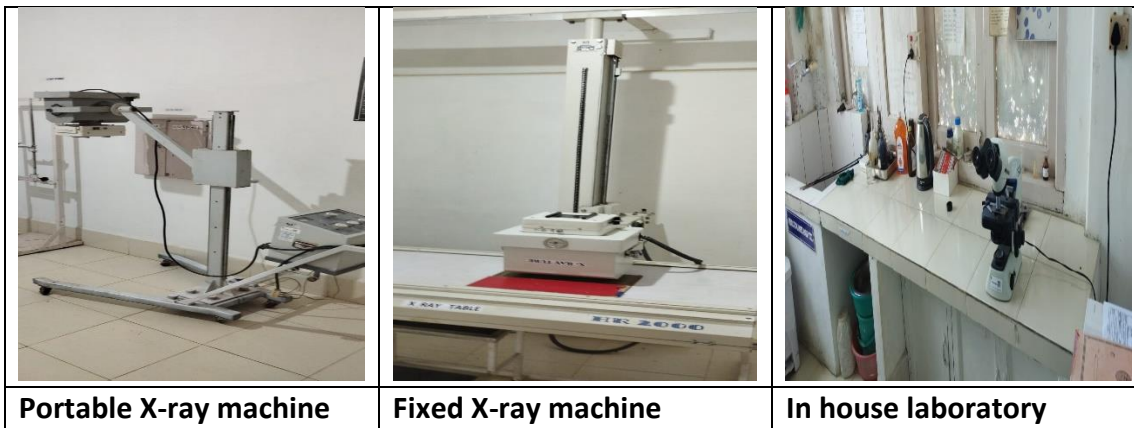
### C. PHC Ruipuichip

- The 10 bedded PHC caters population around 4665 (1481 in the catchment area); 2 Sub centres and 2 clinics are within the PHC.
- Average OPD-150 /month, Jan 2022-Dec 2022 IPD-230,
- Human resource comprises of MO-1, Staff nurse-3, Health worker-6 (male-4, Female-2), Laboratory Tech-1, Grade IV-3, Driver -1, Pharmacist-0
- Average OPD is 15/day
- The facility in charge was well informed about the BMMP, she mentioned that the programme has helped them a lot.
- She calls the engineers on the toll-free number.
- Staff nurse was maintaining the proper service records.

|   |  |   |
|---|--|---|
|  |  |  |
| <b>Equipment register in the facility</b>   | <b>In house laboratory</b>   | <b>Display of Toll free number</b>  |

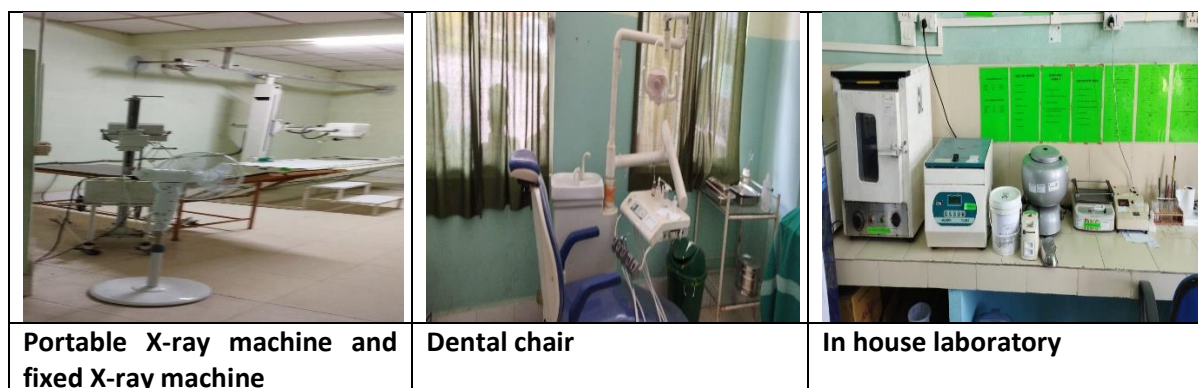
#### **D. CHC Thenzawl**

1. The human resource comprises of MO-2 (1 Allopathic & 1 Dentist), MO (OST)-1, Lab. Technician-3, Radiographer-1, Pharmacist-2, H/W (M)-6, H/W(F)-5, HWO-3, MSACS coucellor-1, Staff Nurse-3 + S/N-(NCD)-1+ S/N- (OST)-1, Cook-1, Grade IV-10, Driver (NAS)-1, sweeper-2, DEO (OST)-1.
2. The 30 bedded facility covers 5 Sub centre and 2 health clinics.
3. Around 50 drugs as per the state EDL are available in the facility.
4. Facility conducts around 30-40 X-rays/month.
5. The facility conducts 120 laboratory tests per month



#### **E. CHC Kawrthah**

1. The 30 bedded facility has an average OPD of average 400/month.
2. It covers 6 Sub Centres
3. Average delivery is 15/month
4. It caters to a 12235 people (3069 in Kawrthah)
5. Human resource team comprise of MO-2, SN-4, Pharmacist-1, Radiographer-1, Ophthalmic assistant-1, Laboratory Tech-2+1 (through IPA), Adolescent Health councillor-1, ICTC councillor-1, Grade IV-3+1(through IPA), Driver-2, MTS-1, Security-1 (IPA).
6. The facility staffs were aware about the programme, and they informed the facility incharge in case of any breakdown. Facility in-charge calls on the Toll Free number.
7. The facility had the condemnation committee.





## F. DH Mamit

1. The 30 bedded district hospital comprises of total 85 staffs/doctors comprising of total Doctor-1, Dentist-1, Nursing superintendent-1, ward superintendent-1, Staff Nurse-15, Psychiatric Nurse-1, Radiographer-2, Laboratory Technician-6, Pharmacist-1, LDC-2, computer operator-1, Ophthalmic Assistant-1, Social worker-1, Peer educator-1, Instructor hearing-1, Physiotherapist-1, Psychiatric Social worker -1, Clinical Psychologist, Audiometric Assistant -1, DEO-6, Electrician-1, Driver-3, Grade IV-11, Helper-1, DEO cum assistant-1, Prog. Asst-1.
2. The Hospital staffs are aware about the BMMP programme and the display of Toll-free number was prominent.
3. The Hospital is maintaining the equipment maintenance service reports.
4. The PSA plant was not covered under the BMMP programme.
- 5.

|   |  |   |
|---|--|---|
|   |   |   |
| <b>Defibrillator machine</b>  | <b>Semi biochemistry analyser</b>  | <b>ECG machine</b>  |
|  |  |  |
| <b>Anaesthesia workstation and patient monitor</b>                                  | <b>Portable X-ray machine</b>  | <b>Fixed X-ray machine</b>  |

## Annexure I

## Distribution of equipment by downtime

| Sl. | Equipment Name            | Total calls (FY 2019-20) | Avg. Downtime in Hrs | Total calls (FY 2020-21) | Avg. Downtime in Hrs. | Total calls (For FY 2021-22) | Avg. Downtime in Hrs. | Total calls (For FY 2022-23) | Avg. Downtime in Hrs. |
|-----|---------------------------|--------------------------|----------------------|--------------------------|-----------------------|------------------------------|-----------------------|------------------------------|-----------------------|
| 1   | A Scan Machine            | 1                        | 2546                 | 1                        | 1                     | 1                            | 1872                  | 2                            | 634.8                 |
| 2   | Anaesthesia Workstation   | 1                        | 550                  | 2                        | 179                   |                              |                       | 12                           | 336                   |
| 3   | Aneroid BP                | 10                       | 132                  | 4                        | 43                    | 26                           | 26                    | 26                           | 13.2                  |
| 4   | Angiography Machine       |                          |                      |                          |                       | 3                            | 40                    | 1                            | 4.9                   |
| 5   | Audiometer                |                          |                      |                          |                       | 2                            | 62                    |                              |                       |
| 6   | Audiometers               | 2                        | 303                  | 4                        | 1128                  | 4                            | 409                   | 4                            | 19.3                  |
| 7   | Auto Refractometers       | 1                        | 2                    |                          |                       |                              |                       | 3                            | 80.5                  |
| 8   | Bilirubinometer           | 1                        | 2                    |                          |                       |                              |                       |                              |                       |
| 9   | Biochemistry analyser     | 22                       | 183                  | 10                       | 166                   | 5                            | 108                   | 22                           | 221                   |
| 10  | Blood bag tube Sealer     | 1                        | 26                   | 2                        | 135                   |                              |                       |                              |                       |
| 11  | Blood bank Refrigerator   | 14                       | 1327                 | 10                       | 190                   | 8                            | 259                   | 16                           | 354                   |
| 12  | Blood cell Counter        | 19                       | 66                   | 14                       | 208                   | 13                           | 86                    | 19                           | 232                   |
| 13  | Blood donor couch         |                          |                      |                          |                       | 1                            | 194                   |                              |                       |
| 14  | Blood Gas analyser        | 12                       | 12                   | 4                        | 14                    | 4                            | 7                     | 10                           | 42.5                  |
| 15  | Bone Drill                |                          |                      |                          |                       | 2                            | 14                    | 2                            | 165.96                |
| 16  | Boyles apparatus          | 15                       | 93                   | 7                        | 871                   | 9                            | 13                    | 2                            | 650                   |
| 17  | C ARM Machine             | 3                        | 260                  |                          |                       | 2                            | 1867                  |                              |                       |
| 18  | Centrifuge                | 63                       | 131                  | 46                       | 117                   | 38                           | 124                   | 67                           | 74                    |
| 19  | Coagulation analyser      |                          |                      | 1                        | 961                   |                              |                       |                              |                       |
| 20  | Colorimeter               | 5                        | 522                  | 5                        | 1043                  | 2                            | 371                   | 3                            | 219                   |
| 21  | Constellation Vision Sys. | 1                        | 3                    |                          |                       | 1                            | 24                    | 1                            | 122                   |
| 22  | CT Scanner                | 2                        | 4511                 |                          |                       |                              |                       |                              |                       |
| 23  | Deep Freezers             | 6                        | 1670                 | 3                        | 103                   |                              |                       | 2                            | 489                   |
| 24  | Defibrillator             | 10                       | 921                  | 1                        | 1084                  | 3                            | 16                    | 9                            | 140.7                 |
| 25  | Dental Chair              | 31                       | 281                  | 21                       | 274                   | 23                           | 72                    | 26                           | 324.8                 |
| 26  | Dialysis Machine          | 2                        | 3                    | 1                        | 1395                  | 1                            | 3                     | 2                            | 73                    |
| 27  | ECG Machine               | 6                        | 418                  | 7                        | 118                   | 7                            | 433                   | 9                            | 138.5                 |
| 28  | Electric Cast Cutter      | 1                        | 550                  |                          |                       |                              |                       |                              |                       |
| 29  | Electrical Air Bed        | 3                        | 10                   | 2                        | 1151                  | 2                            | 1                     |                              |                       |
| 30  | Electrolyte Analyser      | 3                        | 9                    | 8                        | 247                   | 9                            | 79                    | 26                           | 279.8                 |

| Sl. | Equipment Name              | Total calls (FY 2019-20) | Avg. Downtime in Hrs | Total calls (FY 2020-21) | Avg. Downtime in Hrs. | Total calls (For FY 2021-22) | Avg. Downtime in Hrs. | Total calls (For FY 2022-23) | Avg. Downtime in Hrs. |
|-----|-----------------------------|--------------------------|----------------------|--------------------------|-----------------------|------------------------------|-----------------------|------------------------------|-----------------------|
| 31  | Electronic BP Machine       | 17                       | 50                   | 13                       | 71                    | 9                            | 20                    | 14                           | 25.8                  |
| 32  | Electrosurgical Units       | 6                        | 725                  | 8                        | 1270                  | 8                            | 32                    | 13                           | 128.2                 |
| 33  | ELISA Reader                | 4                        | 1004                 |                          |                       | 1                            | 1                     | 2                            | 94                    |
| 34  | Elisha washer               | 3                        | 1762                 |                          |                       | 1                            | 1                     | 3                            | 26.9                  |
| 35  | Endoscopic Camera           |                          |                      | 1                        | 171                   |                              |                       |                              |                       |
| 36  | Endoscopic Set              |                          |                      |                          |                       |                              |                       | 3                            | 226.9                 |
| 37  | Examination Light           |                          |                      |                          |                       | 3                            | 1713                  | 1                            | 70                    |
| 38  | Examination Table           |                          |                      | 1                        | 73                    | 2                            | 12                    | 1                            | 47.01                 |
| 39  | Fetal doppler               | 1                        | 99                   | 1                        | 3                     |                              |                       |                              |                       |
| 40  | Fiber optic Light Source    |                          |                      |                          |                       |                              |                       | 9                            | 20                    |
| 41  | Freezer                     | 6                        | 1186                 | 5                        | 328                   | 5                            | 222                   | 5                            | 154                   |
| 42  | Fumigation Unit             | 1                        | 1                    | 5                        | 178                   |                              |                       | 4                            | 1.3                   |
| 43  | Fundus Camers               |                          |                      |                          |                       | 1                            | 1                     |                              |                       |
| 44  | Gastroscope                 | 4                        | 68                   | 6                        | 14                    | 2                            | 48                    |                              |                       |
| 45  | Glucometer                  | 2                        | 71                   | 6                        | 39                    | 1                            | 22                    | 3                            | 18                    |
| 46  | Grossing Work Station       |                          |                      |                          |                       |                              |                       | 3                            | 74.5                  |
| 47  | Head light                  | 1                        | 142                  |                          |                       | 1                            | 2                     |                              |                       |
| 48  | Immuno Analyzer             |                          |                      | 2                        | 49                    |                              |                       | 1                            | 22                    |
| 49  | Infant Phototherapy machine | 5                        | 47                   | 4                        | 187                   | 11                           | 13                    | 13                           | 50.7                  |
| 50  | Keratometer                 | 3                        | 1669                 |                          |                       |                              |                       | 1                            | 1440                  |
| 51  | Lab Incubator               | 9                        | 496                  | 1                        | 2                     | 2                            | 38                    | 2                            | 183                   |
| 52  | Lab Oven                    | 15                       | 51                   | 7                        | 61                    | 7                            | 72                    | 15                           | 150                   |
| 53  | Lab refrigerator            | 23                       | 221                  | 14                       | 533                   | 8                            | 243                   | 13                           | 143.6                 |
| 54  | Lab Shaker                  | 2                        | 14                   | 4                        | 37                    | 10                           | 81                    | 5                            | 1.91                  |
| 55  | Laboratory Microscope       | 47                       | 46                   | 20                       | 52                    | 25                           | 110                   | 44                           | 37.2                  |
| 56  | Laminar Air flow            | 2                        | 73                   |                          |                       |                              |                       | 1                            | 75.4                  |
| 57  | Laryngoscope                | 4                        | 214                  | 2                        | 241                   | 2                            | 84                    | 3                            | 17.9                  |
| 58  | Laser Imager                |                          |                      |                          |                       |                              |                       | 2                            | 277                   |
| 59  | Lithotripsy machine         |                          |                      |                          |                       | 1                            | 22                    | 1                            | 50                    |
| 60  | Mammography machine         |                          |                      | 1                        | 3                     |                              |                       |                              |                       |
| 61  | Mercury BP Machine          | 373                      | 19                   | 139                      | 45                    | 119                          | 27                    | 169                          | 17.3                  |
| 62  | Microtome                   | 1                        | 1874                 |                          |                       |                              |                       |                              |                       |

| Sl. | Equipment Name            | Total calls (FY 2019-20) | Avg. Downtime in Hrs | Total calls (FY 2020-21) | Avg. Downtime in Hrs. | Total calls (For FY 2021-22) | Avg. Downtime in Hrs. | Total calls (For FY 2022-23) | Avg. Downtime in Hrs. |
|-----|---------------------------|--------------------------|----------------------|--------------------------|-----------------------|------------------------------|-----------------------|------------------------------|-----------------------|
| 63  | Mixer                     | 2                        | 1                    |                          |                       |                              |                       |                              |                       |
| 64  | Molecular Analyzer        | 1                        | 3                    |                          |                       |                              |                       |                              |                       |
| 65  | Nd: Yag Laser             | 1                        | 1778                 |                          |                       | 1                            | 670                   | 1                            | 1                     |
| 66  | Nebulizer                 | 67                       | 27                   | 26                       | 21                    | 40                           | 21                    | 24                           | 20                    |
| 67  | Neuromuscular Stimulators | 2                        | 73                   |                          |                       |                              |                       | 1                            | 3.1                   |
| 68  | Operating Microscope      | 3                        | 446                  | 1                        | 1778                  | 1                            | 436                   | 3                            | 27.8                  |
| 69  | Ophthalmoscope            | 1                        | 2                    |                          |                       | 1                            | 145                   |                              |                       |
| 70  | OT Table                  | 7                        | 1757                 | 4                        | 920                   | 4                            | 20                    | 9                            | 86.6                  |
| 71  | Otoscope                  | 2                        | 24                   | 3                        | 80                    | 1                            | 3                     | 2                            | 168.49                |
| 72  | Oxygen Concentrator       | 22                       | 57                   | 23                       | 309                   | 26                           | 59                    | 31                           | 21.8                  |
| 73  | Paraffin Bath             | 2                        | 14                   |                          |                       |                              |                       | 1                            | 20.6                  |
| 74  | Patient Monitor           | 73                       | 224                  | 52                       | 519                   | 42                           | 91                    | 64                           | 48.2                  |
| 75  | Perimeter                 |                          |                      |                          |                       | 1                            | 3                     | 2                            | 34.6                  |
| 76  | PH Meter                  | 1                        | 3                    |                          |                       |                              |                       |                              |                       |
| 77  | Phacomachine              | 1                        | 238                  |                          |                       |                              |                       | 2                            | 60.7                  |
| 78  | Photometer                | 2                        | 1                    |                          |                       | 1                            | 194                   |                              |                       |
| 79  | Plasma-Thawing            | 1                        | 2                    |                          |                       |                              |                       | 1                            | 451                   |
| 80  | Platelets Incubator       |                          |                      |                          |                       | 1                            | 117                   | 1                            | 73                    |
| 81  | Pulse Oximeter            | 10                       | 243                  | 3                        | 1753                  | 3                            | 3                     | 2                            | 1.8                   |
| 82  | Radiant warmer            | 82                       | 268                  | 65                       | 529                   | 80                           | 278                   | 90                           | 105.5                 |
| 83  | Recorder Holter           | 1                        | 577                  |                          |                       |                              |                       |                              |                       |
| 84  | RO Plant                  |                          |                      | 1                        | 22                    | 4                            | 85                    |                              |                       |
| 85  | Scales                    | 4                        | 1343                 | 3                        | 921                   | 2                            | 243                   | 7                            | 29.86                 |
| 86  | Slit Lamp                 | 2                        | 109                  | 2                        | 25                    | 1                            | 24                    | 2                            | 73.8                  |
| 87  | Sterilizing Units         | 53                       | 97                   | 60                       | 212                   | 49                           | 123                   | 83                           | 79.9                  |
| 88  | Suction Machine           | 38                       | 136                  | 22                       | 157                   | 28                           | 16                    | 33                           | 180                   |
| 89  | Surgical light            | 15                       | 383                  | 10                       | 261                   | 18                           | 40                    | 6                            | 17.6                  |
| 90  | Syringe cutters           | 33                       | 54                   | 5                        | 206                   | 13                           | 27                    | 4                            | 1.5                   |
| 91  | Syringe Pump              | 44                       | 334                  | 23                       | 486                   | 44                           | 200                   | 46                           | 94.9                  |
| 92  | Tissue processor          |                          |                      |                          |                       | 2                            | 47                    |                              |                       |
| 93  | TMT Machine               | 1                        | 980                  |                          |                       |                              |                       |                              |                       |
| 94  | Traction bed              | 4                        | 613                  | 1                        | 287                   | 1                            | 1274                  | 10                           | 42.3                  |
| 95  | Tube sealer               |                          |                      |                          |                       |                              |                       | 1                            | 2.3                   |
| 96  | Tympanometry              |                          |                      |                          |                       | 1                            | 1                     | 1                            | 0.43                  |
| 97  | Ultrasound Printer        | 2                        | 1825                 |                          |                       |                              |                       |                              |                       |
| 98  | Ultrasound Scanner        | 4                        | 1818                 | 6                        | 204                   | 5                            | 20                    | 4                            | 749.2                 |



| Sl. | Equipment Name         | Total calls (FY 2019-20) | Avg. Downtime in Hrs | Total calls (FY 2020-21) | Avg. Downtime in Hrs. | Total calls (For FY 2021-22) | Avg. Downtime in Hrs. | Total calls (For FY 2022-23) | Avg. Downtime in Hrs. |
|-----|------------------------|--------------------------|----------------------|--------------------------|-----------------------|------------------------------|-----------------------|------------------------------|-----------------------|
| 99  | Ultrasound therapy m/c |                          |                      | 1                        | 2449                  |                              |                       |                              |                       |
| 100 | Ventilators            | 11                       | 431                  | 2                        | 371                   | 24                           | 49                    | 35                           | 213                   |
| 101 | View Boxes             | 2                        | 2                    |                          |                       |                              |                       | 7                            | 49.06                 |
| 102 | Vision chart           | 1                        | 19                   | 1                        | 2                     |                              |                       |                              |                       |
| 103 | Water Bath             | 22                       | 223                  | 18                       | 182                   | 10                           | 13                    | 34                           | 23.9                  |
| 104 | X ray machines         | 18                       | 131.25               | 33                       | 237.8                 | 23                           | 217                   | 23                           | 96.7                  |
| 105 | X-Ray Film Dryers      | 2                        | 3                    |                          |                       |                              |                       |                              |                       |
| 106 | X-Ray Film Dryers      |                          |                      |                          |                       | 1                            | 122                   |                              |                       |

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