

Report

Cost Benefit Study of National Medical Mobile Units in Maharashtra



Submitted by:



**State Health Systems Resource Centre,
Vishrantwadi, Pune**

PREFACE

The activity initiated by Maharashtra State under aegis of National Rural Health mission and functioning since year 2011-2012 to provide door step facilities in interior and remote areas. Since inception, 40 Mobile Medical Units (MMUs) are functioning in districts of Maharashtra. MMU services are provided through Non- Government Organizations (NGOs) and Rugna Kalyan Samiti (RKS) of the district. The objective of MMU is to provide basic health services to the community of in-accessible areas like hilly and tribal villages of state. MMU provides services of OPD treatment in minor ailments, health care to ANC, PNC and Children, family planning counseling, distribution of contraceptive methods and health education. Some laboratory tests are also performed through MMUs. Each MMU is provided with Rs. 21.13 lacs per annum to incur the expenditure on human resources, medicine and consumables, POL, maintenance of vehicle and contingency expenses. Thus, approximately Rs. 8.45 crores is spent on this activity in state. During year 2012-13 around 933400 patients benefited out of this scheme.

In view of the above, State Health Systems Resource Centre, Pune has been undertaken study to ascertain facts with respect to appropriate structure and functioning of these MMUs, usefulness (benefits) of these MMUs to the beneficiaries (patients) and cost effectiveness of running a MMU considering capital and recurrent costs. The observation of the study will be useful for more effective implementation of the scheme in more appropriate cost.

We are grateful to Mr. DilipJadhav (Rtrd IAS), Consultant, State Mobile Medical Unit for supporting and providing inputs to conduct the study time to time. We also thankful to State Programme Management Unit for extended cooperation to share the data of Mobile Medical Units.

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Mr. Ganesh Pathak, Sr. Consultant, SHSRC, Pune and Dr. Abhijit Khanvilkar, Director, Prognosis Management and Research Consultant Pvt. Ltd. Pune have taken efforts in collecting, analyzing the data and preparing this report.

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ABBREVIATIONS

ANM	: Auxiliary Nurse Midwife
ASHA	: Accredited Social Health Activist
ATP	: Advanced Tour Plan
AWW	: Anganwadi Worker
BAMS	: Bachelor of Ayurveda, Medicine and Surgery
CHC	: Community Health Centre
CMHO	: Chief Medical Health Officer
DHS	: District Health Society
DHO	: District Health Officer
DPM	: District Programme Manager
DAM	: District Account Manager
DPMU	: District Programme Management Unit
FGD	: Focus Group Discussion
MMU	: Mobile Medical Unit
LMO	: Lady Medical Officer
MCTS	: Mother and Child Tracking System
MOU	: Memorandum of Understanding
M&E	: Monitoring and Evaluation
NGO	: Non-Government Organization
NRHM	: National Rural Health Mission
NMMU	: National Mobile Medical Unit
OPD	: Out Door Patient
PHC	: Primary Health Centre
SC	: Sub-centre
PNC	: Post Natal Check-up
POL	: Petrol Oil and Lubricant
RKS	: Rugna Kalyan Samiti
SNO	: State Nodal Officer
SPMU	: State Programme Management Unit
THO	: Taluka Health Officer
RCH	: Reproductive Child Health
ECG	: Electrocardiogram
USG	: Ultrasonography
UTI	: Urinary Tract Infection

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Executive Summary:

Introduction: National Rural Health Mission (NRHM) launched by the Government of India in April 2005, has main aim to improving the access of health care for the rural poor in the country. Many initiatives, innovative pilots were undertaken to achieve this. One of them is starting the National Mobile Medical Units (NMMUs). The principle behind NMMUs is to reach underserved areas by taking healthcare to the doorstep of the people. The units would primarily cater to primary health care needs. The Mobile Medical Units have been envisaged to provide preventive, promotive and curative health care in inaccessible areas and difficult terrains, which are underserved or un-served areas under usual circumstances.

NMMUs operate through a decentralized approach under which the unit prepares a work plan to decide visits on monthly basis in consultation with district health society. The schedule is shared with the local health department, and the villagers are informed through Accredited Social Health Activists (ASHA), Anganwadi Workers, ANMs and NGOs. The medical team stays on the visit location for 4-5 hours, conducts the laboratory tests and provides medicines to the patients. All services are provided free of cost to people under the NRHM initiative.

State of Maharashtra is third largest state in the country with an area of 307713 square kilometres. In Maharashtra the NMMU has been initiated during year 2011-12. The activity has been starting considering un-served and unreachable area of state. A total 40 units have been working, 37 operated by NGOs and 3 units by Rugna Kalyan Samiti (RKS), a PR institution under NRHM.

NMMU unit consists of a staff vehicle and one van with in-build OPD, laboratory and other diagnostic facilities and medicines. NMMU staff team consists of one Lady Medical Officer, One Staff Nurse, One Laboratory Technician, One Pharmacy Officer, and two Driver Cum Support Staff (One for dispensary and one for staff Vehicle).

NMMUs have been successful in improving the access to healthcare in hilly regions of Maharashtra.

Objectives of the Study:

- To identify Gaps in structure of NMMU
- To evaluate services whether effectively reaching the target population in remote areas
- To establish cost benefits of the services of NMMU to patients and the health system
- To provide recommendations to improve NMMU functioning

Methodology: A mixed method approach was used. Quantitative as well as qualitative data was collected from primary and secondary data sources. Primary data was collected by interviews and FGDs with the stakeholders and secondary data on annual number of patients visited and costs was collected. Check-list was prepared to collect data on the current status of infrastructure and equipment, drugs available with NMMU for comparing it with the norm stated by GOI.

Out of total 40 NMMUs; 03 units were randomly selected. 01 unit each was selected from following 3 categories using **randomizer**.

1. One unit from tribal district
2. One unit from non-tribal district
3. One unit from RKS run NMMU

Findings:

The NMMUs visit a village once a month. The plan is prepared beforehand for its visits. In Solapur and Nandurbar visits were made as planned but in Raigad visits were 75% of the planned.

The staff, majority of the infrastructure is available as per norms stated by GOI. There are some gaps in case of equipment and record keeping, which need to be improved.

- Solapur NMMU covers 42 villages with 81246 population from 5 PHCs. These villages are at a distance of 5 km to 45 km from their respective PHCs.
- Raigad NMMU covers 60 villages with 40359 population from 4 PHCs. These villages are at a distance of 4 km to 21 km from their respective PHCs.
- Nandurbar NMMU covers 50 villages with 41964 population from 12 PHCs. These villages are at a distance of 5 km to 28 km from their respective PHCs.

All the stakeholders reported that the scheme is very beneficial for the community as it is '**reaching the unreached**'. The data collected shows that NMMU are cost effective to government as well as to the community.

Community is contented and reported that they are satisfied as they get all the services free of cost at their doorstep.

Cost-benefit analysis: Cost-Benefit analysis of any particular facility or service is manifold. It has to be looked into from both the sides – i.e. the service providers' side as well as the beneficiary's side. Further, it has to be compared with other similar service providers. One more point which is availability of these services to the community, i.e. frequency of such services. Though this is categorized as 'Access' issue, it has direct bearing on cost per patient for both the sides – provider and beneficiary.

Here in case of NMMU, service provider is government and beneficiary is the community / patients. While doing the cost benefit analysis, information on cost to government for providing services through NMMU was collected.

Other similar service providers are government through PHC and private health care providers available in the vicinity. Here sub-centre is not taken into account as there is no doctor (MO). PHC is manned with at least one MO and is at par with NMMU. Therefore cost to government for providing services to the community through PHC was calculated as well.

Solapur NMMU: This NMMU is grossly over-utilized and PHC is underutilized compared to the estimated figure of OPD consultations; though the variation in access is taken into account. Point here has to be noted that, the PHC is available everyday of a month and NMMU is only once a month. Still this kind of response is observed. It is very encouraging and motivating to see that cost per-patient to government is Rs. 51 in 2012-13; and Rs. 43 in 2013-14 at NMMU. These figures are Rs. 780 and Rs. 1074 respectively for PHC.

Raigad NMMU: This NMMU and PHC are over-utilized compared to the estimated figure of OPD consultations; though the variation in access is taken into account. The cost per-patient to govt is Rs. 108; Rs. 73 in 2012-13 and 2013-14 respectively at NMMU. These figures are Rs. 597 and Rs. 717 respectively for PHC. This district also shows a similar picture, that per-patient cost at PHC is very high compared to per-patient cost at NMMU.

Nandurbar NMMU: NMMU and PHC are over-utilized compared to the estimated figure of OPD consultations; though the variation in access is taken into account. The cost per-patient to govt is Rs. 385; Rs. 71 in 2012-13 and 2013-14 respectively at NMMU. These figures are Rs. 296 and Rs. 394 respectively for PHC. Figure for the year 2012-13 is high as the NMMU then functioned only for 3 months in that financial year. Thus, district also shows a similar picture, that per-patient cost at PHC is very high compared to per-patient cost at NMMU.

This clearly shows that per-patient cost at PHC is very high compared to per-patient cost at NMMU. Furthermore, the per-patient cost at PHC is likely to get increased every year as the staff salaries are increased ever year and the population 'catered to' is not going to increase in that proportion resulting almost equal foot fall every year.

The inverse association between the average footfalls and per patient cost to government is clearly visible from the data; i.e. as the footfalls are high, per patient cost is less. This is basic economics as the cost and overheads also get distributed with increased utilization.

Therefore strategies could be adopted to increase footfalls. One way of doing it is increasing the frequency of visits.

Benefit Cost Ratio:

The benefit-cost ratio (BCR) is calculated as the NPV of benefits divided by the NPV of costs.

If this ratio is more than 1, it indicates that, the project is beneficial. For all the three NMMUs and overall the ratio is coming more than 1 for the year 2013-14. Thus, the NMMU project is beneficial.

Comments & Recommendations:

- ✓ The diagnostic facilities available are blood and routine urine examination. Other radiology investigations like x-ray, USG & ECG are not available on this unit. (As per guidelines these are to be provided in NE states and J&K; NOT suggested for other states).
- ✓ There are no structural variations as per guideline. The infrastructure is same. Questions were asked to find out whether they are well maintained and functioning. Variations observed are shown as gaps on page 17, table 7, 8 in the following pages.
- ✓ The record keeping (registers) system is not uniform (table 6 – page 18) everywhere as no formats/ templates are shared with them by state. If state provides formats, uniformity will be maintained and data will be available for analysis which will further help improve the services.
- ✓ Training of national health programs and preventive and promotive services should be given to NMMU staff (Implementing Officer).
- ✓ IEC to community on pre-decided topics is one of the functions of NMMU, but hardly, it is done as evident from the average stay which is mostly for treatment and counselling of patients. Actually it is envisaged that, in the evening team should stay in the village and conduct IEC to the villagers when they come from field. Actually it is not happening, this has been observed while collecting data. Hence, one of the recommendations is that NMMU has to give emphasis on IEC and require IEC material related to various national health programs to be provided to NMMU.
- ✓ Banners displaying information about NMMU visit to be placed in each and every village.
- ✓ Orders should be issued to NMMU operators to maintain registers of equipments, drugs, maintenance of vehicles, referral cases, etc with vehicle.
- ✓ Audit of NMMU to be done on regular basis the report of which to be submitted to the State Health Unit, DPM / DAM of particular district.
- ✓ NMMU services should be extended in selected districts is where number of un-served villages is in need of such services.
- ✓ Guidelines about the salary of BAMS Lady Medical Officer should be given to the NMMU operators.
- ✓ To understand about the status and functioning of NMMUs, another study with geographic representation of the each division of Maharashtra state should be undertaken.
- ✓ The villages covered by NMMU are spread from the distance of 4 km onwards, from their respective PHCs. The selection of villages therefore has to be relooked into.
- ✓ Some criteria, not only distance have to be set for the selection of villages. For this a brainstorming session with experts could be arranged at district place.
- ✓ Un-served or underserved areas in the district should be mapped and documented by the district officials to plan or get additional NMMU sanctioned accordingly.

- ✓ Un-served or underserved areas should be defined for the NMMU to be operated.
- ✓ A prior survey to find out need – “Needs Assessment” could be conducted before starting any new NMMU.
- ✓ The NMMU visits a village only once a month. The visits to a village could be increased so that footfall is increased resulting into reduced per-patient cost.
- ✓ Therefore, it is recommended to have more NMMUs giving services to villages more frequently. This will build trust in the community and the access is increased.
- ✓ For establishment of new PHC, the current capital cost is above Rs. 70 lakh and equal amount of recurring cost per year is required. Whereas, the NMMU capital cost is around Rs. 25 to 27 lakh and recurring costs of around Rs. 15 to 16 lakh. Thus, government should start more NMMUs in the inaccessible areas.
- ✓ Underutilisation of PHCs could be because of SCs available in the nearby villages and the good outreach services by ANM in those villages. This data can be gathered / collated and can be used as one of the criteria in establishment of new service infrastructure.
- ✓ In the IPHS guidelines for PHC, there is a mention that, one doctor in a time span of 6 hours in a day should check 40 patients on OPD basis. If this is considered as a norm for PHCs, annual OPD number for all PHCs should be calculated. All underutilised PHCs can be converted to coordinating centres / “Hub” and all the resources could be utilises into multiple services. NMMU services in the area, SC services could be monitored by PHC MO. Staff and vehicle of the PHC can be made mobile through NMMU services to reach out to remote SCs and villages where SCs are not present. This will increase the outreach from government side and access for the community resulting in low cost burden to both.
- ✓ Considering the paucity of specialist and also failure of various initiatives to have specialists, to use the NMMU platform to have specialists who will cater specialist services primarily diagnostic and elective medical services.

1. Introduction:

Access to health care and equitable distribution of health services are fundamental requirements for achieving the Millennium Development Goals and the goals set under the National Rural Health Mission (NRHM) launched by the Government of India in April 2005. Many areas in the country, predominantly tribal and hilly areas, even in well-developed states, lack basic health care infrastructure, thus limiting access to health services. Over the years, various initiatives have been taken to overcome this obstacle.

NRHM has identified National Mobile Medical Units (NMMUs) as a strategy for improving access. The principle behind NMMUs is to reach underserved areas by taking healthcare to the doorstep of the people. The units would primarily cater to primary health care needs.

National Rural Health Mission (NRHM) has proposed to provide health care services to people who are staying in the remote areas and have no access to health care services because of lack of transport, illiteracy, ignorance, lack of awareness regarding available health care facilities through provision of Mobile Medical Units. In an effort to provide health care at the doorstep of the public in the underserved areas, Government has approved one Mobile Medical Unit per district under NRHM.

The Mobile Medical Units have been envisaged to provide preventive, promotive and curative health care in inaccessible areas and difficult terrains, which are underserved or un-served areas under usual circumstances. Factors that negatively influence the existing public health system and call for the exigency are:

- Distance of the remote villages from the Public Health Institutions.
- Geographical barriers to reach the hard to reach masses.
- Lack of mobility support for field visit by the staff assigned to do the job.
- Lack of medicines/equipment/manpower.
- Lack of awareness and health consciousness in the community particularly among disadvantaged people, who are socio –economically backward.

According to NRHM guidelines, in order to run an NMMU program, the state governments have to first map medically underserved areas and publically notify them. Once this activity is completed, each district will initially be provided with one mobile medical unit. The number of NMMUs per district may be increased if a large number of underserved areas were notified within that district.

NMMUs operate through a decentralized approach under which the unit prepares a work plan to decide visits on monthly basis in consultation with district health society. The schedule is shared with the local health department, and the villagers are informed through Accredited Social Health Activists (ASHA), Anganwadi Workers, ANMs and NGOs. The medical team stays on the visit location for 4-5 hours, conducts the laboratory tests and provides medicines to the patients. All services are provided free of cost to people under the NRHM initiative.

The NRHM guidelines also calculated the capital cost and recurring costs that the mobile units were expected to incur. The states were given the flexibility to work out the number of vans required and unit costs were developed in consultation with each state.

Table 1:NRHM Budgetary Guidelines for NMMUs

Item	Estimates annual cost per unit
Mobile unit with basic accessories (basic unit)	INR 1,825,000 (36,500 USD)
Mobile unit with diagnostic facilities – ECG, USG and X-ray	INR 2,375,000 (47,500 USD)
Cost of staff per annum per van	INR 700,000 (14,000 USD)
Recurring cost for basic mobile unit	INR 1,987,000 (39,740 USD)

Source: Ministry of Health and Family Welfare, Government of India

Description of Scheme of Mobile Medical Units in the State of Maharashtra:

State of Maharashtra is third largest state in the country with an area of 307713 square kilometres. It consists of 6 divisions, 33 districts, and 110 million populations with an average growing population of 16% each year. The state has a literacy rate of over 80% which puts it among the top states in terms of literacy. It is considered to be one of India's leading states in terms of revenue and contribution to the GDP.

In Maharashtra the NMMU has been initiated during year 2011-12. The activity has been starting considering un-served and unreachable area of state. A total 40 units have been working, 37 operated by NGOs and 3 units by Rugna Kalyan Samiti (RKS), a PR institution under NRHM.

NMMU are being established considering area, tribal population and difficult to approach areas of the district. No. of NMMU approved per district is as follows:

Table 2: District wise distribution of PHC, SC and NMMU

	PHC	SC	NMMU
District	Total	Total	Total
Thane	78	492	1
Raigad	52	288	1
Ratnagiri	67	378	1
Sindhudurg	38	248	1
Nasik	103	577	1
Dhule	41	232	1
Nandurbar	58	290	3
Jalgaon	77	442	1
Ahmednagar	96	555	1
Pune	96	539	1
Solapur	77	431	1
Satara	71	400	1
Kolhapur	73	413	1
Sangli	59	320	1
Aurangabad	50	279	1
Jalna	40	213	1
Parbhani	31	214	1
Hingoli	24	132	1
Latur	46	252	1
Beed	50	280	1
Osmanabad	42	206	1
Nanded	64	377	1
Akola	30	178	1
Washim	25	153	1
Amravati	56	333	1
Yeotmal	63	435	1
Buldhana	52	280	1
Nagpur	49	316	1
Wardha	27	181	1
Bhandara	33	193	1
Gondia	39	238	3
Chandrapur	58	339	1
Gadchiroli	45	376	4
TOTAL	1809	10580	40

NMMU unit consists of a staff vehicle and one van with in-built OPD, laboratory and other diagnostic facilities and medicines. NMMU staff team consists of one Lady Medical Officer, One Staff Nurse, One Laboratory Technician, One Pharmacy Officer, and two Driver Cum Support Staff (One for dispensary and One for staff Vehicle).

NMMUs have been successful in improving the access to healthcare in hilly regions of Maharashtra. Earlier, residents could not afford private healthcare and there was not public health system. Since inception around 29.97 lacs patients have been treated by NMMUs and 48030 villages have been visited till end of March 2014 across Maharashtra. The total sanctioned budget was Rs. 24.76 crores out of which total actual expenditure was Rs. 26.25 crores (106 %) till March 2014.

2. Objectives of the Study

- To identify GAPS in structure of NMMU
- To evaluate services whethereffectively reaching the target population in remote areas
- To establish cost benefits of the services of NMMU to patients and the health system
- To provide recommendations to improve NMMU functioning

3. Methodology

3.1 Study design:

The methodology was mixed both quantitative as well as qualitative for collection of primary and secondary data.

1. Primary data:

- a. Qualitative data was collected by conducting Focus Group Discussions (FGDs) with beneficiaries at the site of NMMU. Such 2 FGDs were conducted at each NMMU. Thus total 6 FGDs were conducted. Guides were prepared to facilitate eliciting responses from the groups.

Key information to be collected from these FGDs included:

- i. Costs incurred by the beneficiaries for services (particular= diarrhoea, UTI) at NMMU as compared to PHC/ SC
- ii. Which services are available at the NMMU?
- iii. Ease of access to services at NMMU as compared to SC/ PHC
- iv. Does availability of NMMU increase positive health seeking behaviour?
- v. Satisfaction of beneficiaries with services offered by the NMMU

- b. In-depth interviews (IDI) were conducted with relevant State and District level officials and Staff of NMMU.

Key information collected from the officials included their understanding of:

- i. Purpose of the Scheme
 - ii. Implementation Process
 - iii. Fund Disbursement
 - iv. Benefit from scheme
 - v. Difficulties faced
 - vi. Suggestions for improvement
- c. Checklist was administered to collect information regarding the structure and functioning of NMMU.

Key information included:

- i. Earmark villages as per norms for the visit of NMMUs.
 - ii. Staff as per norms
 - iii. Medicine as per norms
 - iv. Equipment as per norms
 - v. Services as per norms
 - vi. Frequency and regularity of visit as per norms.
 - vii. Allocation of funds as per norms.

2. Secondary data was collected for following period:

- a. Financial year 2011-12 (from PHC before initiation of NMMU facility). Data to include total number of patients and total financial grants received and spent in this financial year.
- b. Financial year 2012-13 (Since initiation of NMMU facility data from same PHC and selected NMMU). Data to include total number of patients and total financial grants received and spent in this financial year.
- i. Based on above data following was analysed:
 - 1. Total number of patients that visited the PHC in the year 2011-2012 vis-à-vis in the year 2012-2013 will provide insights into whether since the launch of NMMU in 2012 patients have started accessing the NMMU or there has been no change in PHC load.
 - 2. Other analysis will include arriving at unit cost spent per patient by health system at PHC vis-à-vis NMMU. This will be done considering total financial allocation

to the PHC/ NMMU to the number of patients to which services were provided by the respective health facility.

- ii. Secondary data included number of patients, gender and diagnosis of the patients, services given like laboratory test and counselling, and treatment of beneficiaries from NMMUs under study as per Table 1. Also, costs of private services providers for specific laboratory tests, and treatment were collected as per Table 2.
- iii. Based on above data following was analyzed:
 1. Grouping of diagnosis was done to understand utilization of NMMU is done maximum for what cause.
 2. Similarly costs collected from Private providers was attributed to services availed by patients at NMMU which he/she would actually have to pay if visited the private health facility.
 3. The above was done on sample basis. 25% of total patients of financial year 2012-2013 will be considered for study.

Also, secondary data included:

1. Capital cost of NMMU
2. Recurring cost of NMMU
3. Number of patients provided services over last 1 year
4. Depreciation of the NMMU
5. Cost for state monitoring unit.

In addition, PIP of selected blocks of the above mentioned period was also studied particularly to understand increase in utilization of services since the initiation NMMU facility.

3.2 Research Instruments:

Following research instruments were prepared, pre-tested and administered:

1. Checklist to assess the NMMU
2. FGD guides
3. In-depth interview guides

Additionally, Templates (attached as annexure) were used to collect secondary data.

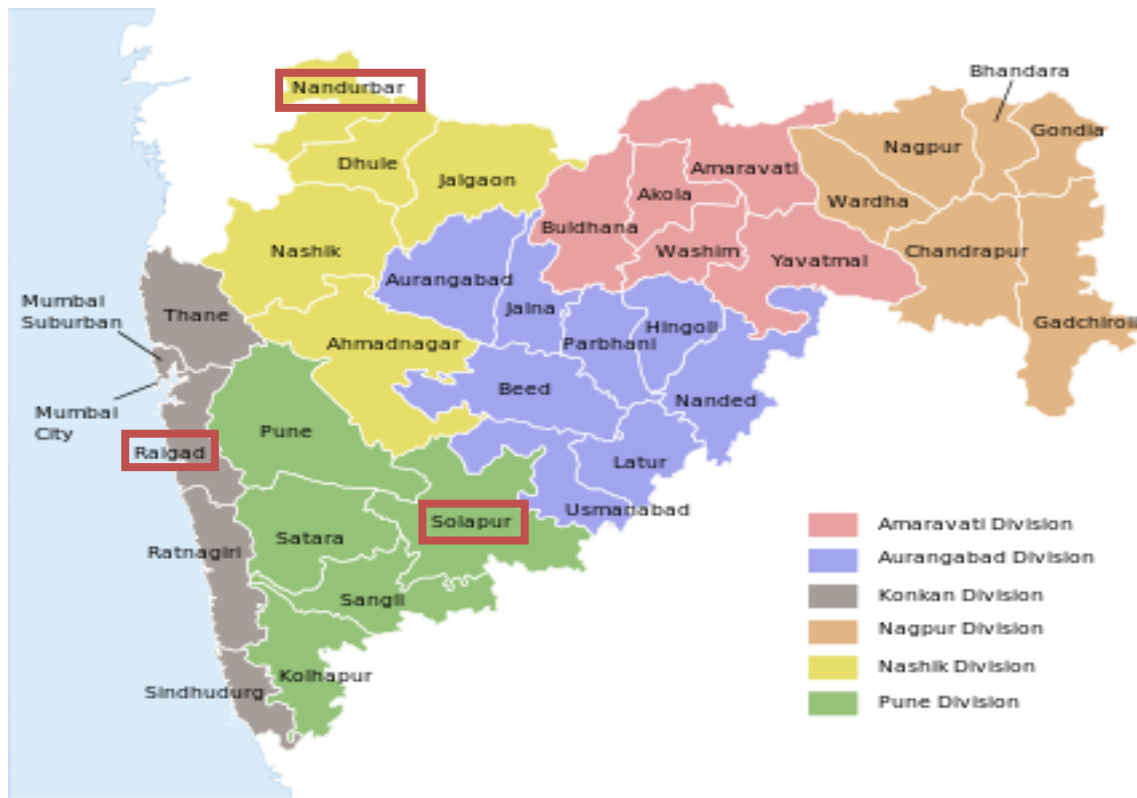
3.3 Data Management and Analysis

After, resolving the discrepancies and queries (data cleaning), the data was secured for analysis. Data analysis, tabulation of descriptive statistics was performed using MS Excel.

3.4 Study area:

Out of total 40 NMMUs; 03 units were randomly selected. 01 unit each was selected from following 3 categories using **randomizer**.

4. One unit from tribal district
5. One unit from non-tribal district
6. One unit from RKS run NMMU



4. Current Status of NMMUs selected under study:

Table 3: NMMU Operators:

Site	NMMU operated by
Solapur	NGO
Nandurbar	NGO
Raigad	RKS

Three NMMUs were visited to study. The NMMU at Solapur & Nandurbar were operated by an NGO, while NMMU at Raigad is being operated by RKS.

Table 4: Manpower Composition:

HR Personnel	Solapur	Raigad	Nandurbar
Lady Medical Officer	Av	Av	Av
Staff Nurse	Av	Av	Av
Laboratory Technician	Av	Av	Av
Pharmacy Officer	Av	Av	Av
Driver cum support staff (Dispensary Vehicle)	Av	Av	Av
Driver cum support staff (Staff Vehicle)	Av	Av	Av

Av: Available

It was observed that the NMMUs under study were functioning with all the desired staff with desired qualification that has been sanctioned by the government. The Medical Officer (MO) in all the NMMUs were BAMS qualified, while all the Staff Nurses were GNM, laboratory technicians had their qualification as DMLT and all the Pharmacists were diploma holders.

With regards to the salaries of the staff was concerned, it was observed that all the staff except for the MO, were paid the sanctioned amount. When the respective agencies during qualitative interviews were asked about the partial payment towards MO, it was reported that they have been given verbal instructions that they can pay the MOs according to their qualification.

Table 5: Infrastructure at NMMU:

NMMU set up - Infrastructure	Solapur	Raigad	Nandurbar
Four foldable seat for staff	X	X	√
Hooks for intra-venous bottles	√	√	√
Brackets for Oxygen cylinder with adjustable straps	X	√	√
A detachable stretcher	√	X	√
Medicine cabinets	√	√	X
Instrument Cabinet	√	√	√
Automatic folding stretcher	√	√	√
Small Refrigerator / Ice Lined Refrigerator (ILR)	X	√	√
Basin	√	√	X
Water Storage Tank	√	√	√
Generator	√	√	√
Water Pump	√	X	√
Examination Table	√	√	√
Cot -1	√	√	√
Chairs	√	√	√
Storage of drugs, equipments, chemicals etc.	√	√	√
Stool	X	√	√
Waste collecting bins, as per Biomedical waste management specifications	√	√	√
Laboratory Table with Basin	√	√	√
Half foldable bench	X	√	X
TATA Sumo - 1 No.	√	√	√

Table 6: Documents at NMMU:

Documents	Solapur	Raigad	Nandurbar
Medicine Stock Register	√	√	√
Repair & Maintenance Register	√	√	√
Monthly Field Visit Plan (ATP)	√	√	√
Patient Register	√	√	√
Financial Expenditure Register	√	√	√
Patient Referral Register	X	X	√
Monthly Meeting Register	√	X	X
Vehicle Movement Register	X	X	X
Equipment Maintenance Register	X	X	X

Table 7: Medical Equipment at NMMU

Equipment	Solapur	Raigad	Nandurbar
Microscope with Light Source	√	X	√
Dressing Drum (11*9)	√	X	√
Weighing Machines (Adults)	√	√	√
Weighing Machines (Baby)	√	√	√
Stethoscope	√	√	√
BP Apparatus	√	√	√
Haemoglobinometer	X	√	√
Centrifuge Machine (Mini)	√	√	√
Ambu bag Adult	√	√	X
Ambu bag Pediatric	√	√	√
Laryngo Scope Adult	√	√	X
Laryngo Scope Pediatric	X	√	X
Suction Apparatus with Accessories	X	√	X
Torch & Spot Light	√	√	√

Needle Cutter	√	√	X
Sterilizer 38 cm	√	√	√
Laboratory Table	√	√	√
Glucometer	√	√	√

Table 8: Drugs and Consumables:

Drugs	Solapur	Raigad	Nandurbar
Inj. Atropine Sulphate 0.6 mg	√	√	X
Inj. Calcium Gluconate 10%	√	√	X
Inj. Theophyllin 50.6mg + Etophyllin 169.4mg	X	X	√
Inj. Dexamethasone	√	√	√
Inj. Frusemide 40 mg	√	√	√
Inj. Oxytocin	√	X	X
Inj. Sodab carbonate 7.5 mg	√	√	X
Inj. Chlorpheniramine Maleate	√	X	X
Inj. Adrenaline 1 mg	√	√	√
Inj. Lignocaine	√	√	√
Inj. Dopamine	√	X	X
Inj. Diazepam	√	X	X
Inj. Vit.K 10 mg/ml (Menadion bisulphate)	√	X	X
Inj Anti Snake Venum serum	√	X	X
Tab. Amlodipin 5 mg	√	√	√
Tab. Roxithromycin 150 mg	√	√	√
Tab Erythromycin 050 mg	√	√	√
Tab. Ciprofloxacin 050 mg	√	√	√
Tab. Norfloxacin 400 mg	√	√	√
Tab. Cotrimazole SS	X	√	√

Drugs	Solapur	Raigad	Nandurbar
Cap. Ampicillin 050 mg	√	√	X
Cap. Amoxycillin 050 mg	√	√	√
Cap. Doxycyclin 100 mg	√	√	X
Syp.Amoxycillin 050 mg	√	√	√
Syp. Ampicilin	X	X	X
Sy. Cotrimazole (septran)	X	X	√
Sy. Furazolidine 60 ml	X	X	√
Tab. Furazolidine 100 mg	X	√	X
Tab. Metronidazole 000 mg	√	√	√
Tab. Grisofulvin 105 mg	√	√	√
Tab. Multivitamin	√	√	√
Tab. Folic Acid	√	√	√
Tab/Cap. Iron Folic Acid (S R)	X	√	√
Tab. Vitamin B Complex	√	√	√
Tab. Calcium carbonate	√	√	√
Tab. Etophylline& Theophylline S R	X	X	√
Sy. Albendazole 10 ml	√	√	√
Tab. Albendazole 400 mg	√	√	√
Sy. Paracetamol 60 ml	√	√	√
Tab.Paracetamol 500 mg	√	√	√
Cough Syrup	√	√	√
Tab. Cetirizine 10mg	√	√	√
Tab. Dicyclomine 00mg+ Paracetamol 500mg	X	√	√
InjDicyclomine	√	X	√
Tab.Diclofenac sodium 50 mg	√	√	√
Inj. Diclofenac sodium	√	√	√

Drugs	Solapur	Raigad	Nandurbar
Tab. Ranitidine 150 mg	√	X	√
Cap.Omperazole 00 mg	√	√	√
Inj. Ondansterone 0mg/ml	X	X	X
O R S Powder 07.5 gm W H O Formula	√	√	√
Gama Benzene hexachloride 1% w/w Lotion	√	√	√
Framycetinsulfate BP 15 mg (1.5%)	X	X	√
Povidone-iodine - Ointment	√	X	√
Cream. Micanzole	√	X	X
SukhadOint- (Ayurvedic)	X	X	√
Ciprofloxacin eye drop	√	√	√
Gentamycin eye/ear drop	√	√	√
XylocaineGelly 0 %	X	√	√
Tab. Clotrimazole 100 mg (Vaginal Pessary)	√	√	√
Normal Saline 500 ml	√	√	√
Dextrose 5% 500 ml	√	√	√
I.V. Dextrose in Normal Saline 500 ml	X	√	X
Ringer lactate 500ml	√	√	√
Povidine Iodine solution 500 ml	√	X	√
Denatured spirit	√	√	√

Consumables

Consumables	Solapur	Raigad	Nandurbar
Surgical Gloves	√	√	√
Scalp Vein set	√	√	√
Kidney Tray (Plastic) 10 "	X	√	√
Scalpel Blade	X	√	X
Cotton roll 500 g	√	√	√
Rolled Bandages	√	√	√
Paper Adhesive tape	√	√	X
Elastic crep bandages Non-sterile -10cm	X	√	X
Sterile water for injection	√	√	√
Disposable Syringes 0cc,5cc	√	√	√
IV Set	√	√	√
Disposable Needle- 00G, 04G, 03G	X	√	√
Tourniquet	√	√	√
Collection bulbs-EDTA , PLAIN	√	√	√
Lancet needles	√	√	√
Stains Field A, B	√	√	√
Pregnancy Test Kit	√	√	√
RPR Test Card	X	√	√
Multi Uri sticks	√	√	√
Widal test kit	√	√	√
Slides -Standard	√	√	√
Urine routine- Albumin/Sugar strips	√	√	√

From the qualitative interviews it became evident that there is ambiguity within the NMMU operators with regards to the purchasing of medicines. In the initial phase of implementation of NMMU, they were asked to purchase the medicine stock by following the guidelines issued from the procurement

department of NRHM; later, they were asked them to collect the medicine stock from the district medicine stock.

4.1 Services rendered by NMMU:

As per the guidelines, following are the services to be rendered by the NMMU –

1. Preventive, Curative and Promotive Primary Health Care Services
2. Emergency First Aid care services (Accidents, Snake Bite, Poisoning and Delivery)
3. Referral Services
4. Family Planning Services
5. Antenatal and Postnatal care
6. Immunizations
7. Epidemic outbreak management
8. Counselling in particular HIV/AIDS, Breast Cancer, Cervical Cancer, Hygiene, Contraceptives, Neonatal care, Breast feeding
9. Health Education Activities and Environmental Sanitation

According to the NRHM guidelines each NMMU has to have a three months prior plan of service provision to the villages selected under NMMU. Based on the number of villages the NMMU catered and number of patients treated the extent of service provision by NMMU can be assessed. Tables below describe the same.

Table 9: Coverage of NMMU in a year 2012 -13

District	Number of village visits expected to be done	Number of village visits completed	%
Solapur	480	482	100
Raigad	708	523	74
Nandurbar	432	603	140

From the above table it is seen that the NMMU in Raigad catered to 3/4th of the villages visit while the one in Solapur covered all the villages under their designated area. It was astonishing to find that the NMMU in Nandurbar was catering to more number of villages than is expected to cover. This reflects that NMMU is fulfilling the basic principle in reaching the unreached population.

Following tables give information about the population covered and patients treated.

Table 10:Population covered and patients treated

District	Total population covered	Total patients treated (2012-13)	Total patients treated (2013-14)
Solapur	81246	43082	51153
Raigad	40359	17172	27338
Nandurbar	41964	1952	21429

The above two tables clearly justify the need of such a service.

It was also evident from various qualitative interviews of stakeholders like DHO, DPM, M&E Officer, MO etc. that NMMU is providing curative, first aid, antenatal & postnatal services, family planning services and even contributing in epidemic outbreaks. However; national health programs, preventive & promotive health education & counseling services could not be provided due to unavailability of IEC material with the NMMU and training of the NMMU staff in preventive and promotive care.

However, all the stakeholders reported that the scheme is very beneficial for the community as it is **‘reaching the unreached’**. Further are few verbatim supporting the same-

‘The primary focus of NMMU being delivery of MCH services, it is proving beneficial for the community as well as for us as it is helping us in reaching the unreached pregnant & delivered mothers and children thus improving our statistics under the MCTS.’ –DHOs

‘Health System is benefitting from the NMMU service. Recently there was a woman who had come for delivery from the area where NMMU is functioning. Usually, this woman would not have any blood report with her, but when NMMU had visited her village she got the diagnostic tests done and had her report in her hand. This made the work of facility staff easy.’

– THO Solapur

4.2 Reporting by NMMU:

It was observed that all the NMMUs regularly update the district officials by submitting their monthly reports in the prescribed format about the activities undertaken by NMMU.

DHO, DPMs & DAMs reported that –

‘NMMU reported on a monthly basis about their progress. They submit the physical & financial report both on a monthly basis & as cumulative too.’

Also, monthly meetings are held between the NMMU operator and the district officials as evident by

‘Yes. DHO, MO-RCH, DPM, DAM, M&E all are present for the meeting. THO is not involved in the meeting.’ – DHO, DPM, DAM & M&E Officer

4.3 Monitoring of NMMU:

Monitoring of NMMU is done on the basis of following parameters –

- Monthly reporting by NMMU
- Monthly meeting between district officials & NMMU operators
- Visit to NMMU by district officials
- Surprise visit by district officials
- Cross-check the visit of NMMU by block officials, local MO PHC, community leaders and community
- Audit of NMMU

4.4 Evaluation of services reaching the target population in remote areas:

When community was asked about the services reaching their population, they revealed -

‘NMMU is coming to our village from the past 2 years. We are very happy by this.’

Following are the steps taken by the district in functioning of NMMU –

- Remotest block of the district is selected based on the distance from district headquarters and availability of services and transport facility in that block.
- Villages in the block are selected which would fall on a specific route.
- Route map is finalized by the NMMU operator and is shared with the district officials.
- According to the submitted plan, NMMU visits the villages to cater the services and convey the community about the schedule of the next visit.

When costs incurred and ease of access to services at NMMU as compared to SC/PHC was enquired, following was noted –

‘There is no doctor in our village. Earlier a doctor used to visit the village and treat people but people did not benefit from him. Later we came to know that he was a quack and then he ran away. Now for treatment we have to go to Kem PHC or go to Karmala. Kem PHC is 5 km from our village and Karmala is 18-20 km. Private doctors are also available at both these places. There is no transport facility here in our village. Only one bus comes in a day and if you miss that then you have to opt for private vehicle as there is no choice. Private vehicles charge a minimum of Rs. 500/- and depends upon the distance. Doctors charge around 100 – 200 rupees for an OPD.’

– Villagers during FGD in Solapur district

‘I received all the treatment for free otherwise I would have spent not less than Rs. 200/- for my injury if I had gone to the block place.’

– A man at NMMU with injury on his right hand

The NMMU was reaching the target population; however, difficulties were reported from the field as well as from the officials about the functioning of NMMUs. It was reported that for smooth functioning of the NMMU, an additional male doctor be provided to NMMU especially for emergency services. It was also reported by the district officials that there were few more areas in their respective districts which are far away from the block place and are in need of NMMU service. This also indicates the satisfaction levels of the district officials.

It was seen that even the drivers are contributing their share in smooth functioning of the NMMU by registering the patients. When community was asked about their satisfaction with services offered by the NMMU, it was observed that they were satisfied, but to a limit –

‘Yes we all feel satisfied with NMMU but to a limit, as it visits once in a month or so; so we do not have anything on the other days. But we are happy that at least we have something.’

– Villagers during FGD at Nandurbar, Raigad & Solapur

5. Cost-Benefit Analysis of NMMU services:

Cost-Benefit analysis of any particular facility or service is manifold. It has to be looked into from both the sides – i.e. the service providers' side as well as the beneficiary's side. Further, it has to be compared with other similar service providers. One more point which is availability of these services to the community, i.e. frequency of such services. Though this is categorised as 'Access' issue, it has direct bearing on cost per patient for both the sides – provider and beneficiary.

Here in case of NMMU, service provider is government and beneficiary is the community / patients. While doing the cost benefit analysis, information on cost to government for providing services through NMMU was collected.

Other similar service providers are government through PHC and private health care providers available in the vicinity. Here sub-centre is not taken into account as there is no doctor (MO). PHC is manned with at least one MO and is at par with NMMU. Therefore cost to government for providing services to the community through PHC was calculated as well. The private sector is for profit making so it was not relevant to calculate their cost burden.

From the beneficiary side, cost to patient was calculated for the above 3 types of providers, NMMU, PHC and Private practitioner.

A. Cost to Government through NMMU:

For functioning of NMMU, two types of costs are involved – Capital cost and recurring costs. Details of these are listed below:

1. Capital Cost
 - a. Vehicle / Van for Staff
 - b. Mobile unit Vehicle
 - c. Equipment
 - i. Generator
 - ii. Microscope
 - iii. Auto-analyzer
2. Recurring Cost
 - a. Salaries of staff
 - b. Medicines
 - c. Laboratory consumables
 - d. POL
 - e. Contingencies
3. Expenditure at State NMMU Cell
4. Salary of NMMU Program consultant and other staff, Office expenditure

The capital cost was taken from the NRHM guidelines, which is fixed and is Rs. 2525000 per NMMU whereas recurring costs were collected from each of the NMMU. This varies depending on the number of villages, visits, load of patients, doctor's qualification and other expenses by NMMU.

While calculating the cost per patient for these already started NMMU, interest on Capital cost is calculated with the premise that, government would have earned that amount as interest on the capital amount. The interest rate is taken as 12%; which is lowest rate currently available in the open market.

B. Cost to Government through PHC:

Here too, the capital cost for establishment of a PHC and recurring costs for functioning of PHC are considered. Details of these are listed below:

1. Capital Cost
 - a. Construction
 - b. Equipment
 - c. Ambulance
 - d. Vehicle
 - e. Assets (Any Other)
2. Recurring Cost
 - a. Salaries of staff
 - b. Medicines
 - c. Laboratory consumables
 - d. POL

Similar logic is applied while calculating the costs to government for providing services through PHC to a patient.

C. Cost to Beneficiary:

This is very crucial as NRHM aims to increase the access to the rural populations at affordable costs. It is important to look into the cost burden to a patient at all the three sources available.

Best model will be the one where both the provider and beneficiary are having least cost burden, which will be a win-win situation.

In the following sections, costs to government (NMMU and PHC) are calculated for each of the three NMMUs places and its frequency is discussed.

The comparison of NMMU with PHC is made for the reasons that, both address mainly the primary care. For higher level of care patients are supposed to be referred to next level of health facility.

The services offered and availability of doctor to treat were the main drivers to compare these two.

Continuity of care will be possible if the NMMU visits per week/ more frequently as compared to the current plan of monthly visit.

The issue of attendee will also be addressed to some extent if vehicle visits weekly.

One more point about attendee – usually these attendees are elderly people from the village and are with complaints (which are not life threatening); for which they might not visit PHC but need to be treated... like joints pain, eye-sight problems etc.

I. Solapur NMMU:

This NMMU has been started since April 2012. The data is available for two years, 2012-13 and 2013-14. This allowed to compare and to observe trend.

This NMMU covers 42 villages with 81246 population from 5 PHCs. These villages are at a distance of 5 km to 45 km from their respective PHCs.

Services availed by community for following ailments at Solapur NMMU in the first year were:

1. Dehydration / Diarrhoea / Gastroenteritis
2. Ear Diseases
3. Eye Diseases
4. Fever
5. Respiratory Diseases
6. Skin infections
7. Urinary Tract Infections
8. Other Diseases
9. P/V bleeding
10. Leucorrhoea
11. Swelling in Breast
12. ANC Cases
13. PNC Cases
14. Snake bite/ Cat bite
15. Scorpion bite / Unknown bite
16. No. of patients referred to higher level institutes
17. No. of High Risk Pregnancies

18. Condom
19. Oral Pills
20. IUD
21. Tubectomy / Laparoscopy – Referred to nearby PHC / RH
22. NSV – Referred to nearby PHC / RH
23. Haemoglobin
24. Rapid test for pregnancy
25. VDRL
26. Routine urine tests
27. Sputum for TB
28. PS for Malaria / Rapid Test for Malaria
29. Rapid test for syphilis / VDRL (For Non-ANC)
30. Rapid test for Typhoid
31. Random Blood Sugar
32. HIV
33. Blood Group

In the second year, it got expanded to –

1. Anaemia
2. Arthritis
3. Hypertension
4. Ischemic Heart Diseases
5. Migraine
6. Paralysis / Stroke
7. Malnourished Child
8. Worm Infestation
9. Leprosy
10. Cataract
11. Diabetes
12. Cancer
13. Poisoning
14. Other emergencies
15. No. of attended Deliveries
16. Delivery patients referred to PHC/RH/ SHD/ DH
17. Sickle Cell Solubility Test

The NMMU visits one village once a month and therefore annually there are at the most 12 visits in one village annually. This NMMU caters to 42 villages from Karmala taluka; each village once per month. Thus, the NMMU has made aggregate 504 visits (42 villages X 12 visits). The footfall in the year 2012-13 was 43082 and was 51153 in 2013-14. The footfall¹ is increased in the 2nd year. The average footfall per NMMU visit per village is thus 85 and 101 in the years 2012-13 and 2013-14 respectively.

Similar figures of footfalls were obtained for one PHC in this area. This PHC caters to 41775 population. As PHC OPD is accessible almost daily except government holidays in a week, the number of days available to the community is 260 (52 weeks X 5 working days on an average) in a year.

The footfall in the PHC OPD was 7143 and 6414 in the years 2012-13 and 2013-14 respectively. This gives an average per day of 27 and 25 patients respectively.

The cost calculations are done as explained in the earlier section. All the above information is presented in the following table at a glance.

Table 11: Solapur NMMU and PHC Utilisation

	NMMU		PHC	
Population	81246		41775	
<i>Estimated OPD Consultations in a year considering the rate of 39.1 percent of population**</i>	31767		16334	
	2012 – 13	2013 – 14	2012 – 13	2013 – 14
Total Footfalls For All Services	43082	51153	7143	6414
Cumulative Visits / Days Available In a Year	504	504	260	260
Number Of Footfalls Per Visit	85	101	27	25
Recurring Cost	1879250	1879250	5087246	6405608
Capital Cost	2525000		4036950	
Cost incurred at state Program Management Unit	16500		-	
Interest On Capital Cost (Annual)	303000	303000	484434	484434
Total Cost (Interest On Capital + Recurring)	2198750	2198750	5571680	6890042
Per Patient Cost	51	43	780	1074

¹ Footfall: number of visits of patients to the NMMU / PHC for seeking health care

***** One paper has given a figure of OPD consultations as 39.1 percent of the population in a year. (Ref: A study on morbidity pattern in rural community of eastern Uttar Pradesh; S. Kansal).***

Similar studies for other states are not available.

NSSO 60th round gives the figure of non-hospitalisation treatment as 93 per 1000 for rural Maharashtra. This is the ailment reported for 15 days prior to the NSSO survey. Therefore, this cannot be converted to annual figure as it is not directly proportional.

Similarly average OPD statistics for PHCs would have been more realistic; but is not available in public domain which would have been used for comparison.

The table shows that, NMMU is grossly over-utilised and PHC is underutilized compared to the estimated figure of OPD consultations; though the variation in access is taken into account.

Point here has to be noted that, the PHC is available everyday of a month and NMMU is only once a month. Still this kind of response is observed.

It is very encouraging and motivating to see that cost per-patient to govt is Rs. 51 in 2012-13; and Rs. 43 in 2013-14 at NMMU. These figures are Rs. 780 and Rs. 1074 respectively for PHC.

This clearly shows that per-patient cost at PHC is very high compared to per-patient cost at NMMU. Furthermore, the per-patient cost at PHC is likely to get increased every year as the staff salaries are increased ever year and the population 'catered to' is not going to increase in that proportion resulting almost equal foot fall every year.

II. Raigad NMMU:

This NMMU has been started since July 2012. The data is available for two years, 2012-13 (9 months) and 2013-14. This allowed to compare and to observe trend.

This NMMU covers 60 villages with 40359 population from 4 PHCs. These villages are at a distance of 4 km to 21 km from their respective PHCs.

Services availed by community for following ailments at Raigad NMMU in the first year were:

1. Anaemia
2. Arthritis
3. Dehydration / Diarrhoea / Gastroenteritis
4. Ear Diseases
5. Epilepsy
6. Eye Diseases
7. Fever
8. Hypertension

9. Ischemic Heart Diseases
10. Liver Diseases (Hepatobiliary)
11. Migraine
12. Paralysis / Stroke
13. Respiratory Diseases
14. Skin infections
15. Urinary Tract Infections
16. Malnourished Child
17. Worm Infestation
18. Leprosy
19. Diabetes
20. Other Diseases
21. P/V bleeding
22. Leucorrhoea
23. Swelling in Breast
24. ANC Cases
25. PNC Cases
26. No. of patients referred to higher level institutes
27. INJ TT ANC – 1st dose
28. INJ TT ANC – 2nd dose
29. INJ TT ANC – Booster Dose
30. Delivery patients referred to PHC/RH/ SHD/ DH
31. Condom
32. Oral Pills
33. Haemoglobin
34. Rapid test for pregnancy
35. VDRL
36. Routine urine tests
37. Bleeding/Clotting time
38. Sputum for TB
39. PS for Malaria / Rapid Test for Malaria
40. Rapid test for Typhoid
41. Random Blood Sugar
42. Blood Group

In the second year, it got expanded to few more –

1. Malaria
2. Scorpion bite / Unknown bite
3. No. of High Risk Pregnancies
4. Tubectomy / Laparoscopy – Referred to nearby PHC / RH

The NMMU visits one village once a month and therefore annually there are at the most 12 visits in one village annually. This NMMU caters to 60 villages from Karjat taluka of the district, once a month each village. Thus, the NMMU has made aggregate 540 visits (60 villages X 9 visits) in the first year and 720 visits (60 villages X 12 visits) in the consecutive year. The footfall in the year 2012-13 was 17172 and was 27338 in 2013-14. The footfall is increased in the 2nd year. The average footfall per NMMU visit per village is thus 32 and 38 in the years 2012-13 and 2013-14 respectively.

Similar figures of footfalls were obtained for one PHC in this area. This PHC caters to 15183 population. As PHC OPD is accessible almost daily except government holidays in a week, the number of days available to the community is 260 (52 weeks X 5 working days on an average) in a year.

The footfall in the PHC OPD was 1140 and 10241 in the years 2012-13 and 2013-14 respectively. This gives an average per day of 44 and 39 patients.

The cost calculations are done as explained in the earlier section. All the above information is presented in the following table at a glance.

Table 12: Raigad NMMU and PHC Utilisation

	NMMU		PHC	
Population covered	40359		15183	
<i>Estimated OPD Consultations in a year considering the rate of 39.1 percent of population**</i>	15780		5785	
	2012 – 13	2013 – 14	2012 – 13	2013 – 14
Total Footfalls For All Services	17172	27338	11402	10241
Cumulative Visits / Days Available In a Year	540	720	260	260
Number Of Footfalls Per Visit	32	38	44	39
Recurring Cost	1527000	1673198	6603449	7139512
Capital Cost	2525000		1685000	

Cost at State Level Program Management Unit	16500		-	
Interest On Capital Cost (Annual)	303000	303000	202200	202200
Total Cost (Interest On Capital + Recurring)	1846500	1992698	6805649	7341712
Per Patient Cost	108	73	597	717

**** One paper has given a figure of OPD consultations as 39.1 percent of the population in a year. (Ref: A study on morbidity pattern in rural community of eastern Uttar Pradesh; S. Kansal).**

The table shows that, NMMU and PHC are over-utilised compared to the estimated figure of OPD consultations; though the variation in access is taken into account.

The cost per-patient to govt is Rs. 108; Rs. 73 in 2012-13 and 2013-14 respectively at NMMU. These figures are Rs. 597 and Rs. 717 respectively for PHC.

This district also shows a similar picture, that per-patient cost at PHC is very high compared to per-patient cost at NMMU.

III. Nandurbar (Dhadgaon) NMMU:

This NMMU has been started since January 2013. The data is available for two years, 2012-13 (3 months) and 2013-14. This allowed to compare and to observe trend.

This NMMU covers 50 villages with 41964 population from 12 PHCs. These villages are at a distance of 5 km to 28 km from their respective PHCs.

Services availed by community for following ailments at Nandurbar NMMU in the first year were:

1. Dehydration / Diarrhoea / Gastroenteritis
2. Ear Diseases
3. Eye Diseases
4. Fever
5. Respiratory Diseases
6. Sickle Cell Diseases
7. Skin infections
8. Urinary Tract Infections
9. Malnourished Child
10. Other Diseases
11. Leucorrhoea
12. ANC Cases
13. PNC Cases
14. No. of patients referred to higher level institutes

15. Haemoglobin
16. Rapid test for pregnancy
17. Routine urine tests
18. PS for Malaria / Rapid Test for Malaria
19. Rapid test for Typhoid

In the second year, it got expanded to few more –

1. Anaemia
2. Arthritis
3. Hypertension
4. Ischemic Heart Diseases
5. Liver Diseases (Hepatobiliary)
6. Migraine
7. Paralysis / Stroke
8. Worm Infestation
9. Leprosy
10. Cataract
11. Tuberculosis
12. Goitre, Hypothyroidism
13. Diabetes
14. Malaria
15. P/V bleeding
16. Swelling in Breast
17. Scorpion bite / Unknown bite
18. INJ TT ANC – 1st dose
19. INJ TT ANC – 2nd dose
20. INJ TT ANC – Booster Dose
21. No. of High Risk Pregnancies
22. Delivery patients referred to PHC/RH/ SHD/ DH
23. Oral Pills
24. Tubectomy / Laparoscopy – Referred to nearby PHC / RH
25. CBC
26. VDRL
27. Sputum for TB
28. Rapid test for syphilis / VDRL (For Non-ANC)
29. Sickle Cell Solubility Test

30. Random Blood Sugar

The NMMU visits one village once a month and therefore annually there are at the most 12 visits in one village annually. This NMMU caters to 50 villages from Dhadgaon taluka of the district, once a month each village. Thus, the NMMU has made aggregate 150 visits (50 villages X 3 visits) in the first year and 600 visits (60 villages X 12 visits) in the consecutive year. The footfall in the year 2012-13 was 1952 and was 21429 in 2013-14. The footfall is increased in the 2nd year. The average footfall per NMMU visit per village is thus 13 and 36 in the years 2012-13 (3 months) and 2013-14 respectively.

Similar figures of footfalls were obtained for one PHC in this area. This PHC caters to 14970 population. As PHC OPD is accessible almost daily except government holidays in a week, the number of days available to the community is 260 (52 weeks X 5 working days on an average) in a year. The footfall in the PHC OPD was 15314 and 13004 in the years 2012-13 and 2013-14 respectively. This gives an average per day of 59 and 50 patients respectively.

The cost calculations are done as explained in the earlier section. All the above information is presented in the following table at a glance.

Table 13: Nandurbar NMMU and PHC Utilisation

	NMMU		PHC	
Population covered	41964		14970	
<i>Estimated OPD Consultations in a year considering the rate of 39.1 percent of population**</i>	16408		5853	
	2012 – 13	2013 – 14	2012 – 13	2013 – 14
Total Footfalls For All Services	1952	21429	15314	13004
Cumulative Visits / Days Available In a Year	150	600	260	260
Number Of Footfalls Per Visit	13	36	59	50
Recurring Cost	431036	1199817	4532006	5129295
Capital Cost	2525000		1655000	
Cost at State Level Program Management Unit	16500		-	
Interest On Capital Cost (Annual)	303000	303000	198600	198600
Total Cost (Interest On Capital + Recurring)	750536	1519317	4730606	5327895
Per Patient Cost	385	71	296	394

**** One paper has given a figure of OPD consultations as 39.1 percent of the population in a year. (Ref: A study on morbidity pattern in rural community of eastern Uttar Pradesh; S. Kansal).**

The table shows that, NMMU and PHC are over-utilised compared to the estimated figure of OPD consultations; though the variation in access is taken into account.

The cost per-patient to govt is Rs. 385; Rs. 71 in 2012-13 and 2013-14 respectively at NMMU. These figures are Rs. 296 and Rs. 394 respectively for PHC. Figure for the year 2012-13 is high as the NMMU then functioned only for 3 months in that financial year.

Thus, district also shows a similar picture, that per-patient cost at PHC is very high compared to per-patient cost at NMMU.

Table 14: Summary Table of average footfall per visit / day at NMMU and PHC:

	NMMU				PHC			
	2012 – 13		2013 – 14		2012 – 13		2013 – 14	
Solapur	85		101		27		25	
Raigad	32		38		44		39	
Nandurbar	13		36		59		50	

Table 15: Summary Table of Cost to Government at NMMU and PHC:

	NMMU				PHC			
	2012 – 13		2013 – 14		2012 – 13		2013 – 14	
Solapur	51		43		780		1074	
Raigad	108		73		597		717	
Nandurbar	385		71		296		394	

The above two tables clearly demonstrates the inverse association between the average footfalls and per patient cost to government; i.e. as the footfalls are high, per patient cost is less. This is basic economics as the cost and overheads also get distributed with increased utilisation.

Therefore strategies could be adopted to increase footfalls. One way of doing it is increasing the frequency of visits.

Cost to patient – comparison at NMMU, PHC and Private Practitioner

- At NMMU, the cost to patient is nil as patient does not have to pay for any services and does not have to spend on travel. Further this might reduce their wage loss resulting in more income to the families. Thus cost to patient is Rs. 0 at NMMU.
- At PHC, patient has to spend on transport and sometimes on medicine as medicines are not available in most of the PHCs. On an average patient spends Rs. 50/- for a distance of 5 km to Rs. 200 for a distance of more than 20 km.
Further, as PHCs are at distant places, time involved is more for the patient to reach to the PHC which results into wage loss of the patient and the attendant. As per minimum wage act, the wage per day is Rs. 300 to Rs. 350 depending on the category of the work.
Thus, cost to patient in accessing services from PHC ranges from Rs. 350 to Rs. 550 per visit.
- If the patient goes to a private practitioner, the spending includes the consultation fees, medicine which ranges from Rs. 100 to 300 per episode.

Thus, for patient it is no doubt most economical (free) to avail services at NMMU.

Benefit Cost Ratio:

The benefit-cost ratio (BCR) is calculated as the NPV of benefits divided by the NPV of costs –

$$BCR = \frac{\sum_{t=1}^r \frac{B_t}{(1+r)^t}}{\sum_{t=1}^r \frac{C_t}{(1+r)^t}}$$

Where, $\sum$ stands for summation.

In the numerator, there is a summation of notional present value of benefits.

Benefit value is considered equivalent to the total value of patient accesses services at private health practitioner or at PHC.

It is assumed that, if patient goes to PHC, he has to spend on transport cost. Average distance of PHC from village is 10 km. A cost of Rs. 30 (to & fro) is considered as average. In addition, if patient goes to PHC, he/she has to loose wages.

If patient goes to private health provider, he/she will spend on consultancy fee & medicines. This cost is taken on average as Rs. 150

In the denominator, there is a summation of notional present value of cost

Costs are taken from the data available and used in sections above – annual recurring cost for functioning of NMMU and interest on capital cost for a year

The calculations are done for each of the NMMU and overall for all 3 NMMUs under study.

All annual data is available for 2013-14, so this exercise is done only for that year not for the earlier year.

Table 16: Notional Present Value for Benefits (Numerator)

Name	Annual Footfalls in NMMU	Average cost to Patient for PHC			Average cost to Patient for PVT
		transport @ Rs. 30	wage loss @ 300 for visit day	total	Consultancy + Medicine Charges @ 150
Raigad	27338	820140	8201400	9021540	4100700
Solapur	51153	1534590	15345900	16880490	7672950
Nandurbar	21429	642870	6428700	7071570	3214350
Total	99920	2997600	29976000	32973600	14988000

Table 17: Notional Present Value for Costs (Denominator)

Name	Annual Footfalls in NMMU	Average cost to NMMU
Raigad	27338	1992698
Solapur	51153	2198750
Nandurbar	21429	1519317
Total	99920	5710765

Table 18: Benefit to Cost Ratio

Name	Ratio with PHC	Ratio with Pvt
2013-14		
Raigad	4.5	2.1
Solapur	7.7	3.5
Nandurbar	4.7	2.1
Total	5.8	2.6

Thus, it could be seen that overall and for each NMMU the ratio is quite high which indicates the cost beneficial-ness of NMMU.

6. Comments & Recommendations:

- ✓ The diagnostic facilities available are blood and routine urine examination. Other radiology investigations like x-ray, USG & ECG are not available on this unit. (As per guidelines these are to be provided in NE states and J&K; NOT suggested for other states).
- ✓ There are no structural variations as per guideline. The infrastructure is same. Questions were asked to find out whether they are well maintained and functioning. Variations observed are shown as gaps on page 17, table 7, 8 in the following pages.
- ✓ The record keeping (registers) system is not uniform (table 6 – page 18) everywhere as no formats/ templates are shared with them by state. If state provides formats, uniformity will be maintained and data will be available for analysis which will further help improve the services.
- ✓ Training of national health programs and preventive and promotive services should be given to NMMU staff (Implementing Officer).
- ✓ IEC to community on pre-decided topics is one of the functions of NMMU, but hardly, it is done as evident from the average stay which is mostly for treatment and counselling of patients. Actually it is envisaged that, in the evening team should stay in the village and conduct IEC to the villagers when they come from field. Actually it is not happening, this has been observed while collecting data. Hence, one of the recommendations is that NMMU has to give emphasis on IEC and require IEC material related to various national health programs to be provided to NMMU.
- ✓ Banners displaying information about NMMU visit to be placed in each and every village.
- ✓ Orders should be issued to NMMU operators to maintain registers of equipments, drugs, maintenance of vehicles, referral cases, etc with vehicle.
- ✓ Audit of NMMU to be done on regular basis the report of which to be submitted to the State Health Unit, DPM / DAM of particular district.
- ✓ NMMU services should be extended in selected districts is where number of unserved villages is in need of such services.
- ✓ Guidelines about the salary of BAMS Lady Medical Officer should be given to the NMMU operators.

- ✓ To understand about the status and functioning of NMMUs, another study with geographic representation of the each division of Maharashtra state should be undertaken.
- ✓ The villages covered by NMMU are spread from the distance of 4 km onwards, from their respective PHCs. The selection of villages therefore has to be relooked into.
- ✓ Some criteria, not only distance have to be set for the selection of villages. For this a brainstorming session with experts could be arranged at district place.
- ✓ Un-served or underserved areas in the district should be mapped and documented by the district officials to plan or get additional NMMU sanctioned accordingly.
- ✓ Un-served or underserved areas should be defined for the NMMU to be operated.
- ✓ A prior survey to find out need – “Needs Assessment” could be conducted before starting any new NMMU.
- ✓ The NMMU visits a village only once a month. The visits to a village could be increased so that footfall is increased resulting into reduced per-patient cost.
- ✓ Therefore, it is recommended to have more NMMUs giving services to villages more frequently. This will build trust in the community and the access is increased.
- ✓ For establishment of new PHC, the current capital cost is above Rs. 70 lakh and equal amount of recurring cost per year is required. Whereas, the NMMU capital cost is around Rs. 25 to 27 lakh and recurring costs of around Rs. 15 to 16 lakh. Thus, government should start more NMMUs in the inaccessible areas.
- ✓ Underutilisation of PHCs could be because of SCs available in the nearby villages and the good outreach services by ANM in those villages. This data can be gathered / collated and can be used as one of the criteria in establishment of new service infrastructure.
- ✓ In the IPHS guidelines for PHC, there is a mention that, one doctor in a time span of 6 hours in a day should check 40 patients on OPD basis. If this is considered as a norm for PHCs, annual OPD number for all PHCs should be calculated. All underutilised PHCs can be converted to coordinating centres / “Hub” and all the resources could be utilises into multiple services. NMMU services in the area, SC services could be monitored by PHC MO. Staff and vehicle of the PHC can be made mobile through

NMMU services to reach out to remote SCs and villages where SCs are not present. This will increase the outreach from government side and access for the community resulting in low cost burden to both.

- ✓ Considering the paucity of specialist and also failure of various initiatives to have specialists, to use the NMMU platform to have specialists who will cater specialist services primarily diagnostic and elective medical services.

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7. Photographs:



NMMU Vehicle and Banners displayed during village visit



Lady Medical Officer while treating the patient in NMMU.



Diagnostic tests undergoing at NMMU



While discussing with villagers after FGD's at Vadshivani village.

8. Annexure:

IN-DEPTH INTERVIEW GUIDELINES

a. State Unit

- a. Purpose of the Scheme-
 - i. What was the main purpose to initiate such a scheme?
 - ii. Which is the target group covered under this scheme?
 - iii. Since how many years is this scheme operational?
 - iv. Is it across the State or in selected districts?
 - v. Are there any high focus / priority criteria for selection of districts?
- b. Implementation Process
 - i. How is this scheme implemented at gross-root level?
 - ii. How is the selection process of selecting NGOs/ RKS to run the NMMU?
 - iii. What are the clauses for termination of contract?
 - iv. What services are provided at NMMU?
 - v. How do you monitor/ supervise functioning of the NMMUs?
 - vi. How often do you analyze information coming from the NMMUs?
 - vii. Do you validate the information submitted by NMMUs?
 - viii. If yes, how? If not, why?
- c. Fund Disbursement
 - i. How much funds are allocated to each NMMU for functioning?
 - ii. How the funds are disbursed i.e. Fund disbursement against performance or instalments as agreed?
 - iii. If based on performance, then what are the criteria?
 - iv. How do you monitor expenditure by NMMUs?
 - v. How frequently are expenditure statements submitted by NMMUs?
- d. Benefit from scheme
 - i. Has this scheme benefited the target group?
 - ii. Maximum benefit for which illnesses or events?
 - iii. If yes, from which perspective?
 1. Access to health services
 2. Quality services
 3. Financial support
- e. What are the current bottlenecks in execution of this scheme?
- f. Suggestions for improvement

b. District Health Officer:

- a. Purpose of the Scheme-
 - i. What was the main purpose to initiate such a scheme?
 - ii. Which is the target group covered under this scheme?
 - iii. Since how many years is this scheme operational?
 - iv. Is it across the District or in selected places in the District prejudiced?

- v. Are there any high focus / priority criterion for selection of Villages?
- b. Implementation Process
 - i. How is this scheme implemented at gross-root level?
 - ii. What is the selection process of selecting villages or deciding the tour plan of NMMU?
 - iii. How frequently meeting has been scheduled with NMMUs?
 - iv. Is it NGO has considered the suggestion discussed in monthly meeting and implemented or they reject frequently?
 - v. What services are provided at NMMU?
 - vi. How do you monitor/ supervise functioning of the NMMUs?
 - vii. How often do you analyze information coming from the NMMUs?
 - viii. Do you validate the information submitted by NMMUs?
 - ix. If yes, how? If not, why?
- c. Fund Disbursement
 - i. How much money is allocated to NMMU for functioning?
 - ii. How the funds are disbursed i.e. Fund disbursement against performance or installments as agreed?
 - iii. If based on performance, then what are the criteria?
 - iv. How do you monitor expenditure by NMMUs?
 - v. How frequently are expenditure statements submitted by NMMUs?
- d. Benefit from scheme
 - i. Has this scheme benefited the target group?
 - ii. Maximum benefit for which illnesses or events?
 - iii. If yes, from which perspective?
 - 1. Access to health services
 - 2. Quality services
 - 3. Financial support
- e. What are the current bottlenecks in execution of this scheme?
- f. Suggestions for improvement

c. Civil Surgeon:

- a. Purpose of the Scheme-
 - i. What was the main purpose to initiate such a scheme?
 - ii. Which is the target group covered under this scheme?
 - iii. Since how many years is this scheme operational?
 - iv. Is it across the District or in selected places in the District prejudiced?
 - v. Is there any high focus / priority criterion for selection of Villages?
- b. Implementation Process
 - i. How is this scheme implemented at gross-root level?
 - ii. How is the selection process of selecting villages or deciding the tour plan of NMMU?
 - iii. How frequently meeting has been scheduled with NMMUs?

- iv. Is it NGO has considered the suggestion discussed in monthly meeting and implemented or they reject frequently?
- v. What services are provided at NMMU?
- vi. How do you monitor/ supervise functioning of the NMMUs?
- vii. How often do you analyze information coming from the NMMUs?
- viii. Do you validate the information submitted by NMMUs?
- ix. If yes, how? If no, why not?
- c. Fund Disbursement
 - i. How much money is allocated to NMMU for functioning?
 - ii. How the funds are disbursed i.e. Fund disbursement against performance or installments as agreed?
 - iii. If performance based then what are the criteria?
 - iv. How do you monitor expenditure by NMMUs?
 - v. How frequently are expenditure statements submitted by NMMUs?
- d. Benefit from scheme
 - i. Has this scheme benefited the target group?
 - ii. Maximum benefit for which illnesses or events?
 - iii. If yes, from which perspective?
 - 1. Access to health services
 - 2. Quality services
 - 3. Financial support
- e. What are the current bottlenecks in execution of this scheme?
- f. Suggestions for improvement

d. Taluka Health Officer / PHC Medical Officer:

- a. Purpose of the Scheme-
 - i. What was the main purpose to initiate such a scheme?
 - ii. Which is the target group covered under this scheme?
 - iii. Since how many years is this scheme operational?
 - iv. Is it across the District or in selected places in the District prejudiced?
 - v. Is there any high focus / priority criterion for selection of Villages?
- b. Implementation Process
 - i. How is this scheme implemented at gross-root level?
 - ii. How is the selection process of selecting villages or deciding the tour plan of NMMU?
 - iii. What services are provided at NMMU?
 - iv. How do you monitor/ supervise functioning of the NMMUs?
 - v. How often do you analyze information coming from the NMMUs?
 - vi. Do you validate the information submitted by NMMUs?
 - vii. If yes, how? If no, why not?
- c. Fund Disbursement
 - i. How much money is allocated to NMMU for functioning?

- ii. How the funds are disbursed i.e. Fund disbursement against performance or installments as agreed?
 - iii. If performance based then what are the criteria?
 - iv. How do you monitor expenditure by NMMUs?
 - v. How frequently are expenditure statements submitted by NMMUs?
- d. Benefit from scheme
 - i. Has this scheme benefited the target group?
 - ii. Maximum benefit for which illnesses or events?
 - iii. If yes, from which perspective?
 - 1. Access to health services
 - 2. Quality services
 - 3. Financial support
- e. What are the current bottlenecks in execution of this scheme?
- f. Suggestions for improvement

e. District Program Manager / District Accounts Manager / Monitoring & Evaluation Officer:

- a. Purpose of the Scheme-
 - i. What was the main purpose to initiate such a scheme?
 - ii. Which is the target group covered under this scheme?
 - iii. Is it across the District or in selected places in the District prejudiced?
 - iv. Is there any high focus / priority criterion for selection of Villages?
- b. Implementation Process
 - i. How is this scheme implemented at gross-root level?
 - ii. How is the selection process of selecting villages or deciding the tour plan of NMMU?
 - iii. What services are provided at NMMU?
 - iv. How do you monitor/ supervise functioning of the NMMUs?
 - v. How often do you analyze information coming from the NMMUs?
 - vi. Do you validate the information submitted by NMMUs?
 - vii. If yes, how? If no, why not?
- c. Fund Disbursement
 - i. What are the major problems in reporting of NMMUs?
 - ii. How much money is allocated to NMMU for functioning?
 - iii. How the funds are disbursed i.e. Fund disbursement against performance or installments as agreed?
 - iv. If performance based then what are the criteria?
 - v. How do you monitor expenditure by NMMUs?
 - vi. How frequently are expenditure statements submitted by NMMUs?
- d. Benefit from scheme

- i. Has this scheme benefited the target group?
 - ii. Maximum benefit for which illnesses or events?
 - iii. If yes, from which perspective?
 - 1. Access to health services
 - 2. Quality services
 - 3. Financial support
- e. What are the current bottlenecks in execution of this scheme?
- f. Suggestions for improvement

f. NMMU Medical Officer / In charge

- a. Purpose of the Scheme-
 - i. What was the main purpose to initiate such a scheme?
 - ii. Which is the target group covered under this scheme?
 - iii. What are services provided under NMMU?
 - iv. Is it across the District or in selected places in the District prejudiced?
 - v. Is there any high focus / priority criterion for selection of Villages?
- b. Implementation Process
 - i. How is this scheme implemented at gross-root level?
 - ii. How is the selection process of selecting villages or deciding the tour plan of NMMU?
 - iii. What services are provided at NMMU?
 - iv. What is the process of reporting? Whom do you report?
- c. Fund Disbursement
 - i. How much money is allocated to NMMU for functioning?
 - ii. How the funds are disbursed i.e. Fund disbursement against performance or installments as agreed?
 - iii. If performance based then what are the criteria?
 - iv. How do you monitor expenditure?
 - v. How frequently are expenditure statements submitted?
- d. Benefit from scheme
 - i. Has this scheme benefited the target group?
 - ii. Maximum benefit for which illnesses or events?
 - iii. If yes, from which perspective?
 - 1. Access to health services
 - 2. Quality services
 - 3. Financial support
- e. What are the current bottlenecks in execution of this scheme?
- f. Suggestions for improvement

Focus Group Discussion Guide:

1. What are your names & occupation?
2. Since when are you residing in this village?
3. What are the common illnesses that occur in your village?
4. Which are the facilities that you usually use for the treatment of these ailments?
5. How far are those facilities from your village?
6. Mode of transport and frequency and cost to reach those facilities?
7. Since how many years is this NMMU coming to your village?
8. How did you come to know about this NMMU service at the beginning of this service?
(**Probe:** source of information as to Sarpanch, district level health staff, NMMU staff or others and method of information as to banners, loud speaker announcements etc.)
9. How many days does this NMMU service visit your village in a week?
10. Do you think it is sufficient? (**Probe:** If no, what do they suggest)
11. Are you priorily informed about visit of the NMMU to your village? How?
12. What services are provided by the NMMU?
13. Have you or any family member/neighbor ever availed services from NMMU? (**Probe:** If yes, for which ailment?)
14. Were you benefitted from this NMMU?
Probe: Financial aspect – Total expenditure at NMMU
Quality of services – Outcome of the ailment (Whether had to visit any other place to avail treatment for the same ailment after treating from NMMU?**WHY?**)
15. According to you, has NMMU led in increase in positive health seeking behavior? (**Probe:** Give an example like – Earlier you would have neglected a particular health event but now that NMMU is there you treat the health event)
16. Are you satisfied with the NMMU service? **WHY?**
17. Do you think this NMMU service is beneficial? **WHY?**
18. What would you like to suggest for making this scheme better?

Checklist for NMMU:

CHECKLIST FOR NMMU VISIT

SECTION 1:

PROFILE

1.1 **Name of the State:** _____

1.2 **District:** _____

1.3 **Tehsil/ Taluka/Block** _____

1.4 **Location Name of NMMU:** _____

1.5 **Date of Data Collection**

Day

Month

Year

1.6 **Name and Signature of the Person Collecting Data**

SECTION 2:

MANPOWER COMPOSITION

S.No.	Personnel	Qualification	Coding of Qualification	Recommended (Nos)	Existing (Nos)
2.1.	Lady Medical Officer	MBBS= 1 BAMS=2		1	
2.2.	Staff Nurse	GNM=1 B. Sc Nursing =2		1	
2.3.	Laboratory Technician	B.Sc. DMLT= 1 H.S.C. DMLT= 2		1	
2.4	Pharmacy Officer	B. Pharm = 1 D. Pharm= 2		1	
2.5	Driver cum support staff (Dispensary Vehicle)	S.S.C. and Indemnity bond for Accident free driving in last three years		1	

2.6	Driver cum support staff (Staff Vehicle)	S.S.C. and Indemnity bond for Accident free driving in last three years		1	
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SECTION 3: MANPOWER SALARIES

S.No.	Personnel	Salary as per Norm	Actual Salary		
3.1	Lady Medical Officer	27000			
3.2	Staff Nurse	10800			
3.3	Laboratory Technician	8650			
3.4	Pharmacy Officer	8650			
3.5	Driver cum support staff (Dispensary Vehicle)	7050			
3.6	Driver cum support staff (Staff Vehicle)	7050			

4. NMMU SETUP

S. No.		YES=1 NO=2		
4.1	High body bus with following fittings			
4.1.1	Four foldable seat for staff			
4.1.2	Hooks for a intra-venous bottles			
4.1.3	Brackets for Oxygen cylinder with adjustable straps			
4.1.4	A detachable stretcher			
4.1.5	Medicine cabinets			
4.1.6	Instrument Cabinet			
4.1.7	Automatic folding stretcher			
4.1.8	Small Refrigerator / Ice Lined Refrigerator (ILR)			
4.1.9	Basins - 2			
4.1.10	Water Storage Tank			
4.1.11	Generator			
4.1.12	Water Pump			
4.2	Furniture			
4.2.1	Examination Table			
4.2.2	Cot -1			
4.2.3	Chairs			
4.2.4	Storage of drugs, equipments, chemicals etc.			
4.2.5	stool			
4.2.6	Waste collecting bins, as per Biomedical waste management specifications			
4.2.7	Laboratory Table with Basin			
4.2.8	Half foldable bench			

4.3	Supporting Vehicle			
4.3.1	TATA Sumo - 1 No.			
4.4	Documents in NMMU			
4.4.1	Medicine Stock Register			
4.4.2	Repair & Maintenance Register			
4.4.3	Monthly Field visit Plan (ATP)			
4.4.4	Patient Register			
4.4.5	Financial expenditure Register			
4.4.6	Patient Referral Register			
4.4.7	Monthly meeting Register			
4.4.8	Vehicle Movement Register			
4.4.9	Equipment Maintenance Register			
4.5	Equipments			
4.5.1	Microscope with Light Source			
4.5.2	Dressing Drum (11*9)			
4.5.3	Weighing Machines (Adults)			
4.5.4	Weighing Machines (Baby)			
4.5.5	Stethoscope			
4.5.6	BP Apparatus			
4.5.7	Haemoglobinometer			
4.5.8	Haemoglobinometer (Manual)			
4.5.9	Centrifuge Machine (Mini)			
4.5.10	Ambu bag Adult			
4.5.11	Ambu bag Pediatric			
4.5.12	Laryngo Scope Adult			
4.5.13	Laryngo Scope Pediatric			
4.5.14	Suction Apparatus with Accessories			
4.5.15	Torch & Spot Light			
4.5.16	Needle Cutter			
4.5.17	Sterilizer 38 cm			
4.5.18	Laboratory Table			
4.5.19	Glucometer			

5. Drugs

S.No.	Available	YES=1 NO=2	
5.1	Inj. Atropine sulphate 0.6 mg		
5.2	Inj. Calcium Gluconate 10%		
5.3	Inj. Theophyllin 50.6mg + Etophyllin 169.4mg/2 ml		
5.4	Inj. Dexamethasone 2 mg/ml		
5.5	Inj. Frusemide 40 mg		
5.6	Inj. Oxytocin		
5.7	Inj. Sodabarbonate 7.5 mg		
5.8	Inj.ChlopheniramineMaleate (2ml)		
5.9	Inj.Adrenaline 1 mg		
5.10	Inj.Lignocaine 2%		
5.11	Inj.Dopamine 200 mg		
5.12	Inj. Diazepam		
5.13	Inj. Vit.K 10 mg/ml (Menadion bisulphate)		

5.14	Inj Anti Snake Venum serum		
5.15	Tab. Amlodepin 5 mg		
5.16	Tab. Roxithromycin 150 mg		
5.17	Tab Erythromycin 250 mg		
5.18	Tab. Ciprofloxacin 250 mg		
5.19	Tab. Norfloxacin 400 mg		
5.20	Tab. Cotrimazole SS		
5.21	Cap.Ampicillin 250 mg		
5.22	Cap. Amoxycillin 250 mg		
5.23	Cap. Doxycyclin 100 mg		
5.24	Syp .Amoxycillin 250 mg		
5.25	SypAmpicilin		
5.26	Sy. Cotrimazole (septran)		
5.27	Sy. Furazolidine 60 ml		
5.28	Tab. Furazolidine 100 mg		
5.29	Tab. Metronidazole 200 mg		
5.30	Tab. Grisofulvin 125 mg		
5.31	Tab. Multivitamin		
5.32	Tab. Folic Acid		
5.33	Tab/Cap. Iron Folic Acid (S R)		
5.34	Tab. Vitamin B.Complex		
5.35	Tab. Calcium carbonate		
5.36	Tab. Etophylline&Theophylline S R		
5.37	Sy. Albendazole 10 ml		
5.38	Tab. Albendazole 400 mg		
5.39	Sy. Paracetamol 60 ml		
5.40	Tab.Paracetamol 500 mg		
5.41	Cough Syrup		
5.42	Tab. Cetirizine 10mg		
5.43	Tab. Dicyclomine 20mg+ Paracetamol 500mg		
5.44	InjDicyclomine		
5.45	Tab.Diclofenac sodium 50 mg		
5.46	Inj. Diclofenac sodium		
5.47	Tab. Ranitidine 150 mg		
5.48	Cap.Omperazole 20 mg		
5.49	Inj. Ondansterone 2mg/ml		
5.50	O R S Powder 27.5 gm W H O Formula		
5.51	Gama Benzene hexachloride 1% w/w Lotion		
5.52	Framycetinsulfate BP 15 mg (1.5%)		
5.53	Povidone-iodine - Ointment		
5.54	Cream. Micanzole		
5.55	SukhadOint- (Ayurvedic)		
5.56	Ciprofloxacin eye drop		
5.57	Gentamycin eye/ear drop		
5.58	XylocaineGelly 2 %		
5.59	Tab. Clotrimzole 100 mg (Vaginal Pessary)		
5.60	Normal Saline 500 ml		
5.61	Dextrose 5% 500 ml		
5.62	I.V. Dextrose in Normal Saline 500 ml		
5.63	Ringer lactate 500ml		
5.64	Povidine Iodine solution 500 ml		
5.65	Denatured spirit		

5.66	Surgical Gloves		
5.67	Scalp Vein set		
5.68	Kidney Tray (Plastic) 12 "		
5.69	Scalpel Blade		
5.70	Cotton roll 500 gm		
5.71	Rolled Bandages		
5.72	Paper Adhesive tape		
5.73	Elastic crep bandages Non-sterile -10cm		
5.74	Sterile water for injection-		
5.75	Disposable Syringes 2cc,5cc		
5.76	IV Set		
5.77	Disposable Needle- 22G, 24G, 23G		
5.78	Tourniquet		
5.79	Collection bulbs-EDTA , PLAIN		
5.80	Lancet needles		
5.81	Stains Field A, B		
5.82	Pregnancy Test Kit		
5.83	RPR Test Card		
5.84	Multi Uri sticks		
5.85	Widal test kit		
5.86	Slides -Standard		
5.87	Urine routine- Albumin/Suger strips		

6. Services

S.No.	Available	YES=1 NO=2	
6.1	OPD Services		
6.2	ANC / PNC Services		
6.3	Laboratory Test		
6.4	Referral		

7. General

S.No.	Available	YES=1 NO=2	
7.1	Have you informing to Villagers in Advance about visit of NMMU?		
7.2	Are you maintaining the contact no. of ASHA, Aganwadi Workers, ANM, Zilaparishad School teacher to provide the information about NMMU Visit?		
7.3	Have you fixed the Posters, Banners regarding NMMU services & visits at prime location of concerned villages?		
7.4	Have you approached to M&E officer for IEC Material of National Health Programmes & Other Government Health Schemes to display at Villages during your visit?		

7.5	Do you have siren in vehicle to make it aware the villagers about availability of NMMU?		
7.6	Are you participated in National Immunisation Days, Health emergencies and related other activities which NRHM & SHS,Mumbai is responsible for?		
7.7	Has any training of the NMMU staff has been done?		

Signature of the Interviewer

Signature of the Interviewee