



# A TIME AND MOTION STUDY FOR ASSESSING THE ROLE AND SERVICE DELIVERY OF AUXILIARY NURSE MIDWIVES IN MEGHALAYA



**A study jointly conducted by National Health Mission, Meghalaya and  
Centre for Digital Financial Inclusion (CDFI@IFMR)**

**Authors**

**Ramkumar S, IAS**

Additional Secretary to DoH&FW, and Mission Director, National Health Mission,  
Government of Meghalaya

**Abhinav Dubey**

Senior Analyst, Centre for Digital Financial Inclusion (CDFI@IFMR)

**Report Designed by**

**Himanshu Sharma**

Graphic Designer, Centre for Digital Financial Inclusion (CDFI@IFMR)

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**SAMPATH KUMAR, IAS**  
**Principal Secretary**  
Government of Meghalaya  
Health & Family Welfare Department.



Meghalaya Secretariat  
201, Addl. Building  
Office Tel.: 0364-2500019  
Mobile : 9918000079  
E-mail : kumar.sampath@gov.in,  
sampath97@gmail.com

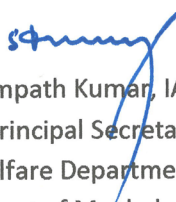
## Foreword

A competent and motivated workforce is an indispensable part of health systems all over the world. Attainment of SDG 3.8, which focuses on achieving universal health coverage (UHC), hinges on these health workers, which makes the health system more resilient. UHC entails that everyone has free access to health services they require, whenever and wherever they need them. The essence of UHC lies in the people-centered primary health systems, wherein Auxiliary Nurse Midwives (ANMs) play a crucial role. The designation of 2020 as the Year of the Nurse and the Midwife by WHO further emphasizes their importance in providing not only maternal health care but also care throughout an individual's lifetime, especially in low-resourced and remote geographies.

In Meghalaya, a state with hard-to-reach areas and one with a paucity of skilled healthcare personnel, ANMs play a critical role in providing healthcare services. Despite having one of the highest per capita health expenditures among Indian states, in terms of key health metrics like Infant Mortality Rate (29) and Maternal Mortality Rate (197 (NFHS-4)), Meghalaya continues to lag behind. However, with the persistent efforts of state administration through its different programmes (like MOTHER - the state health policy of Meghalaya) in the area of maternal and child health, there has been an improvement in these indicators in recent years. Additionally, when it comes to the running and sustainability of any FNHW scheme and health services, ANMs remain the key players, and especially, in the post-covid era, there has been a tremendous increase in workload and responsibilities for ANMs, necessitating an assessment of their work patterns.

In this context, the Time and Motion study report provides insights into how ANMs allocate time for different activities and aids in understanding the factors affecting their motivation level as well as challenges they face while performing their duties. The report provides a succinct comparison of time spent on activities by ANMs in both rural and urban areas, who are regular employees or under contract and in all three regions of Meghalaya (i.e., Khasi, Garo and Jaintia Hills). The report highlights the need for smart digitization to reduce the time spent on routine tasks like maintaining reports and registers; it also urges to make the working system more performance-oriented for ANMs and also pinpoints the dearth of basic health infrastructure at the facilities.

On behalf of the National Health Mission, Meghalaya I appreciate the work done by the NHM and CDFI research team in bringing a comprehensive report on the working pattern of ANMs in Meghalaya. Being a Time and Motion study with one of the highest samples of ANMs covered in India, it is an excellent resource for any health professional or policymaker. I hope that this report would serve as a model and encouragement for similar studies to be undertaken in Meghalaya or in any other state.

  
Sampath Kumar, IAS  
Principal Secretary  
Health and Family Welfare Department  
Government of Meghalaya

**GOVERNMENT OF MEGHALAYA**  
**DIRECTORATE OF HEALTH SERVICES (MCH&FW)**  
**MEGHALAYA:::::SHILLONG**

**Foreword**

Meghalaya, the abode of clouds is a state with luscious mountains, rivers, valleys, and plateaus. However, along with the natural assets and ethnic diversity come the infrastructural, transport, and sanitation hardships, resulting in healthcare challenges. High maternal and infant mortality rates and low institutional delivery rates indicate the need for improved primary healthcare in the state. In order to deal with such an arduous situation, the government has been launching various programs to cater to the healthcare needs of difficult-to-reach community members. Considering the geographical diversity and local adversity, services are provided on-site and offsite for community engagements.

In such settings, ANMs are the key-level functionaries who interact directly with the community. They are often the first point of contact in making primary healthcare services accessible to these beneficiaries. ANMs play a pivotal role in delivering various services (like RMCHA+N, covid-19 vaccination, and others) to the community. She creates a bridge between community members and the health department to increase the accessibility of health services as well as ensures delivery of health services at community platforms such as Village Health Sanitation & Nutrition Day or Urban Health Sanitation & Nutrition Day or Outreach sessions. With the increased health burden due to emerging diseases, the role of ANM in preserving the health of vulnerable and disadvantaged groups is becoming very significant.

An in-depth study, aiming to understand how ANMs allocate and manage their time for different activities and what are the multiple problems and challenges they encounter while delivering duties, was needed in planning and implementing future activities. The study disseminated the necessary knowledge regarding the challenges that ANMs face that are both motivating and demotivating, as well as how to overcome such difficulties. Moreover, the study revealed the differences in time allocation and effective hours of work between different types of ANMs.

I appreciate the efforts of the National Health Mission, the Government of Meghalaya and CDFI in completing this impressive study. This study is expected to be an effective tool in stepping up efforts for effective time management of ANM activities, allowing for the achievement of a balance between clinical and non-clinical services without affecting community health service delivery.



**Dr. L. Challam**  
**Director of Health Services (MCH & FW)**  
**cum Jt. Mission Director, NHM**  
**Government of Meghalaya**



## Foreword

Time and motion studies make detailed documentation of utilization of time against specific activities during a given period so that one gains an understanding of workflow patterns. This in turn helps in designing an efficient health system by planning for effective utilization of time. Time and motion (T&M) studies are not easy to execute in the field of health and are rarely done in India. It is therefore commendable that such an effort was made by Shri Ramkumar and his team in Meghalaya.

Rather surprisingly the study found that ANM worked on average for about 5 hours and 23 minutes a day (of a presumably 8 hour/day expected schedule). At a Sub Centre (SC) that conducts deliveries this is relevant as some seeming redundancies have to be built in for a health worker to respond to medical emergencies. But in facilities that do not do so; it may need a rethink at some point. The study sample included ANM from 'delivery' and 'non-delivery' SC. Although it may have been out of the scope of a T&M study, it was unclear as to how many ANMs had actually done a delivery in the past year, this would be useful to know as presumably they are trained to be skilled birth attendants during home deliveries.

From a non-pandemic perspective, the timing of the study was a bit unfortunate as the study found that the maximum time spent by ANMs was on COVID-19 related services (mean 52min/day or 5 hrs/week), followed by Maternal & Child Health (MCH) services (mean 44min/day, 4h23m/week; median 38 min/day). A key question that arises would be, if they were not spending time on COVID services, what would they have been spending it on?

At present an ANM appears to be spending 1hour 32min/day (median 1hour 25min) on reports and documentation. An hour and a half of an expectedly 8hour work day by a frontline worker tasked with the bulk of data collation for the health system may not be too much of a concern. The actual time spent may not be as worrying as the percentage (26-28%) appears to convey; almost all health personnel must spend some time of their workday documenting aspects of their work. This is important for multiple reasons. Technology can potentially help avoid repetition and reduce time spent to some extent but not too much in the long run. Rather time spent on collating good quality data is essential and invaluable as so many decisions are reliant on good quality field level data being available. This paves the way for more evidence informed decision making at the local level and the health system as a whole.

It was heartening to hear that ANMs take pride in serving their community and that they appreciate the opportunity to bring about positive behavioural change in the community. Finding purpose and meaning in ones' work is essential to the morale of any worker. The issues of poor infrastructure of health facilities and inadequate in-service training that reportedly act as demotivating factors are points worth paying attention to. We need to find local sustainable solutions to basic amenities like water supply, sanitation, electricity/power.

Finally, keeping in mind that health personnel almost always work in teams, it would be worthwhile to do T&M studies using a health facility as a whole. This is where we can really make recommendations on rationalization, appropriate skilling, task shifting and ultimately a facility that offers meaningful comprehensive primary health care. This is particularly important as the state is introducing Community Health Officers (CHO), who from anecdotal evidence thus far, have in a short span of time, made themselves invaluable.

I look forward to such a comprehensive endeavour and wish the team the very best in taking onboard the lessons learnt from this exploratory study.



**Prof. Sandra Albert MD DNB DrPH**  
**Director, Indian Institute of Public Health Shillong**  
**Lawmali, Shillong, Meghalaya, India**

# Glossary

**Auxiliary Nurse Midwife (ANM)** – Frontline multipurpose worker working at the health facility who are often known as the first contact person between the community and health services.

**Contractual ANM** – ANM who are a contract basis staff. They are hired by National Health Mission for a 11 month contract which is renewable.

**Effective Work Hours** – The time spent on activities related to work only during the work hour. It does not include break time and travel time from home to work (back and forth) but it includes travel time on work.

**Hawthorne Effect** – Refers to the change or improvement in behaviour of people in response to their awareness of being observed.

**Non-value added but necessary activities** – The activities which are necessary for an ANM to perform and support the value-added activities. These include preparation for visits, writing reports, filling up registers, break time, work related discussion and so on.

**Non-value Added Activities** – Non-essential activities like unnecessary break time, waiting period for patients and so on.

**Regular ANM** – ANM who are a permanent staff. They are hired under Directorate of Health Services (Medical Institutions).

**Reproductive, Maternal, New-born, Child and Adolescent Health (RMNCH+A)** – Key intervention for reducing maternal and child morbidity and mortality. The RMNCH+A strategy is built upon the continuum of care concept and is holistic in design, encompassing all interventions aimed at reproductive, maternal, newborn, child, and adolescent health under a broad umbrella, and focusing on the strategic lifecycle approach (NHM Definition).

**Rural ANM** – ANM working in rural areas.

**School Health Programme (SHP)** – Programme focussed upon school age children to address holistically the health and nutrition needs of children.

**Time and Motion Study** – An observation study of human resources used to determine the time spent on tasks.

**Village Health Sanitation and Nutrition Day (VHSND)** – A community level strategy for convergent actions for Health, Early Childhood Development, Nutrition and Sanitation. It acts as a link between the community and health facility to provide easily accessible health & nutrition services.

**Urban ANM** – ANM working in urban areas.

**Value Added Activities** – Activities pertinent to the primary role and service delivery performed by an ANM. These include clinical services provided to patients, maternal and child health services provided to mother and her child, covid-19 related services and so on.

# Executive Summary

This study presents the findings of a time and motion study of Auxiliary Nurse Midwife (ANM) in the north-eastern state of Meghalaya. ANMs play an important role in delivering the healthcare services at community level in rural and urban areas through a health facility or outreach services. In states such as Meghalaya where there is a high number of hard-to-reach areas and shortage of skilled healthcare personnel especially in rural areas, the role of ANMs becomes even more critical.

## Objectives

The main objective of the study was to quantify how ANMs allocate time for different activities and to understand the motivating, demotivating factors, problems and challenges faced by them in performing their duties.

## Methodology and Sampling

The participants selected for the study were Auxiliary Nurse Midwife (ANM). The study is exploratory in nature. It is a cross sectional study gathered from quantitative as well as qualitative methods. Quantitative method used time and motion approach through direct continuous observation and qualitative method used involved in-depth structured interviews of the ANMs.

The total number of ANMs selected for the study was 40. Multi-stage quota sampling was used as the sampling method to select representative sample. All the 40 ANMs were directly observed for a period of 6 working days (Monday-Saturday) from the time they left home for their routine work till the time they return home. On the last working day, in-depth structured interview was conducted with the ANMs for a period of 40-45 minutes.

## Quantitative Findings

### Time spent on activities by ANMs

From this study, we estimate that the average effective hours worked by an ANM is 5 hours and 23 minutes per

day. In terms of individual activities, ANM spent 1/4th of their total time on reports and registers followed by covid services (14.8%), maternal and child health (MCH) services (12.6%) and travelling time for work (11%). Based on the location of service, ANMs spend half of their service delivery time in facility, 30% on outreach services and only 10% on home visits. Currently out of their total time on service delivery, maximum time spent by ANMs is on covid-19 related services. Based on the type of activity, more than half of their work time is spent on non-value added but necessary activities such as preparing reports, filling up registers and break time. 1/3rd of the time is spent on value added activities such as providing covid-19 services, MCH services and so on and the remaining time is spent on non-value added activities.

### Rural and Urban ANMs

On an average, the effective hours worked by rural ANMs is 3 hours and 46 minutes more than urban ANMs in a week (38 minutes more in a day). Time spent on outreach services by urban ANMs is 15% more than the rural ANMs. Rural ANMs spent significantly more time on clinical services and less on MCH services than their urban counterparts.

### Regular and Contractual ANMs

Regular ANMs work on an average 6 hours and 49 minutes less than the contractual ANMs in a week (1 hour and 8 minutes more in a day). Contractual ANMs spend lesser time in facility and more on home visits and outreach services. Time spent by contractual ANMs on value added activities is 6% more than the regular ones. Those on contract were found to spend 7% more on covid and clinical services and 13% less on MCH related services than the regular ones.

### Region-wise ANMs (Khasi, Garo and Jaintia Hills)

On an average, the effective hours worked by ANMs in Khasi hills is 2 hours and 11 minutes and 1 hour and

11 minutes more than the ANMs in Garo and Jaintia hills in a day respectively. Time spent on non-value-added activities is highest by ANMs in Garo hills. While ANMs in Khasi hills spend more time travelling for work, preparing reports and filling up registers, they spend very less time waiting for patients when compared with the time spent by ANMs in other regions.

### **Delivery and Non-Delivery Sub-centre ANMs (DP and NDP ANMs)**

Out of their total time spent, NDP ANMs spent 7% more in the facility and 6.3% less on home visits than the DP ANMs. NDP ANMs (35%) spent twice their total time on outreach services than the DP ANMs (17.4%). The differences in the time spent by DP and NDP ANMs on non-value added but necessary activities, value-added and non-value-added activities is negligible.

### **ANMs Based on the Age Differences (Older and Younger ANMs)**

On an average, younger ANMs work 5 hours and 42 minutes more than the older ones in a week. Older ANMs spent 10% more time in facility and younger ANMs spent 4% more time on outreach services. Out of their total time in service delivery, time spent by younger ANMs is higher on Covid services and lesser on MCH services.

### **Day-wise Analysis**

Maximum time on home visits is spent on Mondays and Tuesdays, outreach services on Tuesdays and Thursdays and in facility on Wednesdays and Fridays. The overall results suggest that on Saturday's effective hours worked by ANMs reduce significantly as compared to other days of the week. On Saturdays, the ANMs spend least time on work (average 4 hours and 13 minutes).

## **Qualitative Findings**

Qualitative analysis of the interviews with the ANMs helps us to understand the motivating, demotivating factors, work related problems and inefficiencies of ANMs related to work. ANMs take pride of serving the community and the opportunity to bring about a positive behavioural change in the community towards healthcare and health staff as the motivating factor with regards to their role. Poor infrastructure of health facilities and inadequate in-service training appear to demotivate the ANMs from whole heartedly doing their job. Current challenges and problem for ANMs in work include; the effect of covid-19 on delivery of RMNCH+A services, high number of hard-to-reach areas, connectivity to health facility and basic support structure like water supply shortage and non-availability of electricity at the Sub Centre.

## **Conclusions**

In this study, we have observed ANMs with a diverse set of characteristics and interviewed them as well to put the results in the context, which will help in formulating required policy. Smart digitization can be undertaken such that it reduces the need to manually maintain registers and generate reports for administrative purposes. This will help in reducing the time spent on report and registers by ANMs and thereby increasing the time spent on value-added activities. Contractual ANMs despite earning less and not having permanent job are overperforming the regular ANMs. Hence, performance-based incentives given to the contractual ANMs can be explored. Also, the basic health infrastructure at the facilities needs to be taken care of in order to provide good working condition to the ANMs. The state could explore partnerships with private organizations or foundations that could adopt a few Health Centres to provide better facilities to citizens and working conditions for the ANMs than existing at present.



# 01 Introduction



One of the most complex challenges for policy makers is ensuring people living in rural and remote locations have access to trained health workers. Skilled and motivated health workers in sufficient numbers at the right place and at the right time are critical to deliver effective health services and improve health outcomes.<sup>1</sup>

Frontline health workers are the first and often the only point of contact to the health care system for millions of people.<sup>2</sup> Auxiliary Nurse Midwives (ANM) are one type of frontline workers who play an instrumental role in providing healthcare services at community level through various platforms such as clinical services at health facility or outreach services. Study by Karan A and others (2021) suggests that stock density of nurses/midwives is 17.7 per 10,000 persons as per NHWA.<sup>3</sup> The active health workers' density of nurses/midwives is estimated to be 10.6 (NSSO).

ANM's are very critical for ensuring healthcare services in state such as Meghalaya where there is a shortage of skilled healthcare personnel,<sup>4</sup> especially in rural areas and very high number of hard-to-reach areas. The health indicators of the state are also poor. As per National Family Health Survey-5 (2019-20), the Neonatal Mortality Rate and Infant Mortality Rate in Meghalaya is 19.8 and 32.3 respectively. Institutional delivery and births attended by skilled health personnel is only 58.1% and 64% respectively.<sup>5</sup> Hence, a study was required to understand the work hours and management of the ANMs and identify inefficiencies and challenges in the delivery of services by ANMs. This will help in formulating the required policy, efficient strategy and optimum work allocation distribution of ANMs.

Limited studies have been undertaken in India for

assessing the work load and time distribution of ANMs. Study by Singh and others (2018) suggests that ANMs are overloaded with work and fail to deliver efficiently. The administrations need to re-assess the workload, possibly reduce expected work and provide strong advisory support to the ANMs. ANMs lack the understanding of their job responsibilities and don't utilize the work time efficiently (Bhombe et. al 2019). We aimed at quantifying the time spent on different activities and qualitatively understanding the work profile of ANMs of different categories and regions in Meghalaya.

### 1.1 Objectives of the Study

The main objective of the study was to quantify how the ANMs spend their time on different activities and to understand their roles and responsibilities. The specific objectives are:

- I. To document and assess time spent by ANMs on different activities in the state and the differences among the three regions
- II. To estimate the differences in time allocation and effective hours worked between rural and urban, regular and contractual, young and old and delivery and non-delivery point ANM
- III. To estimate the differences in time allocation among non-value added but necessary activities, value added and non-value-added activities
- IV. To assess if and how COVID related work has potentially affected ANMs' routine work
- V. To understand the motivating, demotivating factors, problems and challenges faced by ANMs in performing their duties

<sup>1</sup>Increasing access to health workers in remote and rural areas through improved retention. World Health Organization, 2010. [http://apps.who.int/iris/bitstream/handle/10665/44369/9789241564014\\_eng.pdf?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/44369/9789241564014_eng.pdf?sequence=1)

<sup>2</sup>Frontline Health Workers Issue Brief, [https://www.healthynewbornnetwork.org/hnn-content/uploads/FHWC\\_Issue\\_Brief.pdf](https://www.healthynewbornnetwork.org/hnn-content/uploads/FHWC_Issue_Brief.pdf)

<sup>3</sup>Karan A et. al (2021), Size, composition and distribution of health workforce in India: why, and where to invest? Human Resources for Health. <https://human-resources-health.biomedcentral.com/articles/10.1186/s12960-021-00575-2>

<sup>4</sup>Rural Health Statistics (2018), MOHFW. [https://main.mohfw.gov.in/sites/default/files/Final%20RHS%202018-19\\_0.pdf](https://main.mohfw.gov.in/sites/default/files/Final%20RHS%202018-19_0.pdf)

<sup>5</sup>National Family Health Survey- 5, State Fact Sheet Meghalaya, 2019-20. [http://rchiips.org/nfhs/NFHS-5\\_FCTS/Meghalaya.pdf](http://rchiips.org/nfhs/NFHS-5_FCTS/Meghalaya.pdf)

## 1.2 Timeline of the Study

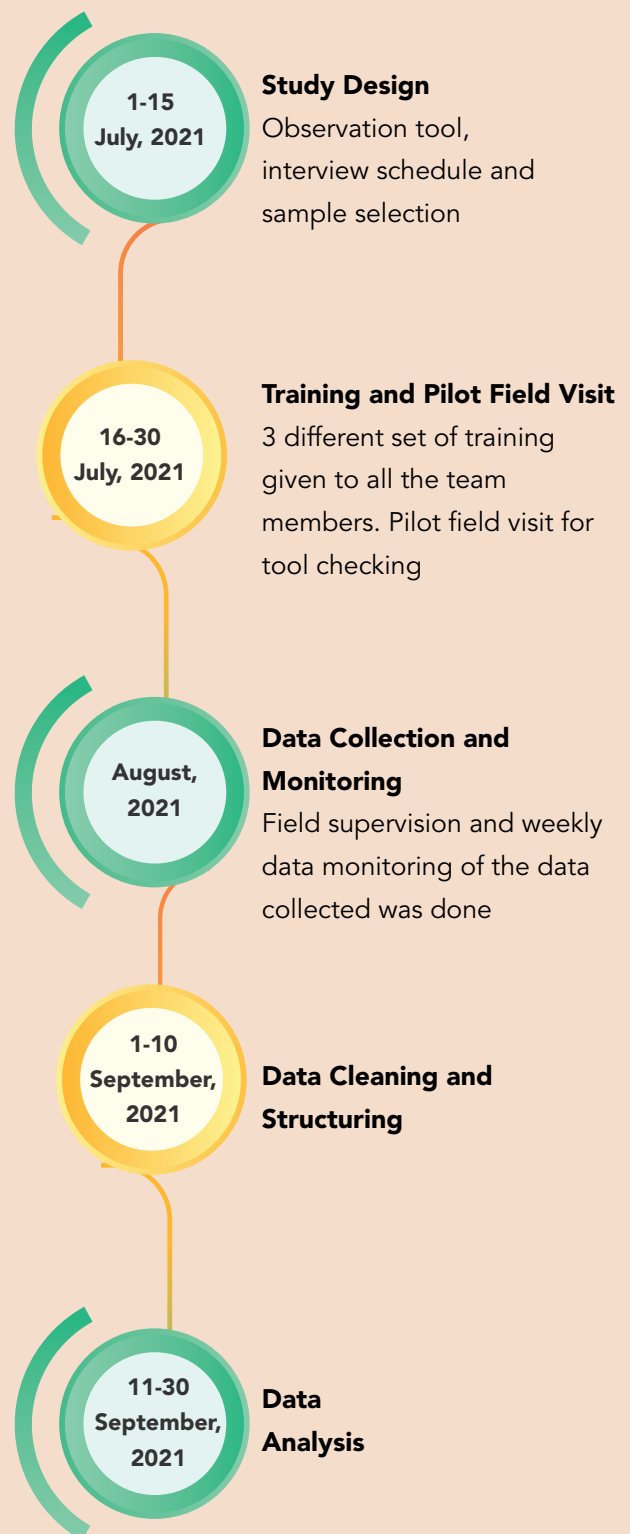
The study was initiated in the month of July, 2021. Initial half a month was devoted in drafting study design along with the observation and interview schedule and sample selection. Next, we did pilot field visit for checking the survey instruments. Based on the observations during the field visit, final survey instrument was drafted. Data collection was conducted in the month of August, 2021 and simultaneously data monitoring took place. Data analysis was done in September, 2021. Detailed timeline of the study can be seen in Figure 1.1.

## 1.3 Limitations of the Study

Our study did not focus upon proving statistically significant results, it is much more of exploratory in nature. It aims at quantifying the time spent by ANMs on work and different activities related to daily routine work. The sample of ANMs selected for the study was limited to 40, but still the number is among the highest number of ANMs selected for such kind of study in India. Another limitation possible is the Hawthorne Effect, which may have resulted in the overestimation of ANMs time spent on work, if the presence of the enumerators has resulted in motivating the ANMs to work more. However, repeated and time to time interaction and debriefs with the enumerators on the process of observation could have resulted in lesser Hawthorne effect. We could have observed the ANMs for a continuous period of one month. However, it would require allocation of far higher resources and duration of study will increase substantially. Nevertheless, we were able to observe 231 working days of ANMs which gave insightful results, findings and conclusions.

Some of the other limitations were the Pandemic and Monsoon season. Since the study was conducted during the pandemic, findings are affected by covid-19. The scenario, pre and post covid-19 would be different. Additionally, data was collected in August, a month with moderate to significant rainfall. Consequently, the monsoon rains may have had an impact on the delivery of services and its utilization.

Figure 1.1 - Timeline of the Study





## 02 Methodology and Sampling Method





The participants selected for the study were Auxiliary Nurse Midwives (ANM). There are two different categories of ANMs working in the State, viz., Regular ANMs (permanent staff) and Contractual ANMs (contract basis staff). The total number of ANMs in the state at the time of initiation of the study (July, 2021) was 1310.

All the three regions in Meghalaya: Khasi, Garo and Jaintia Hills were selected for the study. Total five districts were selected for the study: Ri-Bhoi and West Khasi Hills (Khasi Hills Region), South West Garo Hills and East Garo Hills (Garo Hills Region) and West Jaintia Hills (Jaintia Hills).

## 2.1 Methodology

The study is exploratory in nature. It is a cross sectional study gathered from quantitative as well as qualitative methods. Quantitative method used time and motion approach through direct continuous observation of the ANMs. Qualitative method used in-depth structured interviews of the ANMs on their work profile, challenges and problems in their duties and so on.

## 2.2 Sampling Strategy and Sample Size

The total number of ANMs selected for the study was 40. We followed multi-stage quota sampling as our sampling strategy. We purposively selected 5 districts from the three regions. From each of the five districts, 2 rural Community Health Centres (CHCs)/Primary Health Centres (PHCs) were selected, i.e., a total of 10 CHCs/PHCs. From these selected CHCs/PHCs, a total of 13 rural Sub-Centres (SC) were further selected. Furthermore, 5 urban Health Centres were also selected, i.e., 1 from each district. The ANMs were selected from these health centres based on 4 characteristics: Regular and Contractual ANMs, Urban and Rural ANMs, Age of the ANMs (>35 and ≤35 years of Age) and Sub-center conducting and not conducting deliveries. The distribution of the sample based on the characteristics is shown in Table 2.1.

**Figure 2.1 – Methodology and Sampling**

### Study Population



The participant selected for the study are Auxiliary Nurses Midwife (ANM).

### Sampling Method



Multistage quota sampling method was used to select representative sample based on the different characteristics of ANMs.

### Sample Size



Sample size is 40 ANMs from the three regions – Khasi, Garo and Jaintia

### Cross-sectional Study



Cross-sectional study involving quantitative and qualitative methods

### Quantitative and Qualitative Method



Quantitative method involved time and motion approach and Qualitative method through in-depth structured interview

**Table 2.1 – Distribution of Sampled ANMs based on different selection criteria**

S. No.	Criteria	Sample of ANMs	Total
1	Urban	8	40
2	Rural	32	
3	Contractual	18	40
4	Regular	22	
5	Age between 20-35	24	40
6	Age above 35	16	
7	SC Delivery	13	21
8	SC non-delivery	8	
9	Khasi Hills	15	40
10	Garo Hills	18	
11	Jaintia Hills	7	

## 2.3 Data Collection

The data was collected in period of Mid-July to August, 2021. We developed an observation checklist for recording the time spent by ANMs on different activities. Before starting the data collection process, we tested the checklist through an exploratory pilot field visit at Pomlakarai SC (East Khasi Hills) and made the necessary changes based upon the observation of the activities performed by the ANMs and analysis of the pilot visit data. An exhaustive list of categories and sub-categories were prepared which had been divided into themes and codes for easing the data collection process for the enumerators.

All the 40 ANMs were directly observed for a period of 6 working days (Monday-Saturday) from the time they left home for their routine work till the time they return home. On the last working day, interview was conducted with the ANM for a period 40-45 minutes though structured interview schedule. Also, the observation checklist, structured interview schedule was also tested during the pilot field visit. The interview schedule gathered information on roles and responsibilities, COVID-19 related work, motivating and demotivating factors in the job, current challenges, support from the superiors, Training and so on.

All of the enumerators who were entrusted to observe the ANMs had previous experience conducting fieldwork and gathering data for the health sector, and quite a few of them were employed in it.

## 2.4 Data Analysis

Quantitative data was analysed using Microsoft Excel. We analysed the data based on the criteria/ characteristics used for selecting the sample of ANMs. The broad categories of activities under which our findings have been presented are type of activity (non-value added but necessary activities, value-added and non-value added), location of service and different types of services delivered by ANMs. Qualitative interviews were transcribed into English. These were coded and analysed using concurrent themes to understand the overall picture of the ANMs. ANMs work activities had been categorized into non-value added but necessary activities, value-added and non-value-added activities (Chebolu-Subramanian et al., 2019). Value-added activities are the activities which are pertinent to the primary role and service deliveries performed by an ANM. non-value added but necessary activities are the activities which are necessary for an ANM to perform and support the value-added activities. These activities

include preparation for visits, reports, registers, meetings, break time, work related discussion etc. Non-value-added activities are non-essential activities to the ANM like waiting period, unnecessary break time etc.

Analysis of time spent on different activities by an ANM based on the location is divided into four categories. These are services at the health facility, home visits and outreach services and location not recorded (activities where location of service delivery is not concrete). Service delivery included four different categories of services provided by the ANM: maternal and child health, COVID-19 related, communicable and non-communicable disease and other clinical services provided by the ANMs.

## 2.5 Ethical Consideration

Trained enumerators were engaged for conducting observation and interviews. One enumerator silently observed one ANM at a time without disturbing them in their work. Consent was obtained from all the participants for the observation and interview. To adhere to the values of research and to promote accountability, trust, mutual respect, and fairness among participants in the study, the enumerators took informed consent from the ANMs selected, guaranteeing confidentiality, security, and anonymity. Access to the data sets was only given to the research team.





## 03 Time and Motion Results (Quantitative Findings)



### Key Points



On an average an ANM's effective work hours are **32 hours and 22 minutes and 5 hours and 23 minutes** in a week and day respectively.



Maximum amount of time spent by ANMs is on filling up registers and preparing reports followed by covid-19 and MCH services.



ANMs spend half of their time (approximately 50%) in the facility. **30%** in out reach services mainly on covid-19 vaccination services followed by routine immunization. The time spent on home visits is quite less i.e. **9%**.



In case of service delivery maximum time is spent on covid-19 related work and least on communicable and non-communicable disease.



Time spent on value added activity by an ANM is **1/3rd** of the total time and more than half of the time is spent on non-value added but necessary activities.

This section presents the quantitative findings of the time distribution on different activities by ANMs. Categorical analysis based on the criteria used for selecting the ANMs, i.e., regular and contractual ANMs, rural and urban ANMs, ANMs based on regions (Khasi, Garo, and Jaintia), ANMs based on the age differences and ANMs from delivery and non-delivery sub-centres is also depicted. We observed 40 ANMs for a period of six days (Monday to Saturday) which totals to 240 days of observation. Out of these few ANMs were on leave on particular days due to some reasons. Overall, we observed ANMs for 231 days.

### 3.1 Time spent on activities by ANMs

The average and the median effective hours<sup>6</sup> worked by an ANM in a day was found to be 5 hours and 23 minutes and 5 hours and 15 minutes respectively. In a week, the average and median effective hours worked by an ANM was 32 hours and 22 minutes and 29 hours and 17 minutes respectively (Table 3.1).

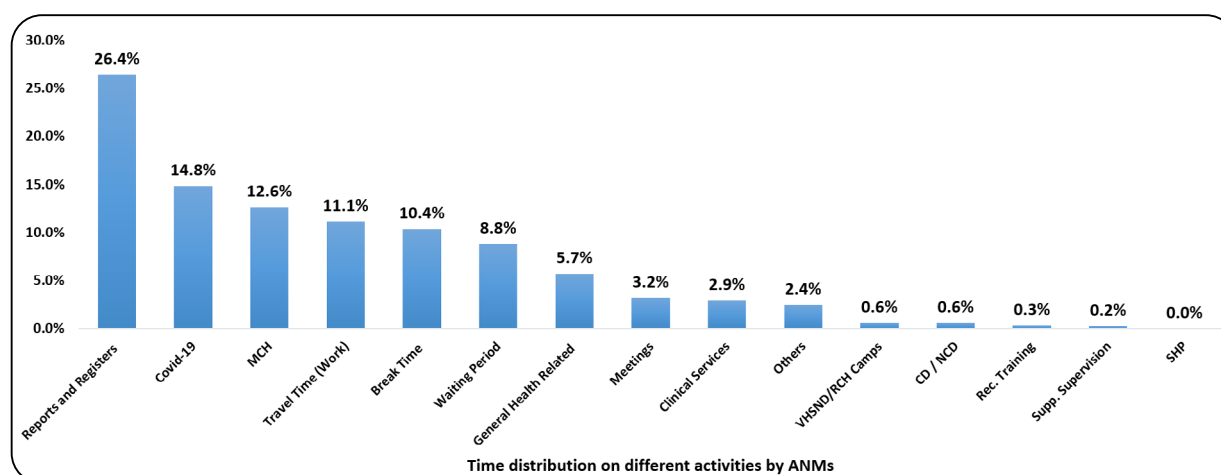
ANMs spent more than one-fourth of their time on reports and registers followed by covid-19 services (14.8%), maternal and child health (MCH) services (12.6%), travelling time on work (11.1%) and break time (10.4%). No time was spent on school health program by the ANMs because of covid-19 protocols. Also, ANMs spent relatively less time on clinical services (like outpatient department (OPD) cases, emergency cases and so on), communicable and non-communicable (CD/NCD services), training and supportive supervision of their subordinates like Accredited Social Health Activist (ASHAs) and Anganwadi Worker (AWWs) (Figure 3.1).

Table 3.2 demonstrates the average and median time spent (daily and weekly) by ANMs on different activities. On an average, an ANM spends more than 9 hours per week on reports and registers followed by covid-19 services (5 hours and 9 minutes), maternal and child health services (4 hours and 23 minutes), and travelling time on work (3 hours and 52 minutes).

**Table 3.1 – Effective hours worked by all the ANMs**

Variable	Mean	Median
Number of Days	5.77	6
Effective Hours Worked (per week)	32:22	29:17
Effective Hours Worked (per day)	5:23	5:15

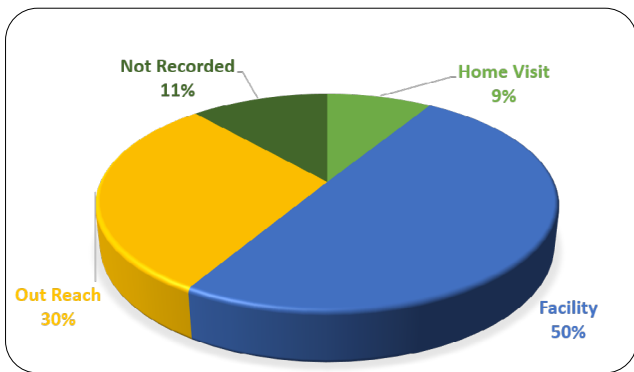
<sup>6</sup>Effective hours worked does not include break time and travel time from home to work (back and forth) but it includes travel time on work

**Figure 3.1 – Percentage distribution of time on different activities by ANMs****Table 3.2 - Mean and median time distribution on different activities by ANMs**

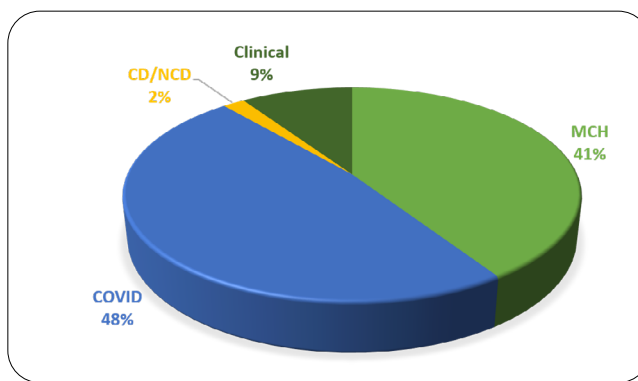
Variable	Mean Hour (per day)	Mean Hour (per week)	Median Hour (per day)	Median Hour (per week)
Reports and Registers	1:32	9:11	1:25	8:33
COVID-19	0:52	5:09	0:48	4:49
MCH	0:44	4:23	0:38	3:49
Travel Time (Work)	0:39	3:52	0:30	3:00
Break Time	0:36	3:36	0:35	3:28
Waiting Period	0:31	3:04	0:26	2:35
General Health Related	0:20	1:58	0:18	1:49
Meetings	0:11	1:06	0:03	0:15
Clinical Services	0:10	1:01	0:00	0:00
Others	0:08	0:51	0:00	0:00
VHSND/RCH Camps	0:02	0:12	0:00	0:00
CD / NCD	0:02	0:12	0:00	0:00
Rec. Training	0:01	0:07	0:00	0:00
Supp. Supervision	0:01	0:05	0:00	0:00
SHP	0:00	0:00	0:00	0:00

Out of the total time spent based on the location of service, ANMs spend half of their time in the facility and 30% at outreach services mainly on covid-19 vaccination services followed by routine immunization. The time spent on home visits is quite less i.e., 9%

(Figure 3.2). In case of service delivery maximum time is spent on covid-19 related work (48%) which is more than the time spent on maternal and child health services (MCH) and least on communicable and non-communicable disease (Figure 3.3).

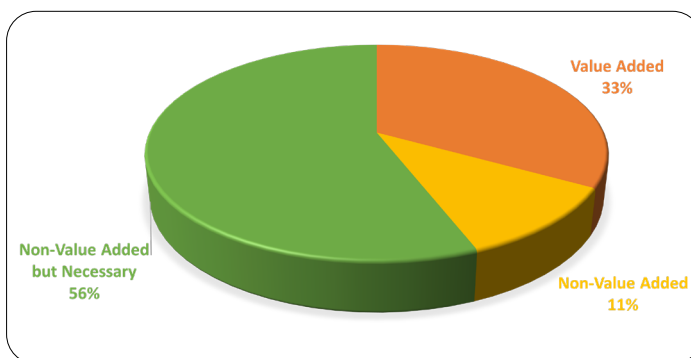


**Figure 3.2 - Percentage distribution of time based on the location of service**



**Figure 3.3 - Percentage distribution of time based on the type of service delivery**

Based on type of activity, ANMs spent more than half of their time on non-value added but necessary activities, one-third on value added activity and 11% on non-value-added activity (Figure 3.4). Time spent on non-value added but necessary activities is dominated by reports and registers, value-added dominated by covid-19 and MCH services and non-value added dominated by waiting for patients.



**Figure 3.4 – Percentage distribution of time based on the type of activity by ANMs**

### 3.2 Rural and Urban ANMs

#### Key Points



On an average, rural ANM works 3 hours and 46 minutes more than urban ANM in a week and 38 minutes more in a day.



Out of their total time spent, travel time (work) of urban ANMs is less than rural ANMs. Time spent on MCH services and waiting period is more by urban ANMs and they spent almost negligible time on clinical services.



Time spent on outreach services by urban ANMs is more and home visits is less than rural ANMs.



Out of the total service delivery time, rural ANMs spent more time on clinical services and less on MCH services than their urban counterparts.

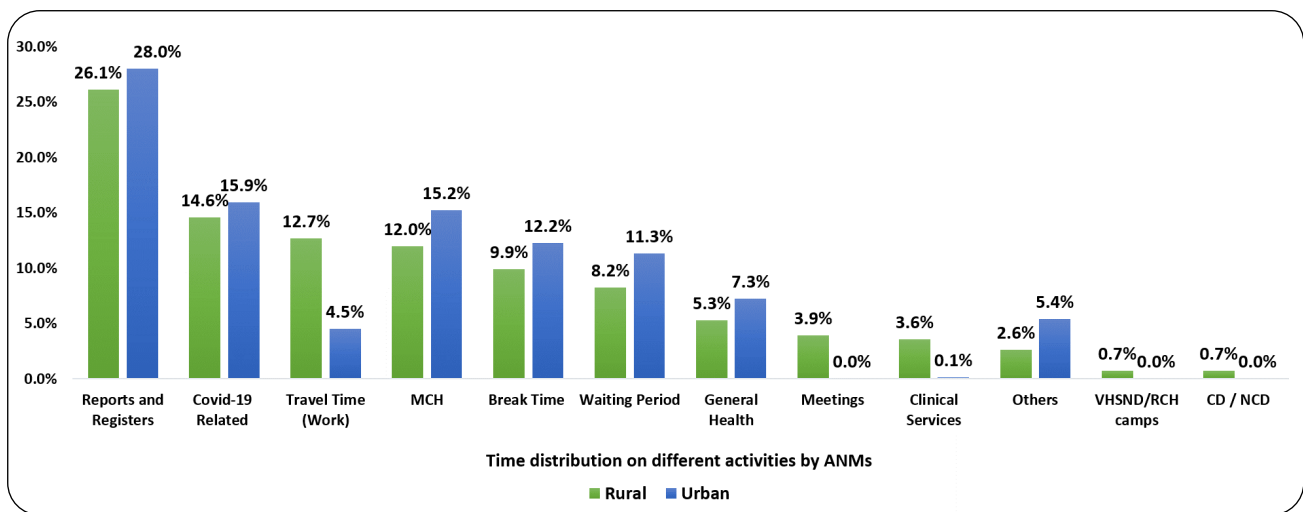
ANMs can be classified based on the place of work into two categories; rural ANMs working in rural areas and urban ANMs working in urban areas. The average and the median effective hours worked by urban ANMs is lesser than the rural counterparts (Table 3.3). Average effective hours worked (daily) by rural ANMs is 5 hours and 31 minutes whereas urban ANMs is only 4 hours and 53 minutes.

Out of the total time worked, travelling time related to work by urban ANMs is 8.2% lesser than the rural ANMs. Time spent on MCH and waiting period is 3.2% and 3.1% more by the urban ANMs than the rural ones respectively. Urban ANMs give almost negligible time on clinical services and meetings. Lesser differences can be seen on the time spent by urban and rural ANMs on other activities (Figure 3.5).

**Table 3.3 - Effective hours worked by Rural and Urban ANMs**

	Rural		Urban	
	Mean	Median	Mean	Median
Number of Days	5.75	6	5.87	6
Effective Hours Worked (per week)	33:07	31:48	29:21	30:02
Effective Hours Worked (per day)	5:31	5:18	4:53	5:00

**Figure 3.5 - Percentage distribution of time on different activities by Rural and Urban ANMs**



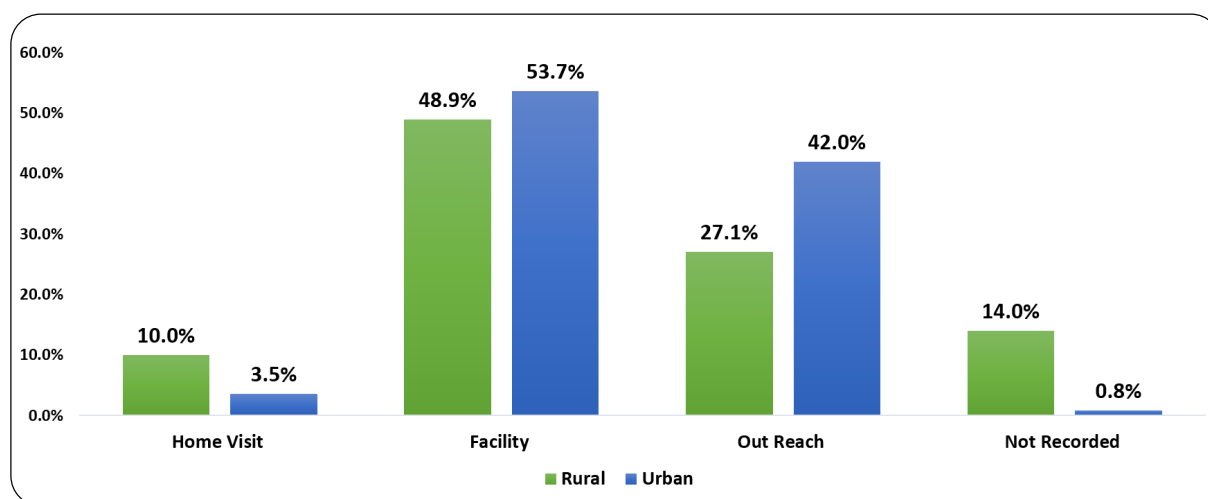
The average time spent per week on clinical services and meetings by urban ANMs is 1 hour and 14 minutes and 1 hour and 23 minutes less than their rural counterparts respectively (Table 3.4). Also, rural ANMs average travel time per week is 3 hours more than the urban ANMs. Both the categories of ANMs spent their highest time on reports and registers followed by covid-19 related services. Time spent on outreach services by urban ANMs

is 15% more than the rural ANMs. The main reason behind this is covid-19 vaccination services which is held at an outreach location for urban areas whereas for rural areas it is mainly at the facilities. Time spent on home visits by rural ANMs is 6.5% more than the urban ones (Figure 3.6). Out of the total service delivery time, rural ANMs spent more time on clinical services (11.2% more) and less on MCH services (9.8% less) than their urban counterparts (Figure 3.7).

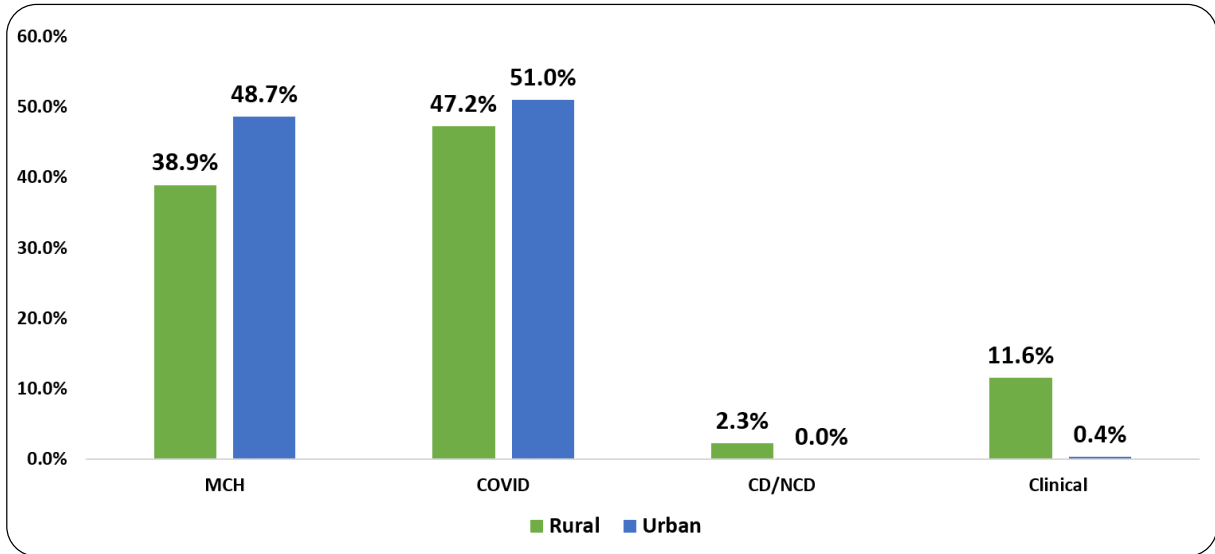


**Table 3.4 - Mean time distribution on different activities by Rural and Urban ANMs**

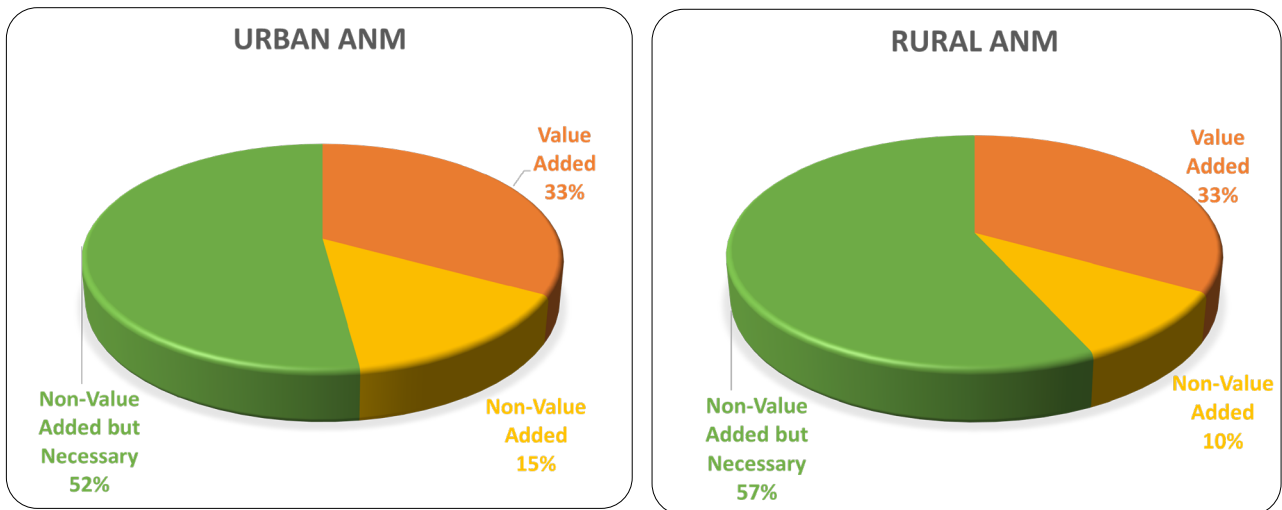
Variable	Rural		Urban	
	Mean Hour (per day)	Mean Hour (per week)	Mean Hour (per day)	Mean Hour (per week)
Reports and Registers	1:32	9:12	1:31	9:08
Covid-19 Related	0:51	5:09	0:52	5:11
Travel Time (Work)	0:45	4:29	0:15	1:28
Maternal Child & Health	0:42	4:15	0:50	4:57
Break Time	0:35	3:31	0:40	3:59
Waiting Period	0:29	2:55	0:37	3:41
General Health Related	0:19	1:53	0:24	2:22
Meetings	0:14	1:23	0:00	0:00
Clinical Services	0:13	1:16	0:00	0:02
Others	0:06	0:38	0:17	1:41
VHSND/RCH camps	0:03	0:15	0:00	0:00
CD / NCD	0:02	0:15	0:00	0:00
Rec. Training	0:01	0:08	0:00	0:00

**Figure 3.6 – Percentage time distribution based on the location of service by Rural and Urban ANMs**

**Figure 3.7 – Percentage time distribution based on the type of service by Rural and Urban ANMs**



**Figure 3.8 – Percentage distribution of time based on the type of activity by Rural and Urban ANMs**



Based on the type of activity, no differences can be seen in the time spent by the rural and urban ANMs on value added activities (33% in both the cases). But rural ANMs spent 5% more time on non-value added but necessary activities, which is mainly the travel time for work on home visits (Figure 3.8).

### 3.3 Regular and Contractual ANMs

#### Key Points



Regular ANMs work on an average 6 hours and 51 minutes less than the contractual ANMs in a week and 1 hour and 8 minutes less in a day.



Out of the total time worked, contractual ANMs spend lesser time on reports and registers than the regular ANMs. Time spent on covid related activities and travel time (work) is more by contractual ANMs.



Contractual ANMs spend lesser time in facility and more on home visits and outreach services than the regular ANMs.



Out of the service delivery time, contractual ANMs spend more time on covid and clinical services and less on MCH services.



Time spent by contractual ANMs on value added activities is more and non-value added activity is less than the regular ones.

ANMs can be classified based on the nature of employment into two categories; regular ANMs (permanent staff) and contractual ANMs (contract basis staff). Results in Table 3.5 demonstrates that the average and the median effective hours worked

by a regular ANM is less than the contractual ones. Contractual ANMs work more than their counterparts in spite of not being permanent employees and being lesser paid.

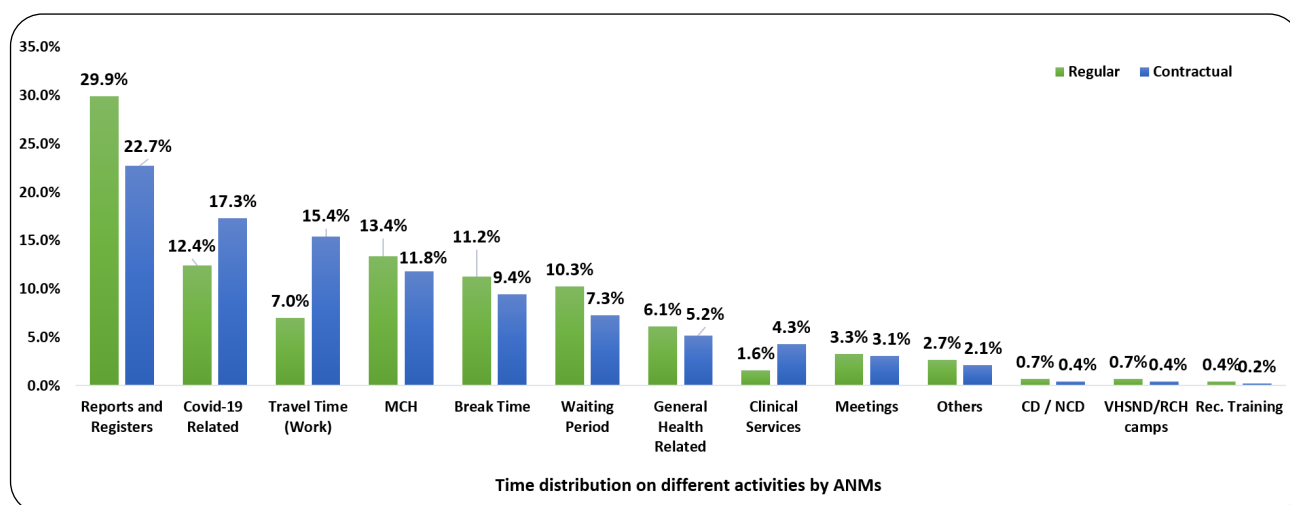
**Table 3.5 - Effective hours worked by Regular and Contractual ANMs**

	Regular		Contractual	
	Mean	Median	Mean	Median
Number of Days	5.86	6	5.67	6
Effective Hours Worked (per week)	29:17	28:49	36:06	34:57
Effective Hours Worked (per day)	4:53	4:48	6:01	5:50

Out of the total time worked, contractual ANMs spend 7% lesser time on reports and registers than the regular ANMs (Figure 3.9). Time spent on covid related activities is 5% and travelling time on work is 8.4% more by the contractual ANMs than their regular counterparts. Contractual ANMs spending more time

on field work signifies that they are involved more in home visits and outreach services than the regular ones. Also, the time spent by regular ANMs on clinical services is quite less.

**Figure 3.9 - Percentage distribution of time on different activities by Contractual and Regular ANMs**



Both contractual and regular ANMs spend most of their time on making and maintaining reports and registers (Table 3.6). On an average, contractual ANMs spent about an hour less than the regular ANMs on reports and registers in a week. Average time spent on covid

activities, clinical services and travel time for work is 2 hours and 34 minutes, 1 hour and 7 minutes and 3 hours and 34 minutes more by contractual ANMs than the regular ANMs respectively.

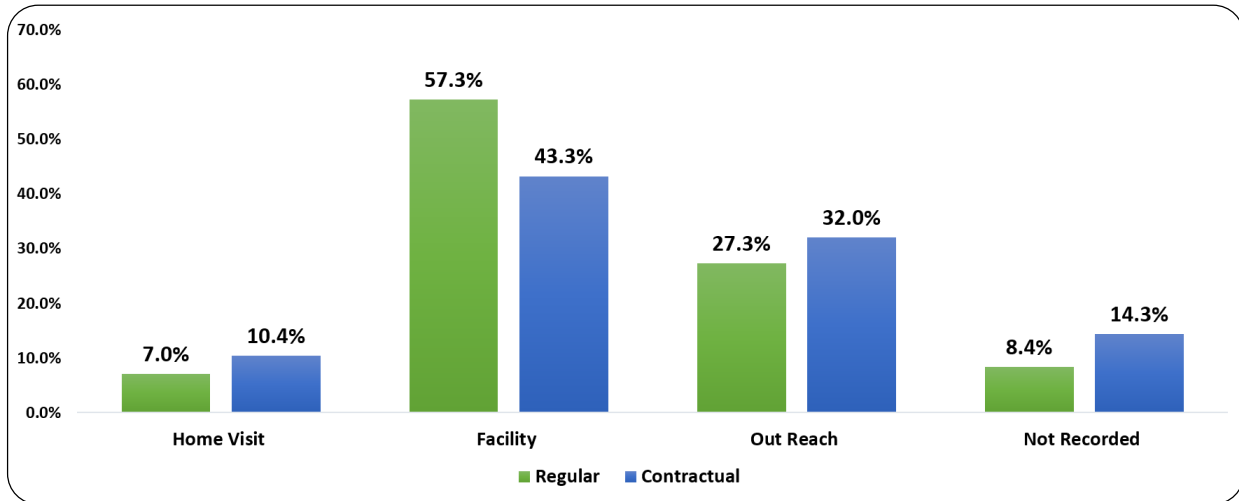
**Table 3.6 - Mean time distribution on different activities by Regular and Contractual ANMs**

Variable	Regular		Contractual	
	Mean Hour (per day)	Mean Hour (per week)	Mean Hour (per day)	Mean Hour (per week)
Reports and Registers	1:37	9:40	1:26	8:37
Maternal Child & Health	0:43	4:19	0:45	4:28
Covid-19 Related	0:40	4:00	1:06	6:34
Break Time	0:36	3:38	0:36	3:34
Waiting Period	0:33	3:19	0:28	2:46
Travel Time (Work)	0:23	2:16	0:58	5:50
General Health Related	0:20	1:59	0:20	1:58
Meetings	0:10	1:03	0:12	1:10
Others	0:09	0:52	0:08	0:49
Clinical Services	0:05	0:31	0:16	1:38
VHSND/RCH camps	0:02	0:14	0:02	0:10
Comm/Non-Communicable	0:02	0:13	0:02	0:10
Rec. Training	0:01	0:08	0:01	0:05
Supportive Supervision	0:01	0:05	0:01	0:04

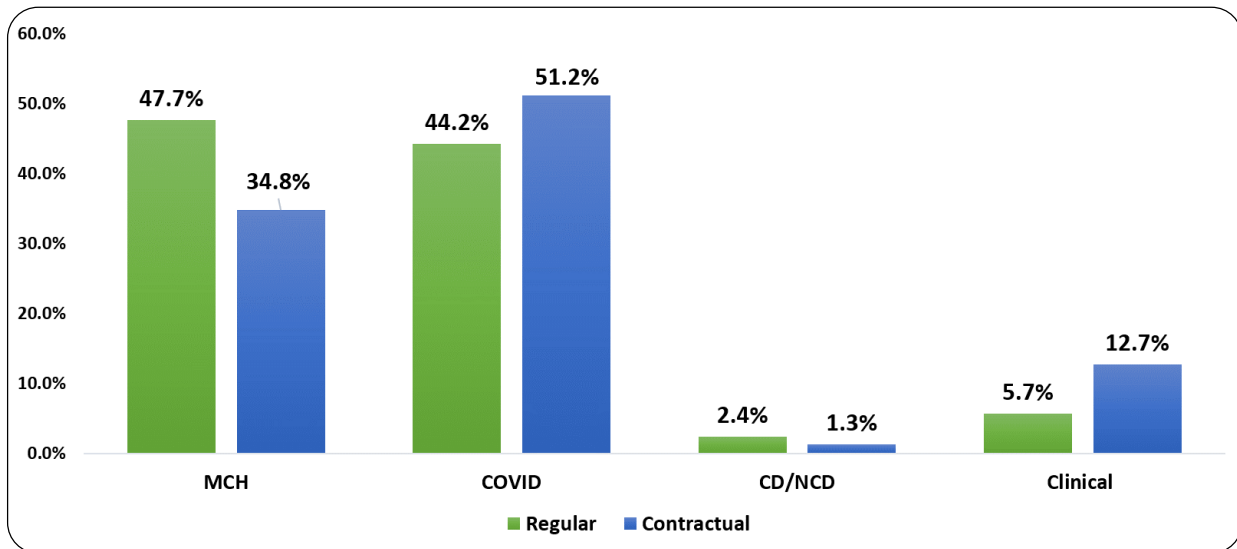
Figure 3.10 demonstrates that contractual ANMs spend lesser time in facility (14% less) for providing services and more at outreach facilities (3.4%) and home visits (4.7%) than the regular ANMs. Out of the

service delivery time, contractual ANMs spend 7% more time on covid-19 and clinical services and 13% less on MCH related services than the regular ones (Figure 3.11).

**Figure 3.10 – Percentage time distribution based on the location of service by Regular and Contractual ANMs**



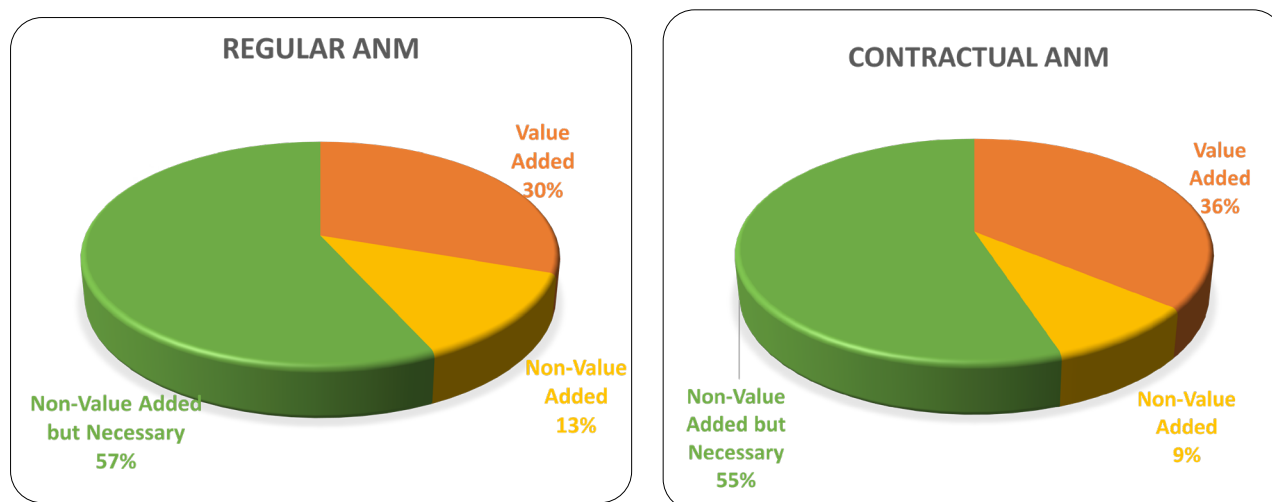
**Figure 3.11 – Percentage time distribution based on the type of service delivery by Regular and Contractual ANMs**



Contractual ANMs' contribution to work on value added activities is higher than the regular ones. Time spent by contractual ANMs on value added activities






is 6% more than the regular ones (Figure 3.12). Also, contractual ANMs spend 4% lesser time on non-value-added activities.

Figure 3.12 – Percentage distribution of time based on the type of activity by Regular and Contractual ANMs



### 3.4 ANMs based upon the region (Khasi, Garo and Jaintia Hills)

#### Key Points

-  On an average the effective hours worked by Khasi hills ANMs is 2 hours and 11 minutes and 1 hour and 11 minutes more than the Garo and Jaintia hills ANMs in a day respectively. In a week, Khasi hills ANMs work 13 hours and 37 minutes and 7 hours and 11 minutes more than the Garo and Jaintia hills ANMs respectively.
-  Out of the total time worked, Khasi hills ANMs spend more time on travel (work) and reports and registers but spend very less time on waiting than their counterparts. Whereas Jaintia hills ANMs spend more time on covid related activities and lesser on travelling (work).
-  Out of their total time spent, Khasi hills ANMs work least in the facility whereas Jaintia hills ANMs work more on outreach services compared with other regions.
-  Out of their total time spent on service delivery, Jaintia hills ANMs spent most of their time on covid-19 services and least on clinical services. Khasi hills ANMs spent the highest time on clinical services.
-  Time spent on non-value added activities is highest by Garo hills ANMs and on non-value added but necessary activities is highest by Khasi hills ANMs.

Meghalaya is divided into three regions i.e., Khasi, Garo and Jaintia Hills. ANMs have been categorized into three based on the regions: Khasi, Garo and Jaintia Hills ANMs. On an average, the daily effective hours worked by Khasi hills ANMs is 2 hours and 11

minutes and 1 hour and 11 minutes more than the Garo and Jaintia hills ANMs respectively (Table 3.7). In a week, Khasi hills ANMs work 13 hours and 37 minutes and 7 hours and 11 minutes more than the Garo and Jaintia hills ANMs respectively.

**Table 3.7 - Effective hours worked by Garo, Khasi and Jaintia ANMs**

	Garo		Khasi		Jaintia	
	Mean	Median	Mean	Median	Mean	Median
Number of Days	5.89	6	5.73	6	5.57	6
Effective Hours Worked (per week)	25:55	26:30	39:32	37:18	32:21	30:30
Effective Hours Worked (per day)	4:24	4:29	6:35	6:13	5:24	5:05

Out of their total time spent on different activities, Khasi hills ANMs spend more time on reports and registers and travelling on work but very less time on waiting for the patients than their counterparts (Figure 3.13). Less time spent on waiting for the patients

signifies that Khasi hills ANMs substitute their waiting period with other utility work. Whereas, Jaintia hills ANMs spend more time on covid-19 related activities and lesser on travelling (work).

**Figure 3.13 - Percentage distribution of time on different activities by Garo, Khasi and Jaintia ANMs**

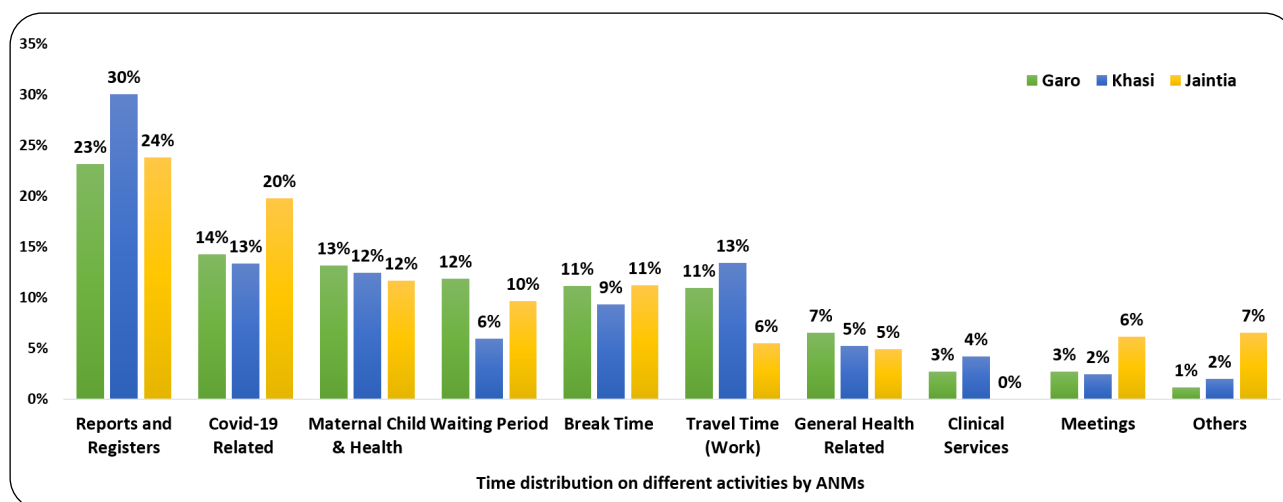


Table 3.8 demonstrates the average daily and weekly time spent by ANMs on different activities by the Khasi, Garo and Jaintia Hills ANMs. Khasi hills ANMs spent on an average more than 12 hours a week on reports and registers. The difference is quite high in the average time allocation on reports and registers, MCH services and travelling time on work between

Khasi hills ANMs and other hills ANMs. The average time spent on covid-19 related activities is highest by the Jaintia hills ANMs and lowest by Garo hills ANMs. Khasi hills ANMs spent the least average time on waiting.

**Table 3.8 - Mean time distribution on different activities by Khasi, Garo and Jaintia ANMs**

Variable	Khasi Hills		Garo Hills		Jaintia Hills	
	Mean Hour (per day)	Mean Hour (per week)	Mean Hour (per day)	Mean Hour (per week)	Mean Hour (per week)	Mean Hour (per week)
Reports and Registers	2:06	12:37	1:08	6:46	1:21	8:07
Covid-19 Related	0:56	5:37	0:42	4:10	1:07	6:44
MCH	0:52	5:14	0:38	3:51	0:40	3:58
Break Time	0:39	3:55	0:33	3:15	0:38	3:49
Travel Time (Work)	0:56	5:37	0:32	3:12	0:19	1:53
Waiting Period	0:25	2:29	0:35	3:28	0:33	3:17
General Health Related	0:22	2:12	0:19	1:55	0:17	1:40
Meetings	0:10	1:01	0:08	0:47	0:21	2:06
Others	0:08	0:49	0:03	0:20	0:22	2:13
Clinical Services	0:18	1:46	0:08	0:47	0:00	0:00
CD / NCD	0:04	0:22	0:01	0:08	0:00	0:00
VHSND/RCH camps	0:02	0:11	0:02	0:13	0:02	0:13

Khasi hills ANMs spent the least time in facility whereas Jaintia Hills ANMs work more at outreach services than compared with other regions (Figure 3.14). However, one thing to note here is the time spent, which is not recorded based on the location of services, which is maximum for Khasi hill ANMs. Out

of their total time spent on service delivery, Jaintia hills ANMs spent most of their time on covid-19 services and no time on clinical services (Figure 3.15). Khasi hills ANMs spent maximum time on clinical services whereas Garo hills ANMs spent maximum time on MCH services in relation to other regions.

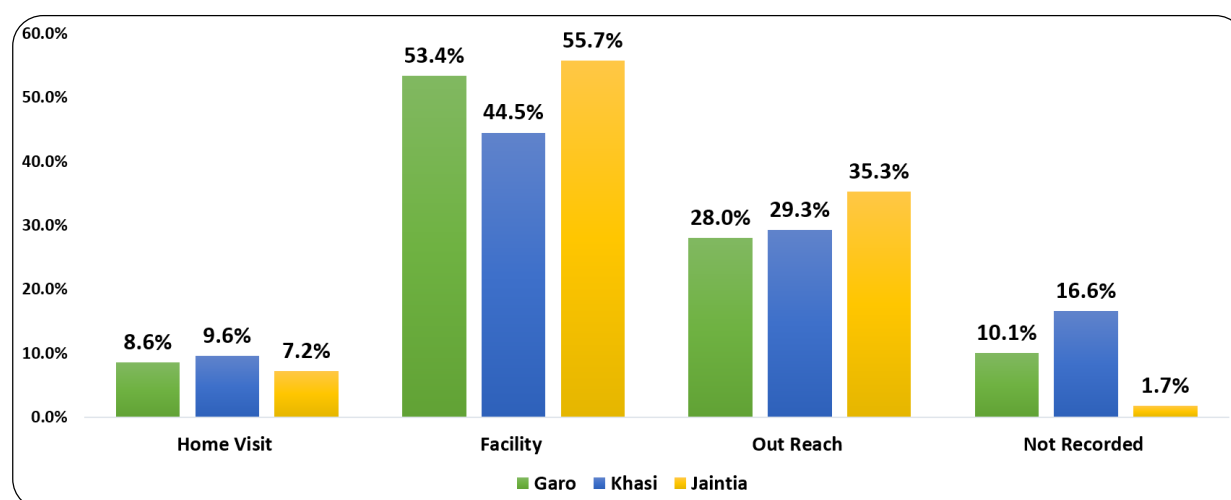
**Figure 3.14 – Percentage time distribution based on the location of service by Garo, Khasi and Jaintia ANMs**



Figure 3.15 – Percentage time distribution based on the type of service delivery by Garo, Khasi and Jaintia ANMs

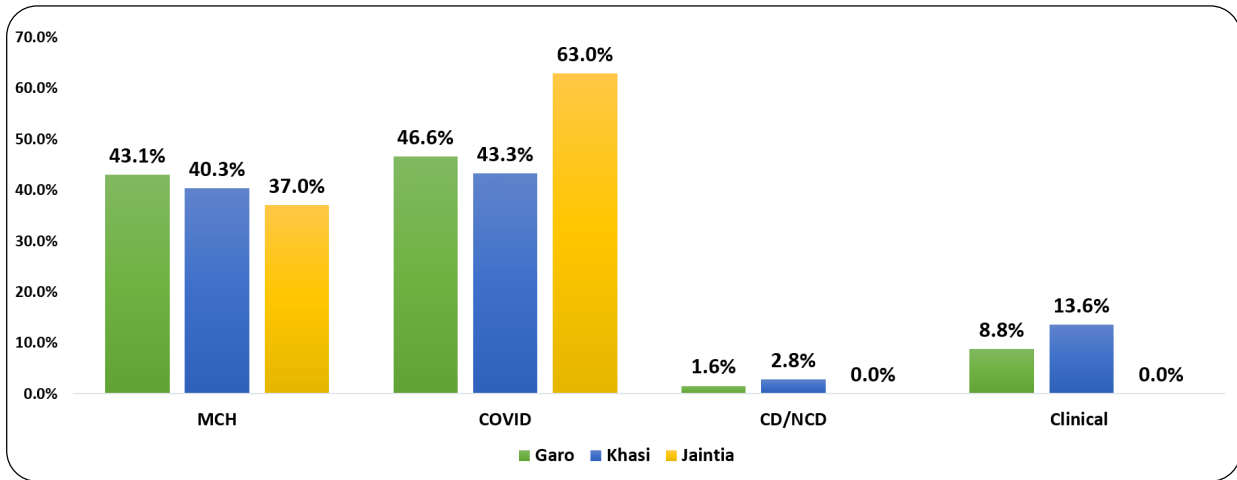
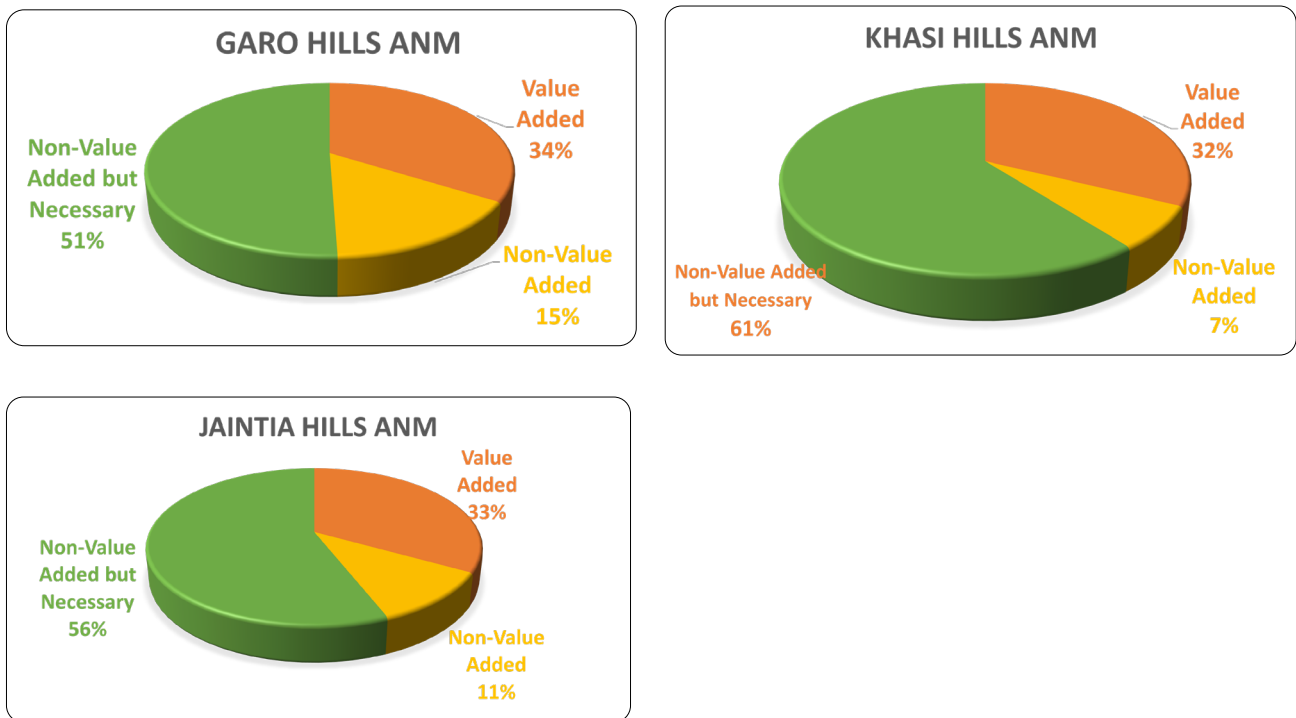


Figure 3.16 demonstrates that the time spent on non-value added but necessary activities is highest by Khasi Hills ANMs (5% and 10% more than Jaintia and Garo Hills ANMs respectively). Garo hills ANMs spent 4% and 8% more time on non-value-added activities

than the Jaintia and Khasi hills ANMs respectively. The difference is very less among the regions in the case of time spent on value added activities by the ANMs.

Figure 3.16 – Percentage distribution of time based on the type of activity by Garo, Khasi and Jaintia ANMs



### 3.5 Delivery and Non-Delivery Sub-centre ANMs

#### Key Points



Out of their total time, NDP ANMs spent more time on reports and registers and covid-19 related activities than the DP ANMs. Whereas, DP ANMs spent more time on clinical services and travel (work).



Out of their total time spent, NDP ANMs spent more time in the facility and less on home visits than the DP ANMs. NDP ANMs spent twice their total time on outreach services than the DP ANMs.



Clinical services time by DP ANMs is much higher than the NDP ANMs whereas, covid-19 services is higher by NDP.



Not much differences can be seen in the time spent by DP and NDP ANMs on non-value added but necessary activities and non-value added activities.

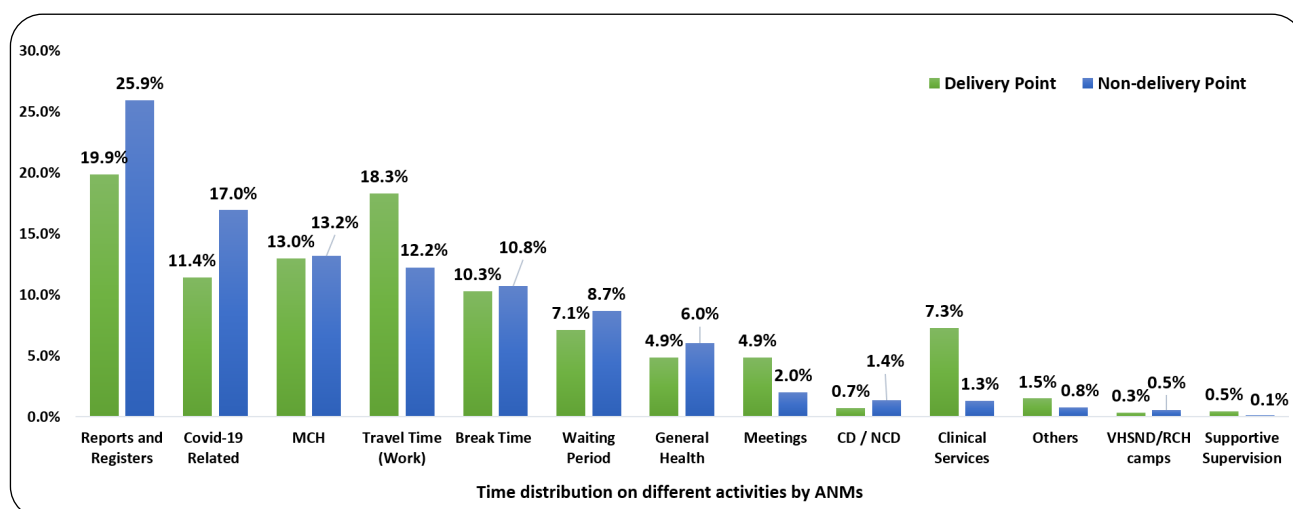
ANMs have been also classified based on the delivery conducting and non-delivery conducting sub-centres i.e., delivery point (DP) and non-delivery point (NDP) ANMs. The results of the average and median daily effective hours worked by delivery and non-delivery point ANMs don't show much differences (Table 3.9).

Out of their total times spent, NDP ANMs spent 6% and 5.6% more on reports and registers and covid-19 related activities than the DP ANMs respectively (Figure 3.17). Whereas, DP ANMs spent 6% more time on clinical services and travelling on work than their NDP counter parts.

**Table 3.9 - Effective hours worked by Delivery Point and Non-Delivery Point ANMs**

	Delivery Point		Non-Delivery Point	
	Mean	Median	Mean	Median
Number of Days	5.69	6	5.75	6
Effective Hours Worked (per week)	32:46	27:54	30:52	30:41
Effective Hours Worked (per day)	5:42	4:49	5:20	5:16

**Figure 3.17 - Percentage distribution of time on different activities by Delivery and Non-Delivery Point ANMs**



The average time spent per week on reports and registers and covid-19 related activities is 1 hour and 43 minutes more by the NDP ANMs than the DP ANMs. Whereas, DP ANMs spent 2 hours and 27

minutes and 2 hours and 12 minutes more on travel related to work and clinical services than the NDP ANMs respectively (Table 3.10).

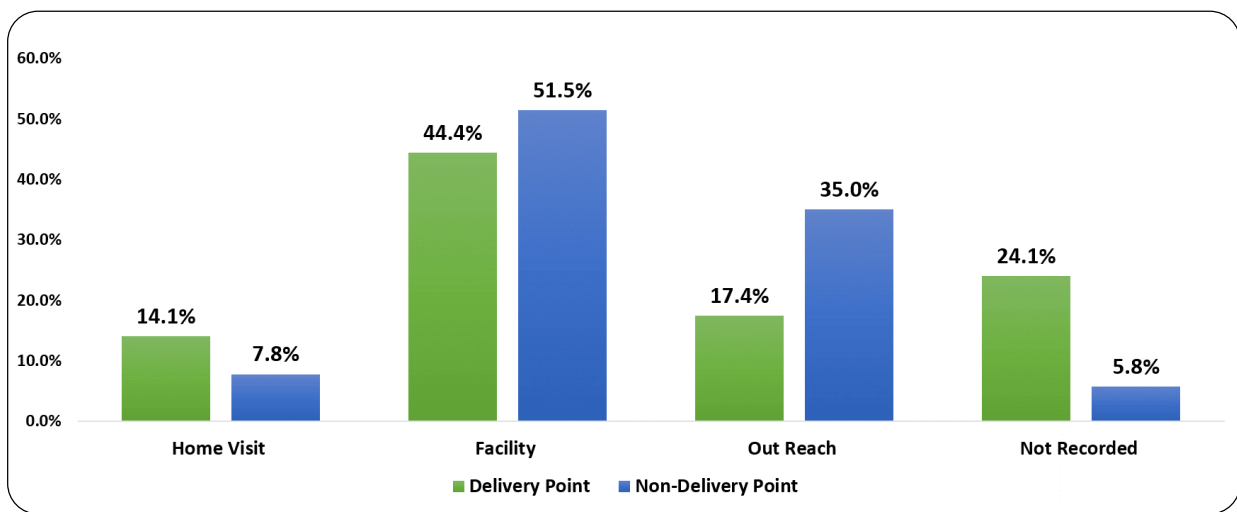
**Table 3.10 - Mean time distribution on different activities by Delivery and Non-Delivery Point ANMs**

Variable	Delivery Point		Non-Delivery Point	
	Mean Hour (per day)	Mean Hour (per week)	Mean Hour (per day)	Mean Hour (per week)
Reports and Registers	1:13	7:15	1:30	8:58
Travel Time (Work)	1:07	6:41	0:42	4:14
MCH	0:47	4:44	0:46	4:35
Covid-19 Related	0:42	4:10	0:59	5:53
Break Time	0:38	3:46	0:37	3:43
Clinical Services	0:27	2:40	0:05	0:28
Waiting Period	0:26	2:36	0:30	2:60
Meetings	0:18	1:47	0:07	0:41
General Health Related	0:18	1:47	0:21	2:06
Others	0:04	0:25	0:03	0:16
CD / NCD	0:03	0:16	0:05	0:29
Supportive Supervision	0:02	0:10	0:00	0:02
VHSND/RCH camps	0:01	0:07	0:02	0:11

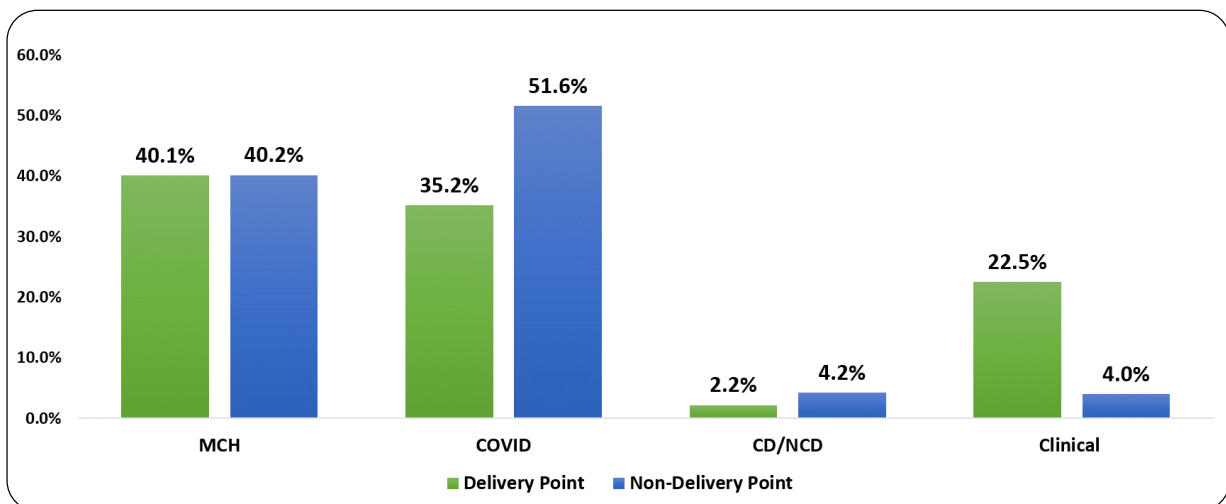
Out of their total time spent, NDP ANMs spent 7% more in the facility and 6.3% less on home visits than the DP ANMs (Figure 3.18). On outreach services, NDP ANMs (35%) spent twice their total time than the DP ANMs (17.4%). NDP ANMs spending more time at outreach services can be substantiated from the fact that the sub centres do not conduct delivery and ANMs are utilizing higher time on covid-19 vaccination process at these outreach sites.

DP ANMs spent 18.5% more time on clinical services than the NDP ANMs because non-delivery sub-centres do not conduct delivery due to which the time spent on clinical services get substantially reduced for the the NDP ANMs (Figure 3.19). On the contrary, NDP ANMs spent 16.4% more time at outreach services than the DP ANMs. The time spent on MCH services by both the ANMs is same.

**Figure 3.18 – Percentage time distribution based on the location of service by Delivery and Non-Delivery Point ANMs**

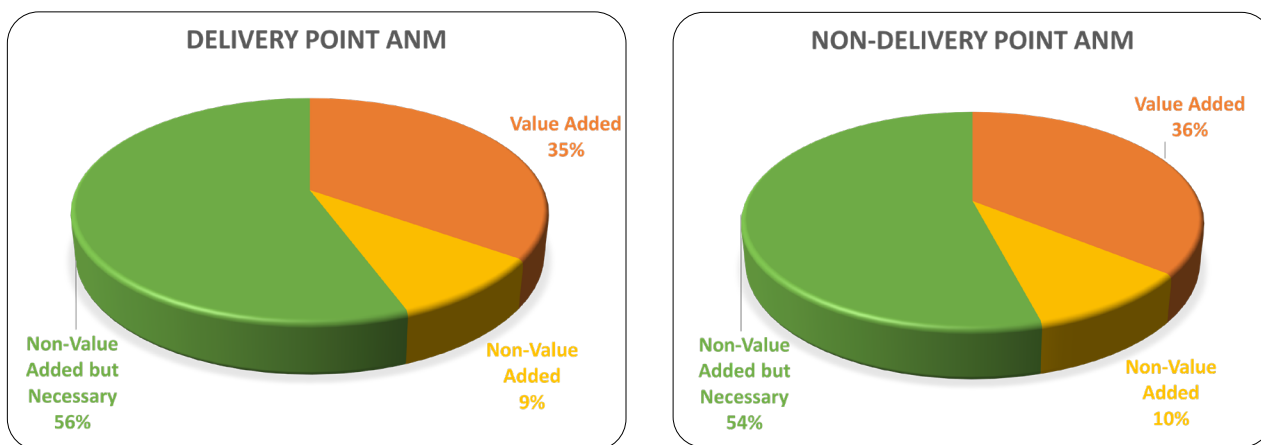


**Figure 3.19 – Percentage time distribution based on the type of service delivery by Delivery and Non-Delivery Point ANMs**



The differences in the time spent by DP and NDP ANMs on non-value added but necessary activities, value-added and non-value-added activities is negligible (Figure 3.20). They utilize more or less the same time on these activities.

**Figure 3.20 – Percentage distribution of time based on the type of activity by Delivery and Non-Delivery Point ANMs**



### 3.6 ANMs Based on the Age Differences (Older and Younger ANMs)

#### Key Points



On an average younger ANMs work 5 hours and 42 minutes more than the older ones in a week and 48 minutes more in a day.



Older ANMs spent more time in facility and younger ANMs spent more time on outreach services.



Time spent by younger ANMs is higher on Covid services and lesser on MCH services. Time spent on clinical services is also higher by younger ANMs.



Younger ANMs spend more time on value added services than the older ANMs.

ANMs based on the age differences were divided into two categories; ANMs aged less than equal to 35 years i.e., younger ANMs and ANMs aged more than 35 years i.e., older ANMs. On an average, younger ANMs work 5 hours and 42 minutes more than the

elder ones in a week and 48 minutes more in a day (Table 3.11). Also, median hours worked by younger ANMs is 6 hours and 18 minutes more than the elder ANMs in a week and 42 minutes more in a day.

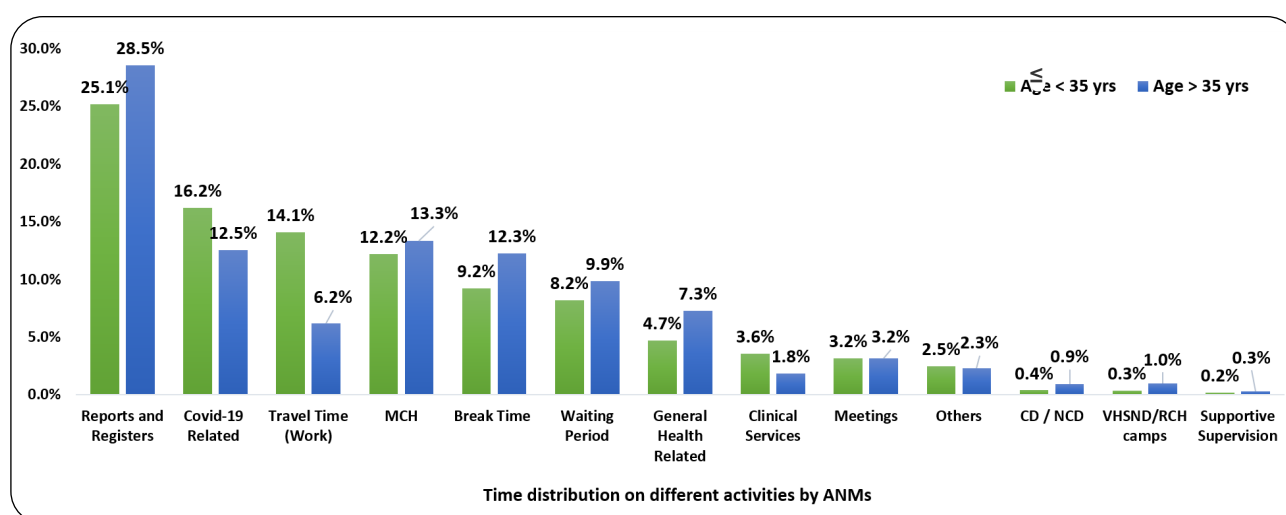
**Table 3.11 - Effective hours worked by ANMs with age >35 years and ≤35 years**

	Age ≤35 yrs.		Age >35 yrs.	
	Mean	Median	Mean	Median
Number of Days	5.75	6	5.81	6
Effective Hours Worked (per week)	34:15	32:48	28:33	26:30
Effective Hours Worked (per day)	5:43	5:28	4:55	4:46

Older ANMs spent 3.4% more time on reports than the younger ANMs whereas younger ANMs spent 3.7% and 8% more on covid services and travelling on work than the older ANMs respectively (Figure 3.21). Not much differences can be seen in the time spent by younger and older ANMs on other activities. In the case of average time distribution per week

on different activities, older ANMs spent 1 hour and 47 minutes and 3 hours and 6 minutes less than the younger ANMs on covid-19 related activities and travelling related to work respectively (Table 3.12). The differences in time distribution on other activities are less between both the ANMs.

**Figure 3.21 - Percentage distribution of time on different activities by ANMs with age >35 and ≤35 years**



Out of their total time spent based on the location of service, older ANMs spent 10% more time in facility and younger ANMs spent 4% less time at outreach services than their counterparts (Figure 3.22). Time

spent on Covid services is 6.2% higher by younger ANMs and 9% lesser on MCH services than the older ANMs (Figure 3.23). Also, time spent on clinical services is 4.7% more by the younger ANMs.

**Table 3.12 - Mean time distribution on different activities by ANMs with age >35 and ≤35 years**

Variable	Age >35 yrs.		Age ≤35 yrs.	
	Mean Hour (per day)	Mean Hour (per week)	Mean Hour (per day)	Mean Hour (per week)
Reports and Registers	1:33	9:17	1:31	9:08
MCH	0:43	4:20	0:44	4:25
Covid-19 Related	0:41	4:05	0:59	5:52
Break Time	0:40	3:59	0:34	3:21
Waiting Period	0:32	3:12	0:30	2:58
General Health Related	0:24	2:22	0:17	1:43
Travel Time (Work)	0:20	2:01	0:51	5:07
Meetings	0:10	1:02	0:12	1:09
Others	0:08	0:45	0:09	0:54
Clinical Services	0:06	0:36	0:13	1:18
VHSND/RCH camps	0:03	0:19	0:01	0:08
CD / NCD	0:03	0:17	0:01	0:08
Rec. Training	0:02	0:11	0:01	0:04
Supportive Supervision	0:01	0:06	0:01	0:04

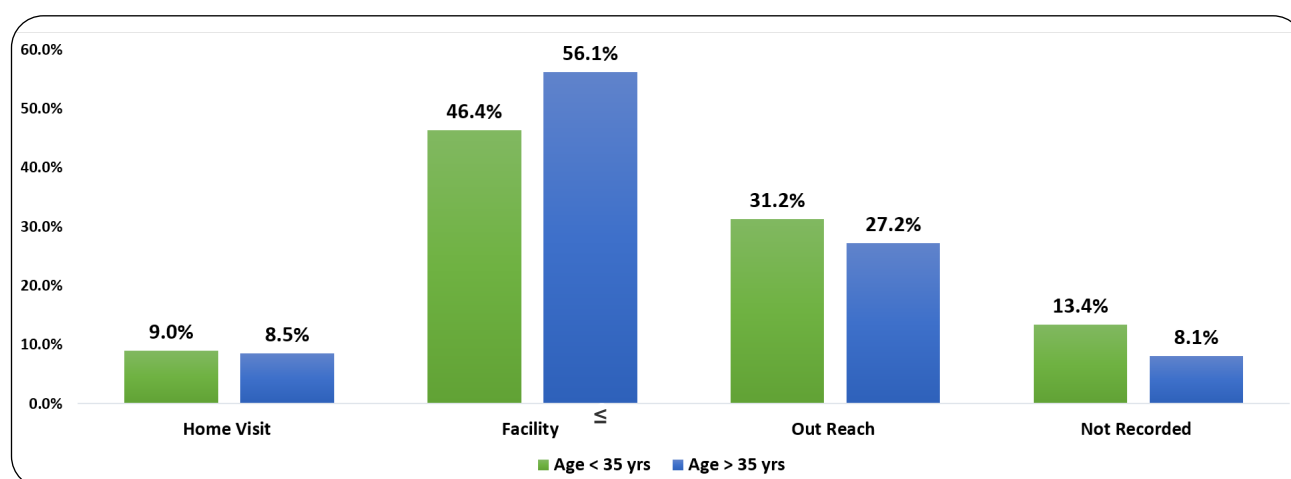
**Figure 3.22 – Percentage time distribution based on the location of service by ANMs with age >35 and ≤35 years**

Figure 3.23 – Percentage time distribution based on the type of service delivery by ANMs with age >35 and ≤35 years

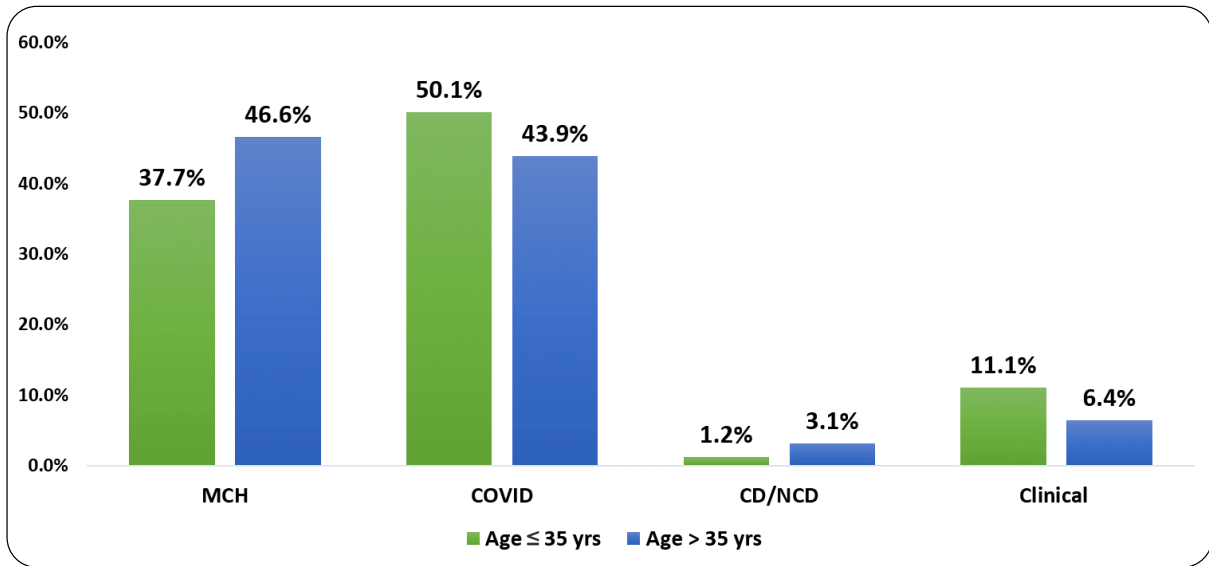
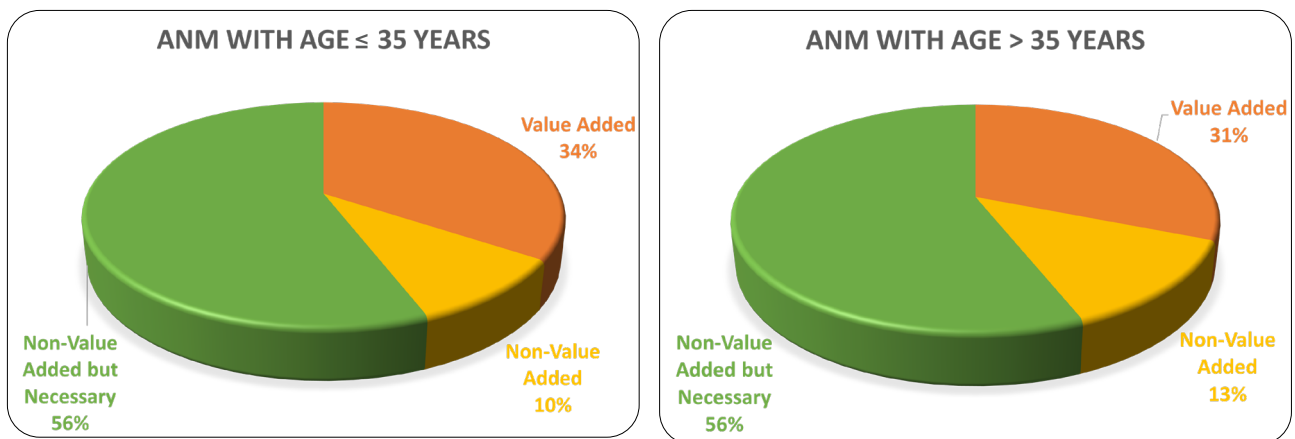


Figure 3.24 – Percentage time distribution based on the type of activity by ANMs with age >35 and ≤35 years



Based on the type of activity, younger ANMs spent 3% more time on value-added activities and 3% less time on non-value-added activities than their older counterparts (Figure 3.24). The time spent on non-value added but necessary activities is equal for both younger as well as older ANMs.



### 3.7 Day-wise Analysis

#### Key Points



ANMs spent maximum time on home visits on Mondays and Tuesdays, outreach services on Tuesdays and Thursdays whereas on facility services on Wednesdays and Fridays.



Data reporting and registers maintenance is done mostly on alternate days.



ANMs spent the least time on work on Saturdays and highest on Tuesdays and Thursdays.

The heat map of relative time spent on different activities day-wise by the ANMs is shown in figure 3.25. Relative time spent on facility service delivery is the highest on Wednesdays and Fridays and the least on Tuesdays and Saturdays. Similarly, maximum time on home visits is spent on Mondays and Tuesdays, outreach services on Tuesdays and Thursdays and

meetings generally take place on Thursdays. ANMs utilize their time on reports and registers on alternative days i.e., Mondays, Wednesdays and Fridays. Overall, we also found that on Saturdays time spent is least on all the activities except moderate time spent at providing outreach services.

**Figure 3.25 - Heat map of day-wise activities by ANMs**

Activity	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Facility Service Delivery	Yellow	Red	Green	Yellow	Green	Red
Outreach Service Delivery	Yellow	Green	Red	Green	Yellow	Yellow
Home Visits	Green	Green	Yellow	Yellow	Red	Red
Meetings and Training	Red	Yellow	Yellow	Green	Red	Red
Data reporting and register	Green	Yellow	Green	Yellow	Green	Red

Note : Green denotes High, Yellow denotes moderate and Red denotes low time spent.

The day-wise analysis of the effective hours worked by an ANM shows that the differences in the mean hours worked are not high (ranges between 5 hours and 28 minutes to 5 hours and 47 minutes) from Monday to Friday (Table 3.13). But we do find that the means hours worked by ANM falls on Saturdays to 4 hours and 13 minutes. The highest median hours worked by ANM is on Thursdays i.e., 6 hours and 1 minute.

The difference in the median effective hours worked by the ANMs from Monday to Friday ranges between 5 hours and 32 minutes to 6 hours and 1 minute but falls to just 3 hours and 37 minutes on Saturdays. The overall results suggest that on Saturdays the effective hours worked by ANMs reduces significantly as compared to other days of the week.

**Table 3.13 - Day-wise mean and median effective hours worked by ANMs**

Day	Mean Effective Hours Worked	Median Effective Hours Worked
Monday	5:35	5:43
Tuesday	5:47	5:37
Wednesday	5:28	5:32
Thursday	5:46	6:01
Friday	5:31	5:42
Saturday	4:13	3:37





## 04 Qualitative Findings

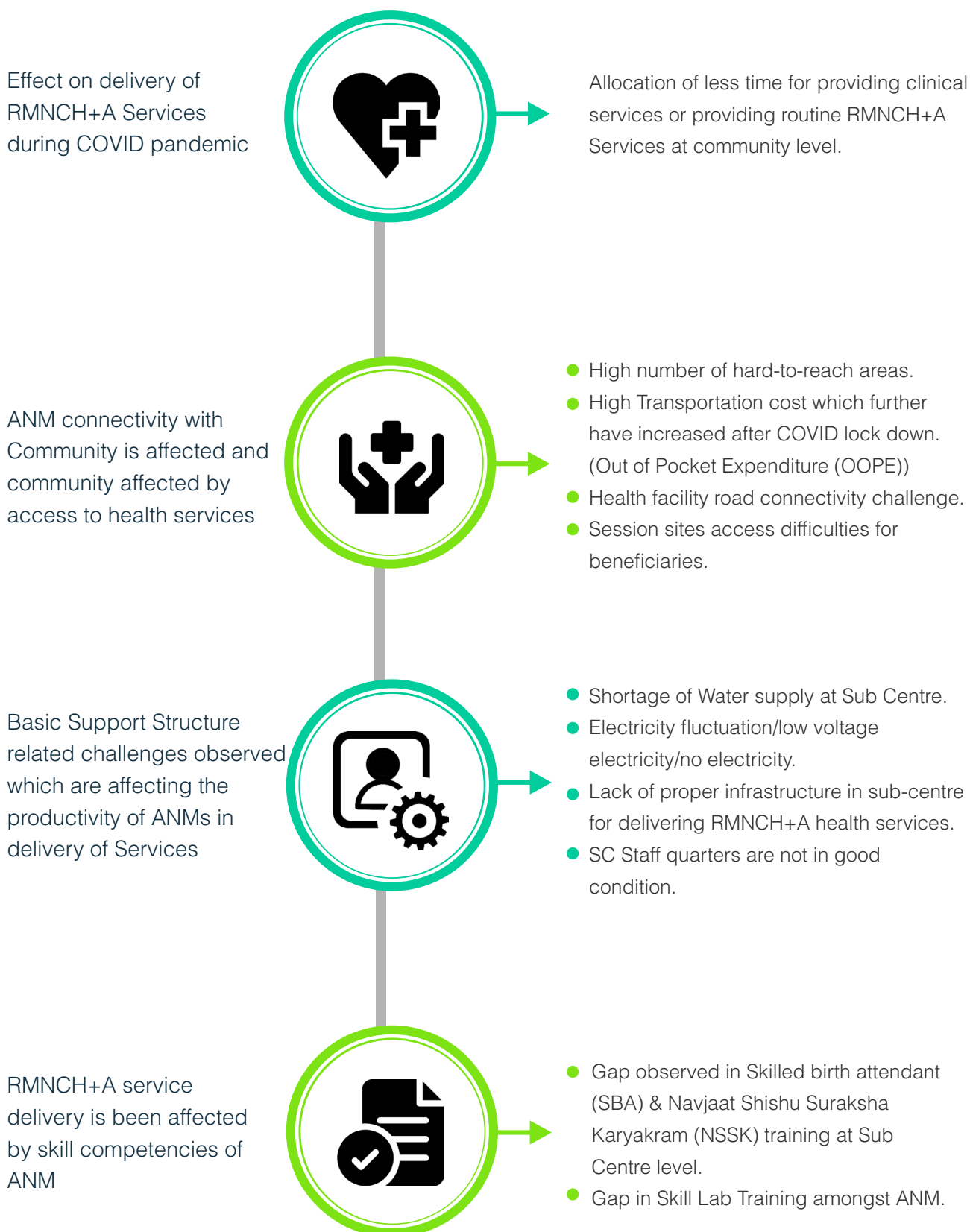


All the 40 ANMs of our sample were interviewed and based on the responses, we did an inductive thematic content analysis. Eight recurrent themes emerged out of the analysis across the sample for a summary of themes. These themes are depicted in figure 4.1 below.

**Figure 4.1- Recurrent themes present across the sample**



**Figure 4.1- Recurrent themes present across the sample (Continued...)**





## 05 Conclusion



ANM's play an important and very critical role in ensuring proper healthcare services in Meghalaya's primary healthcare system. Hence, understanding the work hour management and challenges in the service delivery of ANMs was needed. This will help in identifying critical challenges and opportunities to increase ANMs work satisfaction and productivity. In this study we have directly observed ANMs with diverse set of characteristics and interviewed them as well to put the results in the context which will help in formulating required policy.

Summarizing the findings of the study we found that the average effective hours worked by an ANM is 5 hours and 23 minutes per day. ANMs spend half of their service delivery time in facility, 30% on outreach services and only 10% on home visits. Out of their total time on service delivery, maximum time spent by ANMs is on COVID-19 related services, which is affecting the other job functions which they have to perform. ANMs spent most of their time on preparing reports and maintaining registers (26%). Day-wise ANMs work allocation shows that maximum time on home visits is spent on Mondays and Tuesdays, outreach services on Tuesdays and Thursdays and facility services on Wednesdays and Fridays. On Saturdays, the ANMs spend least time on work (average 4 hours and 13 minutes).

On an average, the effective hours worked by rural ANMs is 3 hours and 46 minutes more than urban ANMs in a week (38 minutes more in a day). Time spent on outreach services by urban ANMs is 15% more than the rural ANMs. Rural ANMs spent significantly more time on clinical services and less on MCH services than their urban counterparts.

Regular ANMs work on an average 6 hours and 49 minutes less than the contractual ANMs in a week (1 hour and 8 minutes in a day). Contractual ANMs spend lesser time in facility and more on home visits and outreach services. Time spent by contractual

ANMs on value added activities is more than the regular ones. Contractual ANMs spend more on covid and clinical services and less on MCH related services than the regular ones.

On an average, the effective hours worked by ANMs in Khasi hills is 2 hours and 11 minutes and 1 hour and 11 minutes more than the ANMs in Garo and Jaintia hills in a day respectively. Time spent on non-value-added activities is highest by ANMs in Garo hills. While ANMs in Khasi hills spend more time travelling for work, preparing reports and filling up registers, they spend very less time waiting for patients when compared with the time spent by ANMs in other regions.

Younger ANMs work on an average 5 hours and 42 minutes more than the older ones in a week. Older ANMs spent more time in facility whereas younger ANMs spent more time on outreach services. Out of their total time in service delivery, time spent by younger ANMs is higher on Covid services and lesser on MCH services.

Qualitative analysis of the interviews with the ANMs helps us to understand the motivating, demotivating factors and work related problems of ANMs related to work. ANMs take pride of serving the community and the opportunity to bring about a positive behavioural change in the community towards healthcare and health staff as the motivating factor with regards to their role. Poor infrastructure of health facilities and inadequate in-service training appear to demotivate the ANMs from whole heartedly doing their job. Current challenges and problem for ANMs in work include; the effect of covid-19 on delivery of RMNCH+A services, high number of hard-to-reach areas, connectivity to health facility and basic support structure like water supply shortage and non-availability of electricity at the Sub Centre.

Smart digitization can be undertaken such that it

reduces the need to manually maintain registers and generate reports for administrative purposes. This will help in reducing the time spent on report and registers by ANMs and thereby increasing the time spent on value-added activities. Contractual ANMs despite earning less and not having permanent job are overperforming the regular ANMs. Hence, performance-based incentives given to the contractual ANMs can be explored. Also, the basic health infrastructure at the facilities needs to be taken care of in order to provide good working condition to the ANMs. The state could explore partnerships with private organizations or foundations who could adopt a few Health Centres to provide better facilities

to citizens and working conditions to the ANMs than existing at present.

Further studies with more round of data collection at different point of time with the ANMs can help in knowing the work allocation distribution of ANMs with different characteristics to look at the differences. Such kind of studies with Accredited Social Health Activist (ASHA) and medical officers is also needed because they also play a huge role in providing health care services, especially in rural areas. We believe that the findings of our study will help policymakers in formulating relevant policy and efficient strategy for optimal work allocation distribution of ANMs.







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# A TIME AND MOTION STUDY FOR ASSESSING THE ROLE AND SERVICE DELIVERY OF AUXILIARY NURSE MIDWIVES IN MEGHALAYA

