



**Report of the
Comptroller and Auditor General of India
on
Performance Audit of Select District Hospitals**



for the year ended 31 March 2019

**Government of Assam
(Report No. 3 of 2021)**

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PREFACE

PREFACE

This Stand Alone Report of the Comptroller and Auditor General of India containing the results of Performance Audit of Select District Hospitals in Assam for the period 2014-19 has been prepared for submission to the Governor of Assam under Article 151 of the Constitution of India.

District Hospitals are set up for providing a plethora of services for preventive, diagnostic and curative health care to the people in the district, at an acceptable level of quality, and be responsive and sensitive to the needs of the people. The focus of the audit is to assess the role of the district hospitals in providing the envisaged health care services to the people in an affordable and timely manner to the expected quality standard.

Audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

About the Report:

The Report is about the Results of a Performance Audit of Select Public Health facilities of secondary care (District-level Hospitals), in the State of Assam. We covered the period from 2014-15 to 2018-19. The audit examination included records maintained in the office of the Commissioner & Secretary, Health and Family Welfare Department, Director of Health Services (DHS), Mission Director of National Health Mission (NHM), Joint Director of Health Services (JDHS) of seven selected districts *i.e.*, Kamrup, Nagaon, Kokrajhar, Tinsukia, Karbi Anglong, Hailakandi and Jorhat and Superintendents of selected District Hospitals (DHs).

What has been covered in this audit?

In this Performance Audit, we have focussed on patient care given by secondary care levels in the State. We assessed the availability of basic infrastructure facilities in the State, adequacy of manpower in the selected DHs and various Services provided therein like Out-Patient and In-patient Services, Maternity Services, Emergency Services, Drug Management, Infection Control, Bio Medical Waste Management, Diagnostic Services, *etc.* based on pre-determined performance indicators/ criteria in the sampled district level. We have adopted the Indian Public Health Standards (IPHS) guidelines as prescribed by Government of India, which are a set of uniform standards envisaged to improve the quality of health care delivery in the country applicable for benchmarking various audit findings.

What have we found?

We found significant areas for improvement in the healthcare needs of the people as highlighted below:

Financial Resources

Funds under State Budget

The State Government incurred an expenditure of ₹ 17,065 crore (*six per cent*) on Health out of ₹ 2,70,636 crore, total Expenditure of the State during the period 2014-15 to 2018-19. The budget allotment of the Health and Family Welfare Department against the State Budget during the period 2014-19 ranged between *4.90 per cent* and *6.70 per cent* as against an envisaged allocation of at least *eight per cent* of the total budget for Health as per the National Health Policy, 2017. The expenditure of the Department ranged between *4.40 per cent* and *7.10 per cent* of the total Expenditure of the State during the period. The Department failed to fully utilise the allotted funds during 2014-19, with the unspent funds ranging from 22 (₹ 1,267 crore) to *40 per cent* (₹ 1,299 crore). The Capital Expenditure on creation/ strengthening of infrastructure facilities constituted only *3.95 per cent* of the total expenditure during the period. The allocation on materials and supplies, which included medicines, was only *2.42 per cent* of the health budget and even that was not fully utilised during 2014-19.

Further, State's expenditure on Health Sector ranged between 0.98 *per cent* and 1.54 *per cent* of GSDP during the period 2014-15 to 2018-19, against the target of 2.5 *per cent* of the GSDP, to be achieved by 2025.

(Paragraphs 2.1 and 2.2)

Funds under National Health Mission (NHM)

The NHM utilised up to 85 *per cent* of total available fund till 2018-19 for implementation of various programmes. The unspent funds ranged between 45 to 25 *per cent* in 2014-16, and improved thereafter to 15 *per cent* in 2018-19. The State Government failed to contribute its matching share during 2014-15 and released its share with delays during 2014-15, 2017-18 and 2018-19.

(Paragraph 2.4)

Recommendations

- ***The State Government may enhance the budget provision and expenditure on healthcare services to ensure that adequate and quality healthcare infrastructure and services are provided to the people of the State.***
- ***The Mission Director, NHM may ensure optimum utilisation of funds received under various National Health Programme through effective implementation and monitoring.***
- ***The State share under NHM should be released well in time for effective utilisation of the funds on programme implementation.***

Essential Resources Management

Shortage of doctors and nurses

There was overall shortage of doctors by 15 *per cent*, nurses by six *per cent* and paramedics by 55 *per cent* in the hospitals in the State as compared to IPHS norms, based on bed strength. However, the shortfall was 45 *per cent*, 50 *per cent* and 74 *per cent* for doctors, nurses and paramedics as compared to IPHS norms based on population of the district respectively. In the five sampled hospitals, the vacant posts of doctors ranged between 14 and 43 *per cent* as compared to IPHS norms while in the remaining two hospitals, there were no shortages. Further, neither was the deployment of doctors seen to be in proportion to the number of beds nor to the patient inflow. For instance, in Diphu DH, 37 doctors were posted which had 100 bed capacity while 33 doctors were posted in Nagaon having bed capacity of 360. Despite increase in out patient load in the hospitals, the sanctioned strength of doctors had not been revised since 1985. Specialist doctors were either not available or there were shortages in the selected hospitals.

(Paragraph 3.1)

Recommendation

- ***Keeping in view the fact that Health is a State subject, the State Government may take suitable steps to address shortfalls in the Human Resources in the Health Sector and also to rationalise the manpower in DHs across the State based on some appropriate criteria like patient load or population.***

Non availability of District Hospital in six districts

Six districts, newly created in the year 2016 did not have District Hospitals. Moreover, upgradation of the existing Sub-Divisional Civil Hospitals in these districts into DHs was yet to be completed (October 2020).

(Paragraph 3.2.1)

Overall shortage of CHCs, PHCs and SCs

There was an overall shortage of 3,234 Sub Centre, 98 Primary Health Centres and 239 Community Health Centres across the State, constituting a shortfall of 41, nine and 61 *per cent* respectively (as on March 2019), underlining the need to improve the health infrastructure in the districts and villages.

(Paragraph 3.2.2)

Non availability of blood bank services

As of March 2019, there were 26 National AIDS Control Organisation (NACO) supported Blood Banks, eight Non-NACO supported Government Blood Banks and 44 Private Blood Banks in the State. All the sampled DHs had blood banks but blood collection camps were not being organized by DH Hailakandi due to non-renewal of Blood Bank License since 2009.

(Paragraph 3.2.3)

Recommendations

- *The State Government may ensure setting up of adequate number of SCs/PHCs/CHCs so that universal accessibility of healthcare is provided to all sections of society; and*
- *The State Government may also ensure timely renewal of blood bank licenses and provide adequate human resource and infrastructure for proper functioning of blood banks and ensuring blood availability.*

Non-availability of critical equipment for health facilities

None of the test-checked DHs were fully equipped with the essential equipment. Out of the requirement of a total 4,274 equipment prescribed by IPHS for various services, 2,267 equipment (53 *per cent*) were available. The shortfall of various requirement ranged from 34 *per cent* in DH, Kokrajhar and 70 *per cent* in DH, Sonapur. In JMCH also there was 23 *per cent* shortage of equipment.

Although, Annual Maintenance Contract had been entered into for repair of equipment of the health facilities up to PHC level, we observed delays in repairing the equipment in six sampled DHs, which impacted the efficiency and appropriateness level of health care provided in these DHs.

(Paragraphs 3.3.1 and 3.3.2)

Recommendations

- *Government may ensure availability of full range of essential equipment in every hospital, particularly in view of the increasing reliance on diagnostics for treatment of patients.*
- *Proper maintenance of equipment may also be ensured to reduce the breakdown time of critical equipment and availability of services to patients.*

Non-availability of essential drugs

Against the required 320 numbers of essential drugs enlisted by State for DH, only 149 (DH, Kokrajhar) to 291 (DH, Sonapur) drugs were found available in sampled DHs. Moreover, out of the 65 sampled essential drugs, 02 to 51 drugs were 'stock out' for a period ranging from 23 to 1,770 days in the test-checked hospitals. Despite availability of adequate funds, the serious non-availability of essential drugs in the test-checked DHS, defeated the State's free drugs policy and compelled the patients to purchase the prescribed medicines from the open market out of their pocket. Further, 44 *per cent* of the respondents stated during patient survey that all the medicines prescribed by the doctors were issued 'only few times' from the DH.

(Paragraph 3.4.2)

Recommendations

- *The State Government may put in place a comprehensive drug policy according to the need of hospitals to ensure all time availability of essential drugs in each hospital to avoid 'stock outs'. They may increase budget allocation for drugs and medicines and ensure adequate spending on drug supplies.*
- *The Essential Drug List (EDL) be updated on the basis of disease patterns and inflow of patients.*

Delivery of Healthcare Services

OPD Services

Data indicating diagnosis prescribed by doctors, results thereof, medicines prescribed, status of patient treated and referred to other facilities were not recorded in the registration system. Facility of online registration was not available.

(Paragraph 4.1.1)

More than 50 *per cent* of the patients had to wait beyond 15 minutes to one hour for registration as against the norm of three to five minutes due to inadequate number of registration counters. The average patient load per counter per hour in Tinsukia and

Nagaon DHs and JMCH was 40, 62 and 75 respectively as against the norm of 20 patients per hour for registration.

(Paragraphs 4.1.2 and 4.1.3)

The Out-patient Department of the test-checked hospitals had various shortcomings in availability of basic facilities like availability of separate toilets for men and women, disabled friendly toilet, etc. Separate toilet for male and female was available in five out of six sampled DHs while disabled friendly toilet was not available in any of the sampled hospitals.

(Paragraph 4.1.4)

Recommendations

- *The State Government may deploy a suitable Health Information System in all DHs, which is capable of maintaining health and medical records of patients. This should also include documentation/computerisation of referral cases and clinical history of patients.*
- *The State Government may ensure availability of basic facilities/services in the OPD of each hospital as prescribed in the Assessor's Guidebook for Quality Assurance of Services in District Hospitals, 2013 (Vol-I).*
- *The State Government may augment the availability of registration counter in deficit DHs.*

IPD Services

The IPD services related to General medicine, General surgery, ENT and ophthalmology services were available in all the sampled DHs. However, ICU service and IPD services for accident and trauma care, orthopedics, physiotherapy, psychiatry were not available in the sampled DHs and Burn care service was available only in two DHs out of six sampled DHs.

(Paragraphs 4.2.1 and 4.3)

Except Kokrajhar DH, there were shortage in required beds in DHs ranging from six to 41 per cent. Instances of sharing of one bed by two patients or patients lying on floor with associated risk of cross infection were noticed.

(Paragraph 4.2.3)

Intensive Care Unit Services

In the absence of ICU facility in the sample DHs except JMCH, patients approaching these hospitals in an emergency condition were likely to be referred and/or passed on to higher facility of public or private hospitals. Due to the non-availability of the ICU service, the severely sick patients brought to the hospitals were referred to the tertiary facility.

(Paragraph 4.3)

Absence of Accident /Trauma Care Centres

Despite the requirement to have Trauma care centre, the facility was not available in any of the test-checked DHs. In absence of functional Trauma care centre, patients with serious injuries were referred out to facilities located within and outside the State thus, thereby losing the golden hour, to save the life of the victims.

Out of six selected DHs, two DHs (Diphu and Nagaon) had received grants of ₹ 9.27 crore¹ from GoI in 2009-10 to provide trauma care of which ₹ 3.29 crore were spent towards construction of building and procurement of equipment during 2010-13. However, none of the DHs could make the trauma care facility operational due to non-deployment of manpower despite availability of fund which had been kept in bank account of concerned DHs.

(Paragraph 4.6)

Diagnostic Services

Short availability of equipment and human resources impacted the efficiency and appropriateness of level of care to be offered in district hospitals for diagnostic services such as ultrasonography. Out of the sampled DHs, four DHs were having excess laboratory technicians whereas there was shortage in DH, Kokrajhar and DH, Tinsukia. Despite engaging private service providers, pathology services were not available as prescribed in IPHS, depriving the public from availing comprehensive and timely diagnostic services.

(Paragraph 4.7)

Patient Rights and Grievance Redressal

Citizen's Charter was displayed in all the sampled DHs and complaint box was also installed in all the hospitals. However, Grievance Redressal Cell/Complaint Cell had not been constituted in any of the hospitals as of March 2019.

(Paragraph 4.8)

Patient safety

Fire extinguishers were installed in the sampled hospitals but no SOP was developed to train the hospital staff.

(Paragraph 4.9)

Recommendations

- *The availability of round the clock accident and trauma services in DHs be planned for on priority and be put in place and made functional by optimal utilisation of all funding available to the Department.*

¹ Diphu DH received ₹ 2.68 crore and ₹ 6.59 crore by Nagaon DH during 2009-10

- *The quality of diagnostic services which are crucial for patient care and treatment be made comprehensive as per requirements. The State Government hospital administration must ensure that available equipment are functional and turnaround time for services is reduced.*
- *Patient satisfaction survey may be conducted, and a Grievance Redressal Cell be set up in the Hospitals to address the issues related to patient satisfaction based on the feedbacks received.*

Support Services

Arrangements of Drugs

Required room temperature was not maintained in pharmacies and drug stores of sample DHs.

(Paragraph 5.1)

Cleanliness in Hospitals

Sampled DHs did not prepare Standard Operating Procedure for Infection Control and housekeeping. Though Hospital Infection Control Committee were constituted in four sampled DHs, meeting of the committee were convened by only two DHs. Further, only DH, Tinsukia had maintained records of pest and rodent control.

(Paragraphs 5.2 and 5.3.1)

Bio-medical waste management

Bio-medical wastes were collected and dumped in the deep burial pit constructed in the hospital premises without segregation and treatment and none of the DH had any incinerator facility. None of the sampled DHs had established effluent treatment plants (ETPs) except DH, Tinsukia which too was not functional and the liquid bio-medical waste was disposed of untreated in open drainage of the town, which has serious implications for environment and human health.

(Paragraph 5.5)

Linen and Laundry Services

There was a huge shortfall of linen against the requirement prescribed under IPHS. The sampled hospitals did not have adequate arrangement for washing and storage of linens. Thus, linen and laundry services were not adequate in the sampled hospitals to provide for clean and hygienic stay of IPD patients.

(Paragraph 5.6)

Recommendations

- *The DHs may ensure proper storage of drugs as per norms and parameters.*
- *The BWM Rules needs to be adhered to and followed rigorously to provide an infection free environment in the hospital.*

- *Effluent Treatment Plants may be installed in all the hospitals for treatment of liquid bio waste before disposal.*

Maternal and Child Care

Maternal Mortality Rates (MMR) and Infant Mortality Rates (IMR) in the State

Maternal Mortality Rate (MMR) showed a declining trend and it came down to 229 during 2015-17, however, it remained much higher than the national average of 122. Decline in home delivery of childbirth from 15 to 10 *per cent* during the year 2014 to 2019 also showed a positive indication to reduce the risk of MMR. The ANC check-ups coverage was 82 *per cent* in 2018-19 but proper ANC check-ups were found wanting in Nagaon and Tinsukia DH. Availability of essential equipment for Labour room, Neonatal and Special Newborn care needed to be augmented. Neo Natal deaths represented 32 to 100 *per cent* of IMR in the test checked districts.

(Paragraphs 6.2, 6.4, 6.7 and 6.9.2)

Special New Born Care Unit

DHs lacked SNCU facilities and equipment necessitating referrals to higher facilities thereby risking the condition of new born child and inconvenience to the mother also due to shifting to other health facilities. None of the test-checked DHs had achieved 100 *per cent* immunisation of new born babies for the Zero day vaccines.

(Paragraphs 6.6 and 6.8)

Recommendations

- *Efforts may be made to reduce the MMR and IMR as the number is still high compared to national average.*
- *All the essential equipment prescribed under IPHS may be provided on priority to bring down the IMR.*
- *The Department needs to continuously monitor the ANC check-ups performance in DHs and other health facilities in the State to ensure that there are no slippages and enhance the ANC check-ups.*
- *Neo Natal deaths need to be addressed seriously by combined approach of IEC activities, nutrition, ASHA workers and the hospital administration.*
- *Government should take steps for proper monitoring of supply of zero dose vaccines in all the districts and ensure that vaccines are given to all the newborn.*
- *Institutional mechanism may be put in place to ensure data integrity and improve reliability of data placed in the public domain.*

Evaluation of Services through Outcomes Indicators

Patient Satisfaction Survey

Patient satisfaction survey had not been carried out by any of the sampled hospitals during the period. During the patient survey conducted by audit, 76 per cent of the respondents offered average rating of the overall experience of DH.

(Paragraph 7.5)

Overall Recommendations on Outcome Indicators

- *The Government needs to adopt an integrated approach, allocate resources in ways which are consistent with patient priorities and needs to improve the monitoring and functioning of the district hospitals towards facilitating a significant change in health outcomes.*
- *The monitoring mechanism should be revamped by including measurement of outcome indicators pertaining to productivity, efficiency, service quality and clinical care capability of the hospitals. The high LAMA and Absconding rates in test-checked DHs may also be addressed by improving counselling services.*

What has been the response of the Government?

While providing general and specific response regarding efforts made at their level, which we have incorporated suitably in the Report, the Government have agreed with the recommendations and assured to take necessary action to improve the systems.

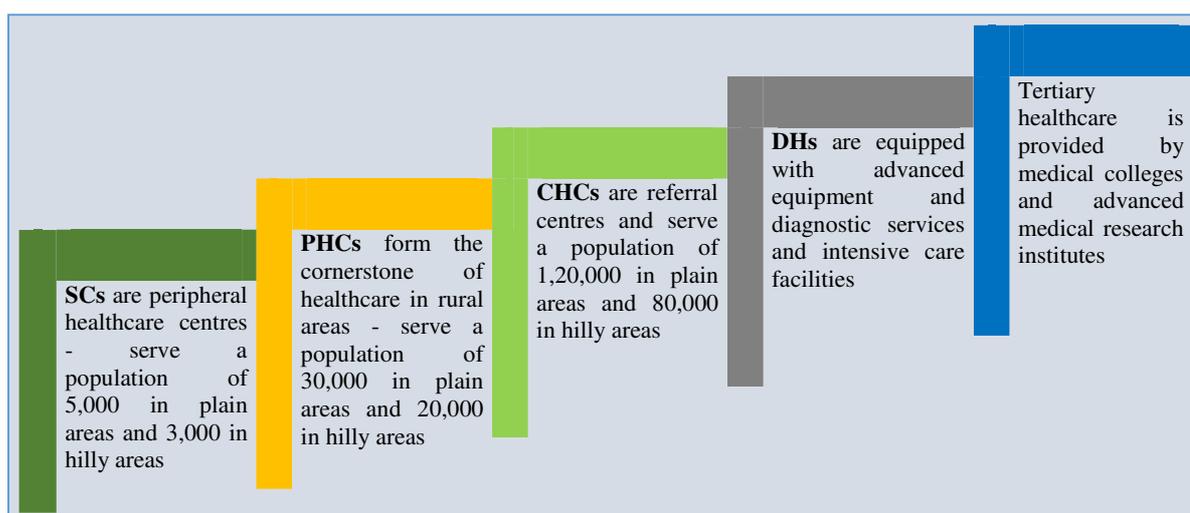
CHAPTER I
INTRODUCTION AND AUDIT
FRAMEWORK

Chapter-I: Introduction and Audit Framework

1.1 Introduction

Public healthcare delivery system in India is organised at three levels - primary, secondary and tertiary. The vast network of Sub-Centres (SCs), Primary Health Centres (PHCs) and Community Health Centers (CHCs) form the primary tier for rural population. These health centres provide and promote preventive health care and related services like immunisation, epidemic diagnosis, childbirth and maternal care, family welfare, *etc.* District Hospitals (DHs) serve as the secondary tier for rural population and as primary tier for the urban population. These hospitals handle treatment and management of diseases or medical conditions that require specialised care. Tertiary healthcare involves providing advanced and super-specialty services and is provided by medical institutions in urban areas, which are well equipped with sophisticated diagnostic and investigative facilities.

Chart 1.1



In Assam, Public Healthcare facilities are structured in three levels for providing primary, secondary and tertiary care.

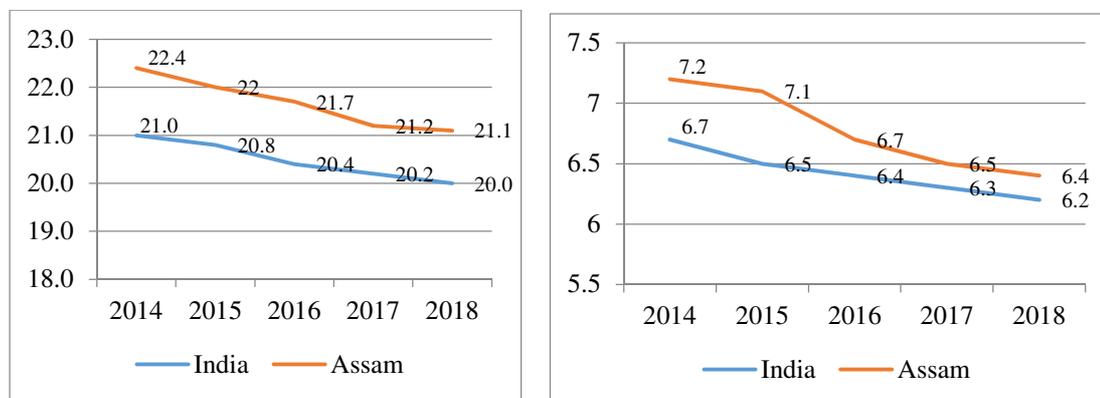
1.2 Overview of Health Facilities in Assam

As per census 2011, Assam had a population of 3.12 crore. To cater to healthcare facilities to the populace of the State, the State Government established primary health centres, community health centres, Sub-Divisional Civil Hospitals (SDH), district hospitals and medical college hospitals. As of March 2020, the State had established 4,621 SCs, 1,014 PHCs, 151 CHCs, 14 SDHs, 25 DHs and six Medical College Hospitals¹.

¹ Barpeta, Dibrugarh, Guwahati, Jorhat, Silchar and Tezpur

The healthcare services in the State may be evaluated based on various health indicators. The birth rate² and death rate of a State is considered one of such indicators. A comparison of the birth rate and death rate of Assam *vis-à-vis* National average are shown in **Chart 1.2**:

Chart 1.2: Comparison of Birth rate and Death rate of Assam with National average



Source: Sample Registration survey 2018

The chart above shows that position of Assam improved from the year 2014 to 2018 and it remained far below the National average.

1.3 Structure for Healthcare in the State

The Health and Family Welfare Department is responsible for management of District Hospitals in the State. Principal Secretary, Health and Family Welfare Department at Government level and Director of Health Services at Directorate level are responsible for functioning of the district hospitals/health institutions in the State. At the district level, Joint Director of Health Services is responsible for functioning of district hospitals and the Superintendent supervises the functions of the district hospitals.

The National Health Mission (NHM) implements various health programmes through the different units under the State Health Mission (SHM). At the State level, the NHM, Assam functions under the overall guidance of the SHM, headed by the Chief Minister. The functions under the Mission are carried out through the State Health Society (SHS), Assam headed by the Chief Secretary, Government of Assam. The State Programme Management Support Unit (SPMSU) acts as the Secretariat to SHM as well as SHS and is headed by the Mission Director (MD), NHM, Assam. The SPMSU provides technical support to the SHM through logistics, financial management, Management Information System (MIS) *etc.* At the district level, every district has a District Health Society (DHS) headed by the Deputy Commissioner of the district and Joint Director, Health Services of the District as Member Secretary.

² Birth/death rate is equal to number of live birth/death in a year divided by total midyear population with the ratio multiplied by 1,000

1.4 Audit Framework

1.4.1 Background

The C&AG had earlier (2016-17) reviewed the Implementation of Reproductive and Childcare Health under NHM of the State and major areas of concern *viz.*, shortfall in infrastructure and health care professionals, out of pocket expenditure by patients, high maternal and infant mortality rates, *etc.*, were highlighted and recommendations were accordingly made for consideration. Some improvement in these areas have been noticed during this audit. However, the previous Audit Report is yet to be discussed by the Public Accounts Committee to review the action taken by the Government on the key findings and recommendations made by the C&AG.

Besides, key healthcare institutes and hospitals are also audited annually on a sample basis. During 2019, the CAG decided to carry out a Performance Audit of healthcare services being provided at District Hospitals across all the States to assess the availability of resources identified as essential by Indian Public Health Standards (IPHS) for District Hospitals and to evaluate the overall quality of healthcare services provided by these hospitals and in some selected domains.

1.4.2 Audit Domain

The following audit domains/ themes were identified for the Performance Audit of District Hospitals:

Chart 1.3: Audit Domains

Resources	Line Services	Support Services	Auxiliary Services
<ul style="list-style-type: none"> • Manpower • Infrastructure • Equipment • Drugs • Consumables 	<ul style="list-style-type: none"> • Out-patients • In-patients • Emergency • Operation & ICU • Laboratory & diagnostics 	<ul style="list-style-type: none"> • Drug storage • Hygiene • Infection control • Ambulance • Power backup 	<ul style="list-style-type: none"> • Patient rights • Patient safety • Referral services

1.4.3 Audit Objectives

The objectives of carrying out an outcome audit of district hospitals were to assess:

- adequate and essential resources - manpower, drugs, infrastructure, equipment, and consumables were available for effective functioning of the district hospitals;
- timely and quality healthcare was delivered through line services like OPD, IPD, ICU, OT, trauma & emergency, *etc.*, and diagnostic services;
- support services like drug storage, sterilisation, hygiene, waste management, infection control, ambulance, *etc.*, were aiding the line departments in providing a safe and sterile environment in the hospitals; and

- iv. adequate and timely healthcare services were available in selected services relating to maternal and infant care.

1.4.4 Audit Criteria

Audit findings were benchmarked against the criteria sourced from the following:

- IPHS guidelines for district hospitals, (Revised 2012) and Medical Council of India guidelines for Medical College and Hospitals³;
- National Rural Health Mission (NRHM)/ National Health Mission (NHM) Guidelines 2005 and 2012;
- National Quality Assurance Standards (NQAS) for District Hospitals;
- Assessor's Guidebook for Quality Assurance in District Hospitals 2013, GoI;
- Maternal and Newborn Health Toolkit, 2013;
- Infection Control Guidelines;
- Bio-Medical Waste (Management and Handling) Rules, 2016;
- Government policies, norms, orders, budgets, annual reports *etc.*, related to healthcare.

1.4.5 Scope of Audit and Methodology

The scope of audit involved assessing the functioning of selected district hospitals for the five years' period 2014-19. At the State level, test check of records was conducted in the Department and Directorate of Health and Family Welfare. Audit also checked records of NHM relating to the implementation of programmes at District Hospitals (DH). Patient feedback obtained through patients' satisfaction survey on healthcare services being provided by the DHs and joint physical verification of the facilities along with the hospital authorities was carried out. Photographic evidence was obtained to support audit findings.

An entry conference was held on 27 November 2019 to explain and agree on the audit objectives, criteria, scope, and methodology with the State Government. The findings of audit were also discussed in an exit meeting held on 29 October 2020 and Department's views were incorporated wherever applicable.

1.4.6 Audit Sample

There are 25 Districts Hospitals (DHs) in the State, of which we selected six DHs and Hospital functioning under Jorhat Medical College and Hospital for detailed audit scrutiny. Hospitals were selected based on three attributes *i.e.*, 1) whether situated in Hilly Region or Plains, 2) Geographical location within State, and 3) Maternal Mortality Ratio (MMR) and Infant Mortality Ratio (IMR) performance of the Districts (Combined into a composite score used to categorise the districts as 'Good',

³ For JMCH, IPHS norms are not applicable. Observations on JMCH are on the basis of relevant MCI norms applicable for Medical College and Hospital

‘Moderate’, and ‘Poor’ performing districts based on Hospital Management Information System). Once categorised, a stratified random sample was selected as to ensure that one district hospital stood selected from each category (***Details in Appendix-I***). The selected District Hospitals and one Medical college were as follows:

1. DH Sonapur (Kamrup Metropolitan Capital District))
2. DH Nagaon (Bhogeswari Phukanani Civil Hospital, Nagaon)
3. DH Kokrajhar (Rup Nath Brahma Civil Hospital, Kokrajhar)
4. DH Tinsukia (Lokpriya Gopinath Bordoloi Civil Hospital, Tinsukia)
5. DH Diphu (Diphu Civil Hospital, Karbi Anglong)
6. DH Hailakandi (Santosh Kumar Roy Civil Hospital, Hailakandi)
7. Jorhat Medical College and Hospital, Jorhat

1.5 Acknowledgement

Audit acknowledges the co-operation extended by the Health and Family Welfare Department and the sampled district-level hospitals in conduct of the Performance Audit.

1.6 Constraints

Records relating to diagnosis prescribed by doctors and conducted in the hospitals, results of diagnosis, details/list of medicines prescribed to patients and number and quantity distributed, status of patient treated and referred to other facilities were not recorded in the registration system. The information is recorded in the prescription slips which are issued to the patients, but copies of prescription slips are not retained in the hospitals. In absence of the basic database of the patients, actual number of patients treated, referred to other facility, nature of diagnosis advised and conducted at the DHs, medicines prescribed and issued could not be verified properly. In the absence of any accepted benchmark, State was lacking the measuring tool to analyse the gap and areas of concern to be addressed for necessary improvement.

CHAPTER II
FINANCIAL RESOURCES

Chapter-II: Financial Resources

2.1 Fund Management

The total expenditure of the State Government for the years 2014-15 to 2018-19 was ₹ 2,70,636 crore against budget outlay of ₹ 4,31,180 crore and the expenditure on health for the above period was ₹ 17,065 crore against budget of ₹ 24,774 crore. Expenditure on Health Sector thus accounted for 6 *per cent* of the total expenditure of the State. Year wise budget and expenditure of the State and expenditure on Health is shown in **Table 2.1**:

Table 2.1: Budget and Expenditure of State and on Health & Family Welfare (2014-19)

(₹ in crore)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Overall Budget Allocation	65,350	74,818	83,069	99,453	1,08,490	4,31,180
Overall Expenditure	43,621	39,962	55,364	63,428	68,261	2,70,636
Outlay on Health	3,221	4,425	4,164	5,709	7,258	24,777
Expenditure on Health	1,922	2,862	3,197	4,442	4,642	17,065
Savings against Health Allocation	1,299	1,563	967	1,267	2,616	7,712
<i>Percentage of Savings on health</i>	40	35	23	22	36	31
<i>Percentage of Outlay on Health to overall Budget Allocation</i>	4.9	5.9	5.0	5.7	6.7	5.7
<i>Percentage of Expenditure on Health to Total Expenditure</i>	4.4	7.1	5.8	7.0	6.8	6.3
<i>Percentage of Expenditure on Health as compared to Gross State Domestic Product (GSDP) of State</i>	0.98	1.26	1.26	1.54	1.47	1.33

Source: Appropriation accounts

National Health Policy (NHP) 2002 envisaged State Governments to increase commitment to Health Sector up to eight *per cent* of their budget by 2010, while NHP 2017 envisaged raising Public Health Sector spending to more than eight *per cent* of the budget by 2020. As can be seen from the above table, budgetary outlay on Health Services in the State during the five years period 2014-19, ranged from 4.9 *per cent* of the State budget in 2014-15 to 6.70 *per cent* in 2018-19. The State Government allocated less than eight *per cent* of its budget to the Health Sector during the years 2014-19. The expenditure on Health during the same period ranged from 4.4 to 7.1 *per cent* of Total Expenditure of the State Government.

Due to inflated budget estimates, there were significant difference between the overall budget allocation and expenditure of the State with the savings ranging between 29 and 44 *per cent* during 2014-19. Resultantly, the savings of the Department ranged from ₹ 967 crore to ₹ 2,616 crore during the five years period 2014-19. In percentage terms, the savings ranged from 22 to 40 *per cent* of the total budgetary allocation on Health.

Further, NHP 2017 targeted increasing health expenditure by Government as a percentage of GDP from the existing 1.15 *per cent* to 2.5 *per cent* by 2025. Against this benchmark, the State's expenditure on Health Sector during the period 2014-15 to 2018-19 ranged between 0.98 *per cent* and 1.54 *per cent* of GSDP.

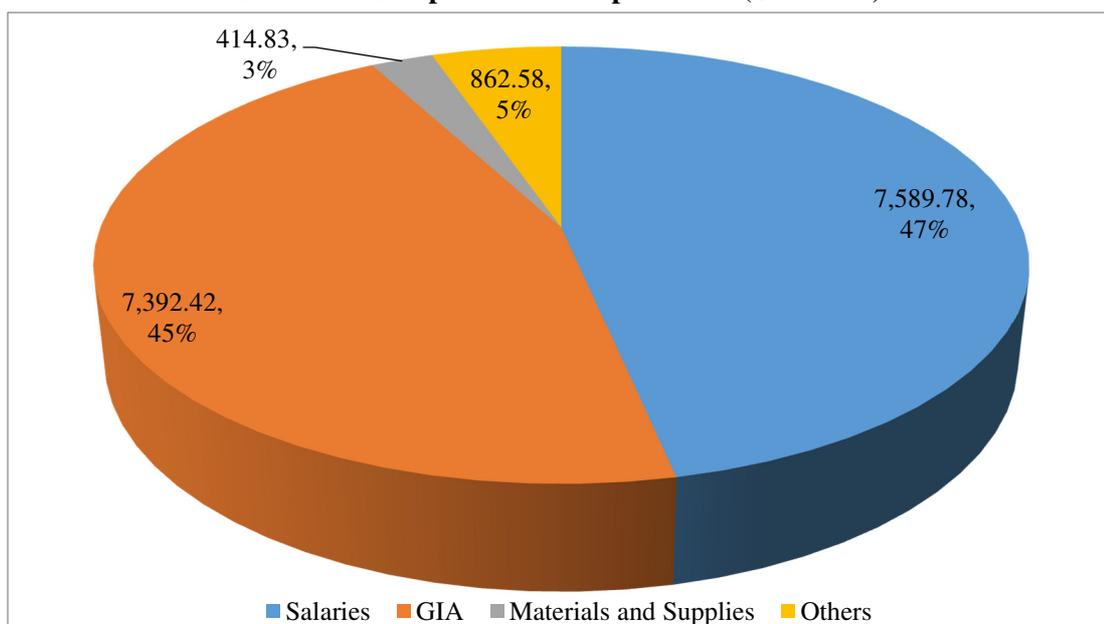
2.2 Revenue and Capital Expenditure of the State and on Health Sector

The Total Expenditure of the State in the five years period constituted of Revenue Expenditure of ₹ 2,39,804 crore and Capital Expenditure of ₹30,832 crore with Revenue Expenditure forming 88 *per cent* of the Total Expenditure.

Out of the Total Expenditure of ₹ 17,065 crore incurred on Health during 2014-19, Revenue Expenditure constituted ₹ 16,391 crore (96.05 *per cent*) while Capital Expenditure was ₹ 674 crore (3.95 *per cent*).

Revenue expenditure (component-wise) incurred on Health & Family Welfare during 2014-19 is presented in **Chart 2.1**:

Chart 2.1: Component wise expenditure (₹ in crore)



Source: Detailed Accounts Data⁴

It can be seen from above that major part of revenue expenditure was incurred on salary. The next major component is Grants in Aid given to NHM (State share *plus* Central share) for implementation programme of the Central and State sponsored schemes and Hospital Management Society (HMS). The Department spent only seven *per cent* (₹ 1,076.27 crore) of the total revenue expenditure on procurement of materials and supplies which includes Medicines, Surgicals and Diet. This included ₹ 240 crore released to NHM for procurement of medicines for implementation of

⁴ Position of un-reconciled Voucher Level data maintained by AG (A&E), with total revenue expenditure ₹16,312.85 crore for the years 2014-19

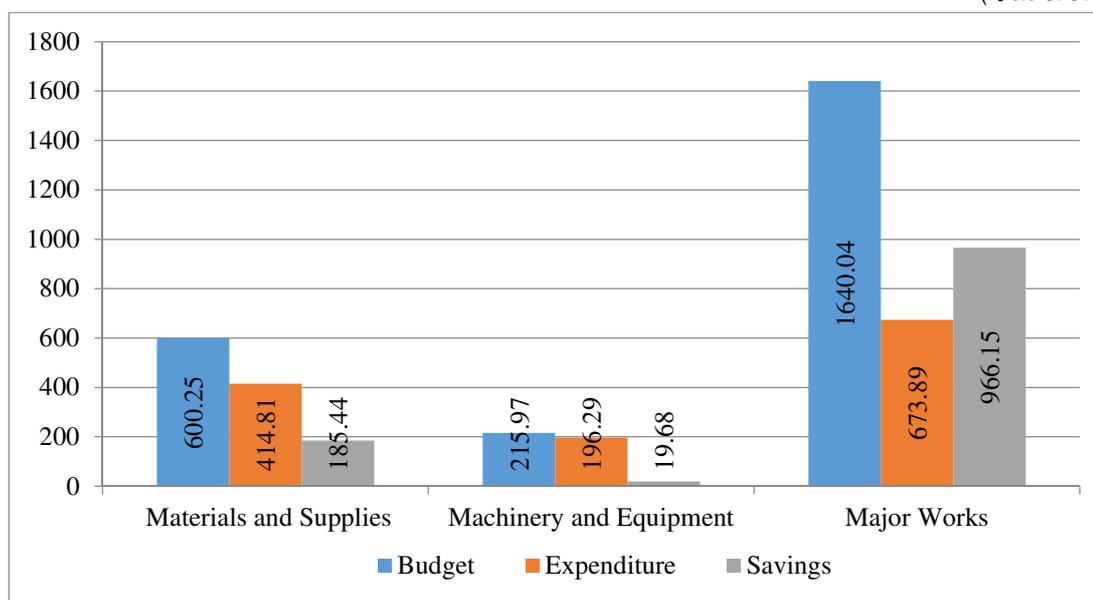
free drugs programme of the State Government, and ₹421.44 crore utilised by NHM on medicines out of the central fund.

Other expenditure included wages, travel expenses, rent/ rates/ royalties, scholarships/ stipends, Minor works, machinery/ equipment/ plant, motor vehicles, maintenance, etc.

The allocation of funds under some significant object heads, representing the economic nature of expenditure of budget and expenditure under both Revenue & Capital heads during the audit period is given in **Chart 2.2**:

Chart 2.2: Details of Budget allocation, expenditure and savings under object head Supplies & materials, Machinery & equipment and Major works

(₹in crore)

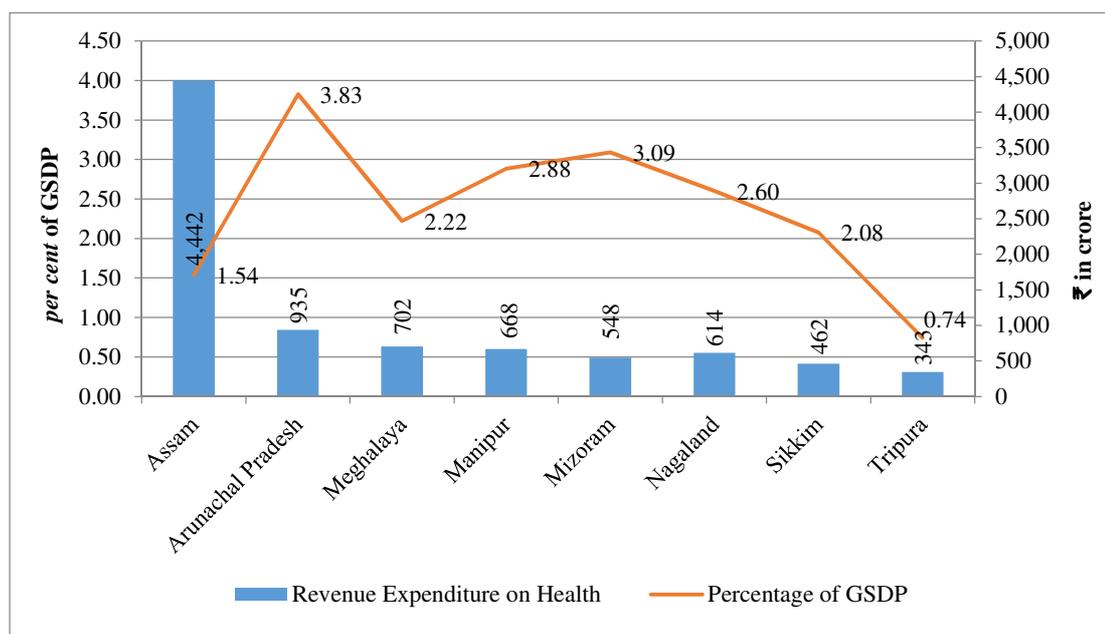


Source: Budget, VLC data, Finance & Appropriation Accounts of respective years

It is observed that under materials and supplies, the allocation itself was only 2.42 per cent of the total budget under the health sector and even this amount was not fully utilised during 2014-19. Similarly, allocation under machinery and equipment was only 0.87 per cent of the total health budget. The savings against the budget allocation on the object heads was 30 per cent on Material and Supplies, nine per cent on Machinery and Equipment and 58 per cent on Major Works.

2.3 Expenditure on Health compared to other North Eastern States

In terms of expenditure on Health amongst the North Eastern States during the financial year 2017-18, Assam incurred highest expenditure (₹4,442 crore) followed by Arunachal Pradesh (₹935 crore) and Meghalaya (₹702 crore). However, in terms of revenue expenditure on Health as a percentage of GSDP, Assam (1.54 per cent) is at lower position among the North Eastern States barring Tripura (0.74 per cent), as shown in **Chart 2.3**:

Chart 2.3: Comparison of Expenditure on Health vis-à-vis GSDP of North Eastern States for the year 2017-18

Source: Appropriation Accounts and SFAR of respective states

2.4 Receipt & Expenditure under National Health Mission (NHM)

The NHM Assam implements various programmes of health care introduced by Government of India (GoI) and the Government of Assam (GoA). The position of fund received and utilised under various programmes of the GoI during the years 2014-15 to 2018-19 are as below:

Table 2.2: Position of Receipts and Expenditure of NHM, Assam for the years 2014-19

Year	Allotment as per SPIP			Opening balance	Funds received from		Total	Expenditure	Unspent balance (per cent)
	Total	GoI	GoA		GoI	GoA			
2014-15	1207.24	1086.52	120.72	919.81	709.48	59.45	1688.74	928.88	759.86 (45)
2015-16	1045.88	941.29	104.59	759.86	795.80	157.90	1713.56	1279.51	434.05 (25)
2016-17	1041.54	937.39	104.15	434.05	863.14	121.23	1418.42	1196.85	221.57 (16)
2017-18	1173.61	1056.25	117.36	221.57	1034.29	138.76	1394.62	1128.39	266.23 (19)
2018-19	1383.59	1245.23	138.36	266.23	1076.23	150.86	1493.32	1273.18	220.14 (15)

Source: MD, NHM, Assam

As can be seen from the above, though the NHM utilised up to 85 per cent of total available fund till 2018-19 for implementation of various programmes, the unspent funds were 45 to 25 per cent in 2014-16, and improved thereafter to 15 per cent in 2018-19. The State could perform better with consistent spending of allotted funds under NHM.

2.4.1 Release of State Share of Funds to NHM

It is seen from **Table 2.2** that in 2014-15, the State Government released ₹ 59.45 crore against its share of ₹ 120.72 crore resulting in short release of State's share by

49 per cent. It was further noticed that the State Government belatedly released its share in the month of March for the years 2014-15, 2017-18 and 2018-19 for implementation of programmes such as Reproductive and Child Health, Mission Flexi Pool Additionalities, Immunisation, National Urban Health Mission, National Leprosy Eradication Programme.

2.4.2 Expenditure on Programmes

It was noticed from the records that during 2014-19, total expenditure was less than 50 per cent of the available funds in respect of the following three programmes:

Table 2.3: Healthcare programmes where the expenditure was less than 50 per cent during 2014-19

Name of the programme	Opening balance	Amount received	Total fund available	Expenditure (per cent)	Closing Balance
Non Communicable Disease (NCD)	27.94	124.15	152.09	56.79 (37)	95.30
National Mental Health Programme (NMHP)	0	18.70	18.70	3.84 (20)	14.86
National Tobacco Control Programme (NTCP)	0.63	10.69	11.32	4.63 (40)	6.69

Source: NHM, Assam

The above table indicates that despite availability of allocated funds under various specific important programmes such as NCD, NMHP and NTCP, the resources were not spent, thereby impacting implementation of these programmes.

Conclusion

The budget allotment of the Health and Family Welfare Department against the overall State Budget during 2014-19 ranged from 4.9 to 6.7 per cent even as the National Health Policy, 2017 envisaged allocation of eight per cent or more of the total budget of the State for Health Sector. The total spending on health during the period was ₹ 17,065 crore and ranged from 4.40 to 7.00 per cent during the period. The Department did not fully utilise the allocated funds during 2014-19, with the savings ranging from 22 to 40 per cent.

State's revenue expenditure on health constitutes 1.54 per cent of GSDP, which is second lowest amongst the North Eastern States. While the utilisation of funds by the Department under NHM funds improved over the years, under three programmes of NHM, the expenditure was less than 50 per cent of the funds available. The State share under NHM was released only in the last month of the financial year during these years which constrained efficient utilisation of funds on programme implementation during these years.

Recommendations

- *The State Government may enhance the budget provision and expenditure on healthcare services to ensure that adequate and quality healthcare infrastructure and services are provided to the people of the State.*

- *The Mission Director, NHM may ensure optimum utilisation of funds received under various National Health Programme through effective implementation and monitoring.*
- *The State share under NHM should be released well in time for effective utilisation of the funds on programme implementation.*

CHAPTER III
RESOURCES MANAGEMENT

Chapter-III: Resources Management

Adequacy of essential resources - Manpower, Drugs & Consumables, Equipment and Infrastructure for effective functioning of District Hospitals

3.1 Human Resource

The Health and Family Welfare Department, Government of Assam has prescribed (1985) the sanctioned strength of doctors, nurses, paramedical and other staff based on the bed strength for the district hospitals. For all the 25 DHs in the State taken together, there were shortage of doctors by 15 *per cent*, nurses by six *per cent* and paramedics by 55 *per cent* as detailed in **Table 3.1A**.

Table 3.1A: Availability of HR in DHs of Assam in comparison to actual Bed strength

Category	Manpower requirement as per IPHS based on actual bed strength	MIP	Shortfall (+) / Excess (-) (<i>per cent</i>)
Doctors	892	760	132 (15)
Nursing Staff	2,205	2,065	140 (06)
Paramedics	1,095	494	601 (55)

Source: Departmental records

However, when compared to the required bed capacity of the DHs as per IPHS norms based on population of the district (2011 Census), which in turn determines the manpower requirement, there was huge shortage of beds⁵ (43 *per cent*), and the consequent required manpower (45 *per cent*). By this measure, there was an overall shortage of doctors (45 *per cent*), nurses (50 *per cent*) and paramedics (74 *per cent*) in the DHs as summarised in **Table 3.1B** and detailed in *Appendix-II*.

Table 3.1B: Availability of HR in DHs in comparison to Bed strength as per IPHS norms based on population (2011 Census)

Category	Manpower requirement as per bed strength based on IPHS population norm	MIP	Shortfall (+) / Excess (-) (<i>per cent</i>)
Doctors	1,371	760	611 (45)
Nursing Staff	4,095	2,065	2,030 (50)
Paramedics	1,902	494	1,408 (74)

Audit also observed variations in availability of Human resource (HR) in the sampled Hospitals as shown in **Table 3.1C**:

⁵ Against a total requirement of 7,902 beds in 25 DHs as per IPHS population norms, the actual number of beds were 4,490

Table 3.1C: Availability of HR in sampled DHs and JMCH

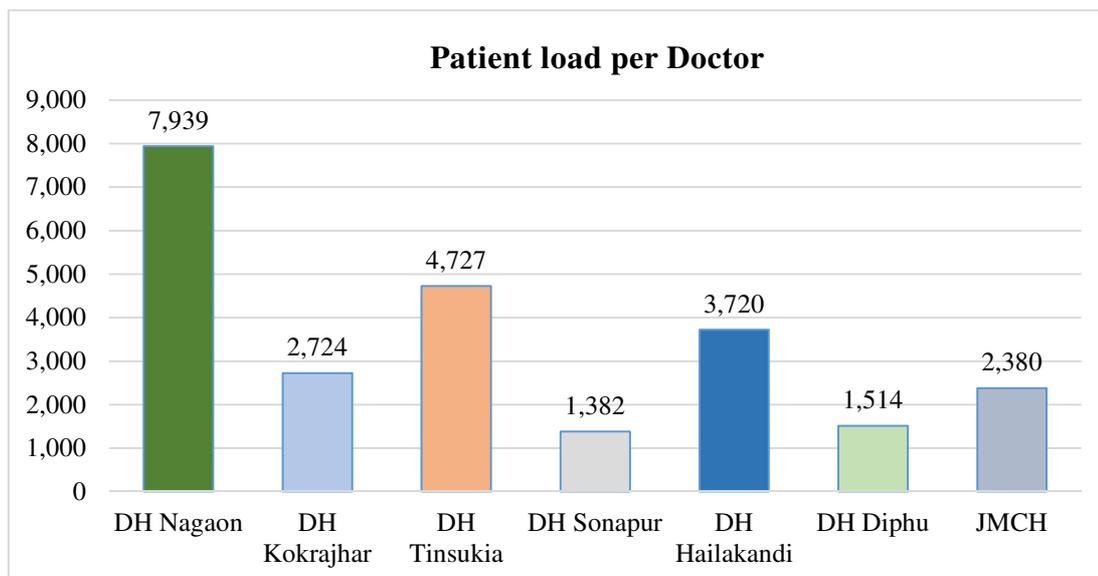
Name of DH	Functional Bed Capacity	Particulars	Manpower requirement as per IPHS /MCI*	Sanctioned strength	Total manpower available	Shortfall (+)/excess (-) (per cent)	Annual average patient inflow (2014-19)
DH Nagaon	360	Doctor	58	27	33	43	2.62 lakh
		Staff Nurse	180	33	114	37	
		Paramedics	81	28	36	56	
DH Kokrajhar	200	Doctor	34	27	29	15	0.79 lakh
		Staff Nurse	90	61	79	12	
		Paramedics	42	35	23	45	
DH Sonapur	200	Doctor	34	36	34	0	0.47 lakh
		Staff Nurse	90	90	63	30	
		Paramedics	42	35	15	64	
DH Tinsukia	260	Doctor	50	38	33	34	1.56 lakh
		Staff Nurse	135	32	107	21	
		Paramedics	66	15	17	74	
DH Diphu	100	Doctor	29	Not furnished	37	-28	0.56 lakh
		Staff Nurse	45		67	-49	
		Paramedics	31		16	48	
DH Hailakandi	100	Doctor	29	39	25	14	0.93 lakh
		Staff Nurse	45	41	82	-82	
		Paramedics	31	13	16	48	
JMCH*	500	Doctor	152	Not furnished	121	20	2.88 lakh
		Staff Nurse	354		348	2	
		Paramedics	117		49	58	

Source: DHs and JMCH records

*MCI-Medical Council of India (MCI norms applicable only for Medical College & Hospital)

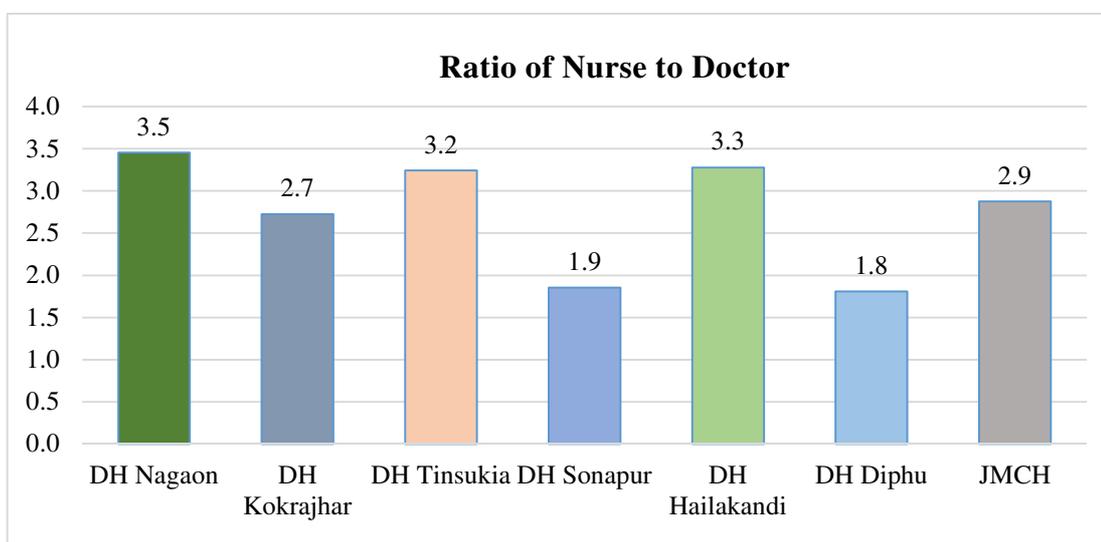
It can be seen in the above table that barring a few instances, there is shortage of manpower *vis-à-vis* the IPHS norms. Apart from DH Diphu which had excess doctors as per IPHS norms, there was shortage in other DHs and JMCH. DH Nagaon had the most shortage (43 *per cent*) while DH Hailakandi had shortage of 14 *per cent* in availability of doctors. Shortages in these two hospitals is a matter of concern as both these health facilities cater to a large number of patients as compared to other DHs. This would adversely affect the quality of healthcare services being provided in these health facilities.

In addition, the posting of available manpower is also not in proportion to the patient load or the district population. This can be seen in the figure below, which shows the Patient load per doctor (per year) in the selected DH, which varies from 1,382 in DH Sonapur, to 7,939 patients per doctor in DH Nagaon.

Chart 3.1: Patient load per doctor in the selected DHs and JMCH

Source: DHs and JMCH records

Neither was the deployment of doctors seen to be in proportion to the number of beds nor to the patient inflow. Thus, Kokrajhar and Sonapur were 200 bed hospitals but with little similarity in sanctioned strength and deployment of manpower. In Diphu DH, 37 doctors were posted which had 100 bed capacity while 33 doctors were posted in Nagaon having bed capacity of 360. Similar variability is seen in the deployment of nurses as well, as can be seen in the figure below showing the nurse to doctor ratio in the sampled DHs:

Chart 3.2: Ratio of Nurse to Doctor in selected DHs and JMCH

Source: DHs and JMCH records

The number of patients in OPD had largely increased⁶ in the last five years, as depicted in **Table 3.2**:

⁶ Except in DH Nagaon where OPD registration, though high, has shown a marginal decrease by four per cent

Table 3.2: Trend of patient inflow in selected DHs and JMCH

Year	DH Nagaon	DH Kokrajhar	DH Tinsukia	DH Sonapur	DH Hailakandi	DH Diphu	JMCH
2014-15	2,38,356	47,964	1,12,247	31,754	67,512	42,618	2,10,189
2018-19	2,27,312	83,792	1,46,688	76,377	98,180	45,511	2,75,960
Increase/ decrease (-)	(-) 4 <i>per cent</i>	74 <i>per cent</i>	30 <i>per cent</i>	140 <i>per cent</i>	45 <i>per cent</i>	6 <i>per cent</i>	31 <i>per cent</i>

Source: DHs and JMCH records

Despite the increase in out-patient load in the hospitals, the sanctioned strength of doctors had not been revised since the year 1985.

It may be mentioned here that due to non-maintenance of relevant records by hospitals, audit could not ascertain the number of patients deprived of the services due to want of adequate number of health care professional. During audit of selected DHs we observed the following:

- **Orthopaedic** doctor was available only in DH Sonapur. The remaining five selected DHs were thus unable to provide specialist's service in orthopaedics department.
- In JMCH, six Orthopaedic doctors were available against the requirement of nine, and eight anaesthesiologists were available against requirement of 17 as per MCI guidelines.
- **Radiologist/ Sonologist** was not available in Tinsukia DH despite the availability of USG machine preventing provision of sonography service during the period 2014-19. In DH Hailakandi, regular Radiologist was not found available resulting in sonography service being provided for only 20 months only during 2014-19.
- Hailakandi DH could not provide surgical services on a regular basis due to want of Surgeon despite availability of Operation Theatre (OT) and equipment. Minor OT remained completely idle since the year 2014.
- Medical Officer (Ayur) was not available at DH Nagaon (since September 2018), and DH Tinsukia (since June 2015). During physical verification, it was noticed that the Ayur medicines were lying in the store unused. Further, in absence of the stock registers for the Ayur medicines, the quantity of medicines lying undistributed and its expiry could not be ascertained in audit. In DH Hailakandi, it was noticed that though an Ayur doctor was available, there was no Ayur pharmacy, nor was Ayur OPD being organised, and the Ayur doctor was being used for other medical duties.

During Exit meeting (29 October 2020), the Commissioner & Secretary, H&FW stated that the Medical Officers and Nurses mostly choose locations which are well connected, and this results in the inter-district variation of doctors and nurses. However, the fact remains that shortage of human resources hampered smooth service delivery by DHs as discussed in Chapter 4 of this Report.

Government of Assam has taken some steps to overcome the shortages of doctors in the State. Recruitment of doctors has been delinked (October 2017) from Assam Public Service Commission and is being presently done through Medical and Health Recruitment Board. This has simplified the process of recruitment of doctors. During Exit meeting (29 October 2020), the Commissioner & Secretary, H&FW stated that new medical colleges⁷ are being planned and are likely to open very soon. Government of Assam is recruiting ward boys and paramedical staffs for District Hospitals and NHM is also supporting by providing medical staff.

Further, the department granted (2012) Non-Practicing Allowance (NPA) to the doctors of the health institution of the State at the rate of 25 *per cent* of basic with limitation that the total of Basic Pay and NPA should not exceed ₹ 60,000 per month. The rate was revised in 2017 and NPA was admissible at the rate of 20 *per cent* and the total pay was restricted to ₹ 1,30,000 (basic pay *plus* NPA). In addition to NPA, rural incentive is also admissible at the rate of ₹ 4,000 per month for posting in the rural areas but no indemnity bond was executed enforcing service in the rural areas.

However, as noted above, shortage of manpower in the District Hospitals would hamper the delivery of services by the DHs.

Conclusion

Human resources, an essential resource for hospital management showed shortages in five out of seven sampled Hospitals against the IPHS norms. Shortage ranged from 18 *per cent* in DH Kokrajhar to 38 *per cent* in DH Tinsukia. As regards staff nurses, there is shortage in five sampled Hospitals. Shortages ranged from two *per cent* in JMCH to 40 *per cent* in DH Diphu.

The posting of available manpower was also not in proportion to the patient load or the district population.

Further, despite increase in OPD and IPD patients in the test checked hospitals, the medical and paramedical staff had not been increased.

Recommendation

- ***Keeping in view the fact that Health is a State subject, the State Government may take suitable steps to address shortfalls in the Human Resources in the Health Sector and also to rationalise the manpower in DHs across the State based on some appropriate criteria like patient load or population.***

⁷ At present six Medical Colleges are operating. Six new Medical Colleges (Lakhimpur, Kokrajhar, Dhubri, MMCH, Nagaon, Nalbari) are upcoming three of which, are planned to be opened during next academic year

3.2 Physical Infrastructure

3.2.1 Availability of District Hospital

District Hospital is a hospital at the secondary referral level responsible for a district. Its objective is to provide comprehensive secondary health care services to the people in the district at an acceptable level of quality and to be responsive and sensitive to the needs of the people and referring centres. Every district is expected to have a district hospital.

As of 2019, there were 33 districts (six districts created in 2016) against which 25 DHs are available in the State. The sub-divisional civil hospitals of the newly created districts are being upgraded into DHs but work of upgradation is yet to be completed (October 2020). District Hospitals were not available in existing districts of Dibrugarh and Jorhat though Medical College Hospitals are available in these districts.

3.2.2 Shortage of CHCs, PHCs and SCs

To ensure universal availability and accessibility of healthcare, IPHS prescribes following norms/ criteria for setting up healthcare facilities:

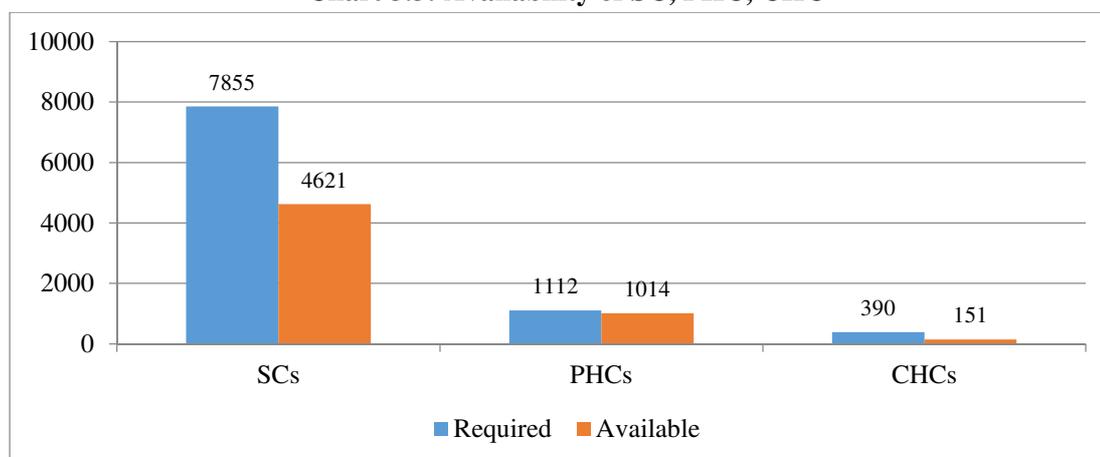
Table 3.3: Norms for creation of health facilities

Types of facility	As per IPHS
Sub-centre (SC)	One SC for every 3,000 people (Hill and tribal area) 5,000 plain area
Primary Health Centre (PHC)	One PHC for every six SCs or for every 20,000 people (Hill and tribal area) 30,000 plain area
Community Health Centre (CHC)	One CHC for every four PHCs or for every 80,000 people

Source: IPHS

Benchmarking the above norms with population as per Census 2011, we observed that there was a shortage in all categories of health facilities in the State. The required number of health facilities, availability, and shortfall thereof against the three categories of healthcare infrastructure as of March 2019 is given in the chart below:

Chart 3.3: Availability of SC, PHC, CHC



Source: Departmental records

The above chart indicates that there was shortage of PHCs by nine *per cent*, SCs by 41 *per cent* and CHC by 61 *per cent* as per the requirement of IPHS.

3.2.3 Availability of Blood Banks

As per IPHS, blood bank is one of the essential services that has to be provided by District Hospital. Blood bank should be in close proximity to pathology department and at an accessible distance to operation theatre, intensive care units and emergency and accident departments.

As of March 2019, there were 26 National AIDS Control Organisation (NACO) supported Blood Banks, eight Non-NACO supported Government Blood Banks and 44 Private Blood Banks in the State.

It was observed that all the sampled DHs had blood banks but there was a shortfall of Medical Officers (MOs), counselors, nurses, lab attendants.

The records relating to demand for blood from the hospitals were not maintained and only the number issued was recorded. Thus, audit could not ascertain whether the quantity of blood supplied was sufficient against the actual demand. It was noticed that blood collection camps were organised by the sampled district hospitals except DH Hailakandi.

On being asked the reasons for not organising camps, the Superintendent of DH Hailakandi stated that due to non-renewal of the Blood Bank License from 2009 onwards, it was not possible to conduct any Blood Donation Camp as such there was no storage for blood unit. Only collection and transfusion were carried in the hospital.

Conclusion

Adequate health system infrastructure at the level of PHCs, SCs and CHCs play a major role in improving the health outcomes as these are initial point of contact between community and health infrastructure and their inadequate availability limits the access of people to early treatment of the disease. In Assam, there was shortage of SCs by 41 *per cent* and CHC by 61 *per cent* as per the requirement of IPHS.

There was shortfall of Medical Officers (MOs), counselor, nurse, lab attendants in blood banks of all the sampled District Hospitals. Further, the demand of blood units was not assessed by any of the Hospitals.

Recommendations

- *The State Government may ensure setting up of adequate number of SCs/ PHCs/ CHCs so that universal accessibility of healthcare is provided to all sections of society; and*
- *The State Government may also ensure timely renewal of blood bank licenses and provide adequate human resource and infrastructure for proper functioning of blood banks and ensuring blood availability.*

3.3 Equipment for Health Facilities

3.3.1 Availability of Equipment

Equipment is one component for providing assured service by the district hospitals. IPHS norms stipulate the number of essential equipment under 25 headings based on the grade of the hospitals (number of beds). Out of these, audit checked the number of equipments under 16 headings.

It was found that in six sampled DHs, against the requirement of a total 4,274 equipments⁸ prescribed by IPHS for various services, 2,267 equipment was available. Thus, there was a shortfall of equipment by 47 per cent in the sampled DHs as shown in **Table 3.4**.

Table 3.4: Availability of Equipment at selected DHs

Category wise equipment	Nagaon DH		Kokrajhar DH		Tinsukia DH		Sonapur DH		Hailakandi DH		Diphu DH	
	R	A	R	A	R	A	R	A	R	A	R	A
Imaging	8	9	5	7	8	8	5	1	5	5	5	4
Cardiopulmonary	124	37	69	94	124	48	69	21	69	23	69	44
Labour & Neonatal	321	183	222	91	321	187	222	43	222	131	222	133
Immunisation	26	60	26	6	26	34	26	9	26	24	26	23
ENT	26	12	20	11	26	10	20	3	20	5	20	16
Eye	26	23	26	47	26	25	26	12	26	15	26	21
OT	65	27	39	20	65	30	39	17	39	27	39	17
Laboratory including blood bank	119	72	114	123	119	91	114	54	114	34	114	125
PMR	16	NA	16	8	16	NA	16	NA	16	NA	16	NA
Endoscopy	8	NA	3	NA	8	NA	3	1	3	2	3	1
Anaesthesia	124	13	97	13	124	81	97	27	97	23	97	36
Total	863	436	637	420	863	514	637	188	637	289	637	420
	short fall	%										
	427	49	217	34	349	40	449	70	348	54	217	34

Source: DHs records

(R=Requirement, A=Available)

It is seen from the above table that the sampled DHs were not fully equipped with essential equipment as per IPHS norms and shortfall of various requirement ranged from 34 per cent in DH Kokrajhar and 70 per cent in DH Sonapur.

In JMCH, against the requirement of 1,914 equipment as per MCI norms for services in the various departments, 1,479 equipment were available in the hospital. Thus, there was shortage of equipment by 23 per cent (**Appendix-III**). Status of some commonly used equipment by selected DHs are discussed below:

- i) **Endoscopy equipment:** Out of six selected DHs, in two DHs (Kokrajhar and Tinsukia), Endoscopy equipment required for diagnosing stomach ulcer were not available.
- ii) **PMR equipment:** This equipment required for treatment of inflammatory disorder that causes muscle pain and stiffness, especially in the shoulders and

⁸ Total of requirement as per IPHS =863+637+863+637+637+637=4,274
Available in the DHs=436+420+514+188+289+420=2,267

hips, was found available only in Nagaon DH. In other five selected DHs, the same were not available.

- iii) **X-Ray machine:** Out of six selected DHs, X-ray service in DH Hailakandi was not provided regularly and had been disrupted for 18 months during the period of coverage by audit due to frequent breakdown of X-ray machines⁹. Further, none of the selected DHs maintained records relating to investigations prescribed by the doctors due to which number of X-ray prescribed and number actually conducted was not ascertainable.

In DH Nagaon, there were six X-Ray Machines available out of which only two were functional and operational. Two X-Ray machines of 500 MA and 60 MA, though functional, are lying unused because X-Ray room has not been constructed as per AERB norms and adequate space is not available to install these. Other two were found to be non-functional.

- iv) **Eye OT equipment:** Eye OT equipment were found in service in sample DHs but in DH Nagaon the eye OT was lying idle.
- v) **Dental equipment:** Dental Chair is the focal point of treatment and patient's comfort for examination and treatment of dental problems. Out of selected six DHs, in four DHs (Hailakandi, Kokrajhar, Tinsukia and Nagaon), Dental Chairs were lying non-functional since 2011 for want of repairs. It was stated to audit by concerned Hospital Superintendents that on account of non-functional dental chair and lack of proper lighting in the dental room, teeth extraction was done with the help of torchlight/mobile torch causing discomfort both for the doctors and patients. Records maintained by DH Nagaon disclosed referral of 545 dental patients during 2017-18 to other facilities due to defunct Dental Chair. Other selected DHs did not maintain any such record.

Further, Orthopantomogram (OPG) required for dental X-ray examination was not available in any of the selected DHs.

- vi) **Cardiopulmonary equipment:** During test check of six selected DHs, we observed insufficiency of cardiopulmonary equipment as shown in **Table 3.5:**

⁹ In DH Hailakandi, altogether three X-ray machines were available of which two were operational and one was out of order

Table 3.5: Position of Cardiopulmonary Equipment at sampled DHs and JMCH

Name of the Cardiopulmonary equipment	DH Hailakandi		DH Tinsukia		DH Kokrajhar		DH Nagaon		DH Diphu		DH Sonapur		JMCH	
	R	A	R	A	R	A	R	A	R	A	R	A	R*	A
Cardiac Monitor	4	0	8	0	4	8	8	0	4	2	4	0	21	16
Cardiac Monitor with defibrillator	2	0	2	0	2	0	2	0	2	1	2	0	4	4
Ventilators (Adult)	2	0	4	0	2	4	4	0	2	1	2	0	13	8
Ventilators (Paediatrics)	1	0	1	0	1	0	1	0	1	0	1	0	4	11
Pulse oximeter	3	0	8	0	3	6	8	0	3	1	3	0	24	12
Infusion pump	2	0	2	10	2	3	2	0	2	1	2	0	24	12
BP Apparatus (Table)	15	2	25	20	15	40	25	0	15	12	15	0	20	10
BP Apparatus (Stand)	15	0	25	0	15	9	25	0	15	8	15	0	40	14
Stethoscope	20	20	40	20	20	18	40	36	20	15	20	20	-	-
Nebuliser	1	0	2	0	1	2	2	0	1	1	1	0	14	13
Total	65	22	117	50	65	90	117	36	65	42	65	20	164	100

Source: Hospital records

R=Required as per IPHS, A= Available

*Requirement as per the MCI guidelines

It can be seen from the above that of the sampled DHs, cardiac monitor, ventilators, Pulse oxymeter and Nebuliser were available in the DH Kokrajhar, DH Diphu, and in JMCH. In DH Diphu, though most of the cardiopulmonary equipment were available, the numbers were not as per IPHS requirement. Availability of funds does not seem to be a constraint in view of the under-utilisation of funds by the Department.

3.3.2 Maintenance of Equipment

For smooth and regular operation of the equipment, regular maintenance and repair is to be done as per the requirement. It was observed that the annual maintenance contract was executed by the MD, NHM with the TBS India Telematic and Biomedical Services Pvt. Ltd. in November 2017 to repair the equipment of the health institutions of the State down to PHC facilities. As per terms of contract, repairing should be done within seven days from the date of registering the complaint and in any single breakdown, if more than seven days is taken to rectify the fault from the date of registration of fault, penalty was leviable and was to be deducted from the payment bill.

Audit however, observed huge delay in repairing of various types of equipment beyond the stipulated seven days since the date of registering complaint. Out of seven sampled hospitals, records of break down were produced by only three DHs and JMCH, the position of delay in repairing is shown in **Table 3.6:**

Table 3.6: Time taken to repair medical equipment

Sl. No.	Name of the Hospital	Equipment Fixed			Total	Per cent of equipment fixed beyond time frame
		Within 7 days	Within 7 to 30 days	After 30 days		
1	DH Tinsukia	63	40	100	203	69
2	DH Kokrajhar	58	4	120	182	68
3	DH Hailakandi	79	23	14	116	32
4	JMCH	390	31	77	498	22

Source: Hospital records

Action initiated against the service provider for such delay beyond the stipulated period of seven days was not found on record.

Impact on service delivery due to breakdown of equipment for prolonged period could not be assessed in audit. We however observed that in DH Hailakandi and Tinsukia, 18 radiant warmers remained out of order due to delay in repairing ranging from 12 to 305 days. During physical verification, it was noticed that due to lack of adequate radiant warmer and delay in repairing, two newborn babies were kept in one radiant warmer in DH Hailakandi.

Conclusion

Medical equipment/Devices are essential component in providing quality health care services. Audit noted that Hospitals were not fully equipped with essential equipment as per IPHS norms and shortfall of various requirement ranged from 34 *per cent* in DH Kokrajhar and 70 *per cent* in DH Sonapur. Further, X-Ray machines were lying unused in DH Nagaon due to non-installation and Dental Chairs were lying non-functional since 2011 for want of repairs. There was delay in repairing of various types of equipment which impacted service delivery. The available equipment frequently broke down due to inadequate maintenance thereby impacting the efficiency and appropriateness level of health care provided in the test-checked Hospitals.

Recommendations

- *Government may ensure availability of full range of essential equipments in every hospital, particularly in view of the increasing reliance on diagnostics for treatment of patients.*
- *Proper maintenance of equipment may also be ensured to reduce the breakdown time of critical equipment and ensure availability of services to patients.*

3.4 Drugs Management

Accessibility, availability, and affordability of good quality drugs at minimum out-of-pocket expenditure are key functions of the public health system to protect the public from the rising cost of health care.

As per IPHS, 458 items of drugs were required to be provided by the DH. The Director of Health Service, GoA had prepared the essential drug list (EDL) for the supply of medicines to health institutions of the State for distribution to the patients free of cost, reducing the out of pocket expenditure of the patients. As per notification of 2016, 320 medicines were included in EDL for DHs. Audit observed that the State EDL *vis-à-vis* IPHS had only 167 items in common.

3.4.1 Adequacy of Funds

The drugs and consumables are centrally procured and supplied to the district drug store for onward distribution to the health institutions. The Director of Health Service

(DHS) procured drugs, consumable and supplied medicines to the health institutions till 2015-16. From 2016-17 onwards, NHM procured the medicines and consumables for supplying to the health institutions of the State out of the NHM own fund as well as the fund released by the State Government under the free drugs distribution scheme. The budget, release and expenditure on drugs for the scheme is shown below:

Table 3.7: Availability of fund, for free drugs distribution scheme by NHM

(₹ in crore)

Year	Budget			Fund released			Fund utilized in the year		
	Central (NHM)	State	Total	Central (NHM)	State	Total	Central (NHM)	State	Total
2016-17	120.03	30.00	150.03	120.03	30.00	150.03	112.11	0	112.11
2017-18	182.16	100.00	282.16	182.16	100.00	282.16	89.83	79.01	168.84
2018-19	113.53	110.00	223.53	113.53	110.00	223.53	84.00	135.17	219.17
Total	415.72	240.00	655.72	415.72	240.00	655.72	285.94	214.18	500.12

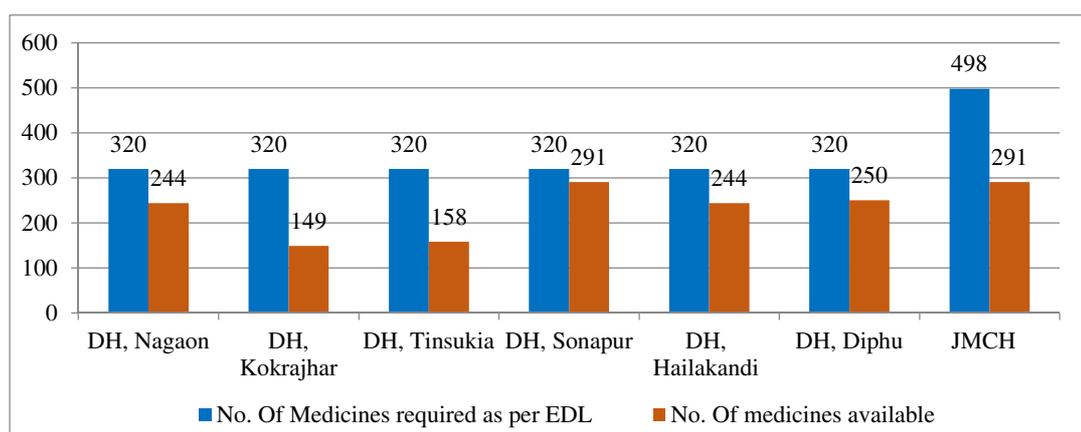
Source: NHM, Assam

Details of requirement of drug submitted by the districts and its total value were not made available to audit. However, it was stated that the practice of deriving value of the indent was not done by the NHM for yearly allotment of fund. As such, the value of required drugs and provision made for procurement was not ascertainable in audit. However, despite availability of funds for free drugs, patients were not provided medicines as mentioned hereinafter.

3.4.2 Shortages in Availability of Essential Drugs

The State has prepared essential drug list (EDL) for different categories of health facilities. As per the EDL for the DH (2016), 320 medicines were found listed. For Medical Colleges, 498 medicines are prescribed under EDL. Audit observed shortage of essential medicines in the selected Hospitals when compared to the prescribed EDL as depicted in **Chart 3.4**:

Chart 3.4: Availability of Medicines in Sampled DHs and JMCH



Source: DHs and JMCH records

Duration of non-availability of the medicines included in EDL during the years 2014-19 was assessed in audit based on sampled 51 medicines in five DHs and JMCH, which is shown in **Table 3.8**. DH Kokrajhar could not furnish the position of out of stock medicines.

Table 3.8: Stock out of Medicines

Name of DH	Number of medicines (out of sampled 65) remained out of stock	Period of medicines remained out of stock (in days ranging from to)
Tinsukia	51	23 to 1,770
Nagaon	09	23 to 120
Sonapur	06	30 to 270
Diphu	02	180 to 210
Hailakandi	02	25 to 180
JMCH	19	30 to 1,470

Source: Hospital records

During Patients' survey, audit verified 247 prescriptions¹⁰ and noticed that out of 940 medicines prescribed by the doctors, only 453 medicines (48 per cent) were issued to the patients from the pharmacy of the DHs and patients had to purchase remaining medicines from outside. This is shown in **Table 3.9**:

Table 3.9: Availability of prescribed medicines

Name of DH	Number of Sampled prescriptions	Number of Medicines prescribed	Number of Medicines Issued
Kokrajhar	28	109	49
Nagaon	142	554	284
Diphu	53	178	53
Hailakandi	24	99	67
Total	247	940	453

Source: DHs records

On the day of patient survey in Kokrajhar DH, it was observed that out of 46 medicines prescribed against eight IPD patients, only 13 medicines were disbursed by the hospital store and the balance medicines were purchased by the patients/attendants incurring expenditure of ₹ 27,789¹¹.

The non-availability of medicines was confirmed by the Patients' survey, where 44 per cent of the respondents stated that only few times all the medicines prescribed by the doctors of the hospitals were distributed from the pharmacy of the hospitals.

Conclusion

Availability of drugs listed in EDL in the Hospitals are needed to ensure their timely availability to patients. During 2014-19, out of the 51 essential sampled drugs, 42 to 53 per cent of the drugs were never supplied to the test-checked DHs. Duration of non-availability of the medicines included in EDL during the years 2014-19 ranged from 23 to 1,770 days in the five out of six sampled DHs. Despite availability of adequate fund, this largescale non-availability of essential drugs in the test-checked DHs, compelled the patients to purchase the prescribed medicines from the open market out of their pocket and thus increasing their financial burden.

¹⁰ 235 OPD, 12 IPD

¹¹ In respect of four patients and the expenditure ranged from ₹ 2,003 to ₹ 10,519

Recommendations

- *The State Government may put in place a comprehensive drug policy according to the need of hospitals to ensure all time availability of essential drugs in each hospital to avoid 'stock outs'. They may increase the budget allocation for drugs and ensure adequate spending of funds, on drug supplies.*
- *The Essential Drug List (EDL) may be updated on the basis of disease patterns and inflow of patients.*

CHAPTER IV
DELIVERY OF HEALTHCARE
SERVICES

Chapter-IV: Delivery of Healthcare Services

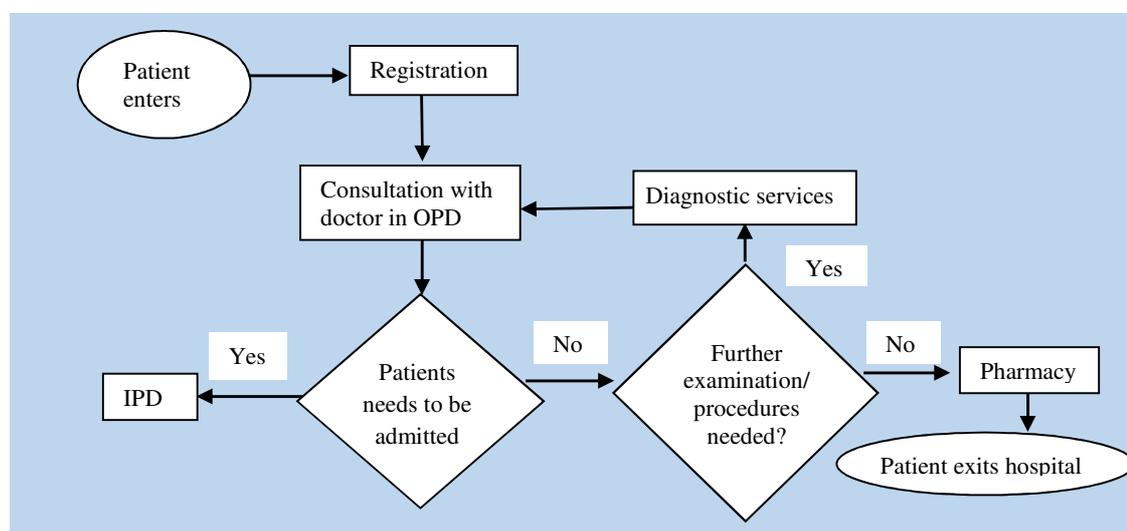
Delivery of OPD, IPD, ICU, OT, Trauma & Emergency, and Diagnostic services

Delivery of Service by District Hospitals: District Hospital (DH) is the highest health care facility within the district which delivers specialist and referral service. High-quality healthcare services involve the right care, at the right time, responding to the users' needs and preferences, while minimising harm and wastage of resources. Quality healthcare increases the likelihood of desired health outcomes. Audit observations on delivery of timely and quality healthcare services in the test-checked DHs through line services like Out-Patient Department (OPD), In-Patient Department (IPD), Intensive Care Unit (ICU), Operation Theatre (OT), Trauma & Emergency and Diagnostic services are discussed in the succeeding paragraphs.

4.1 Out-Patient Department (OPD) Services

To avail of services in a hospital, patients first register at the registration counter of the hospital. OPD doctors then examine them, and further diagnostic tests are prescribed, where necessary, for evidence-based diagnosis and/or drugs are prescribed or admission in IPD is advised based on the diagnosis.

Chart 4.1: Flow of patient services



4.1.1 Patients' Registration Management

Audit observed that there was only a rudimentary level of computerisation for registration and patient management in the selected DHs. Online registration facility was not available in any of the sampled DHs. The registration of patients was done at the counter and prescription slips were provided with registration number in which name, age, and address of the patients were recorded but the subsequent diagnosis prescribed by doctors, results thereof, medicines prescribed and distributed, status of patient treated and referred to other facilities were not recorded in the registration

system. As such, in the subsequent visit, the patient had to register anew in the DH and patient database was not available or maintained for future reference. Lack of patient treatment history may prevent provision of proper medical care by the doctors during subsequent visits.

Further, in absence of the basic database of the patients, actual number of patients treated, referred to other facility, diagnosis prescribed and conducted at the DHs, medicines disbursed could not be ascertained in audit except for basic registration data.

4.1.2 Inadequate Registration Counters

NHM Assessor Guidebook (Vol-1) estimates the average time required for registration to be 3-5 minutes per patient, which roughly works out to about 20 patients/ hour per counter.

Audit examined the number of patients registered during 2018-19 in each test-checked DH along with the availability of registration counter(s) and it was observed that adequate number of registration counters were not available in DH Nagaon, Tinsukia, Hailakandi, and JMCH as shown in **Table 4.1**:

Table 4.1: Hospital wise No. of registration counters

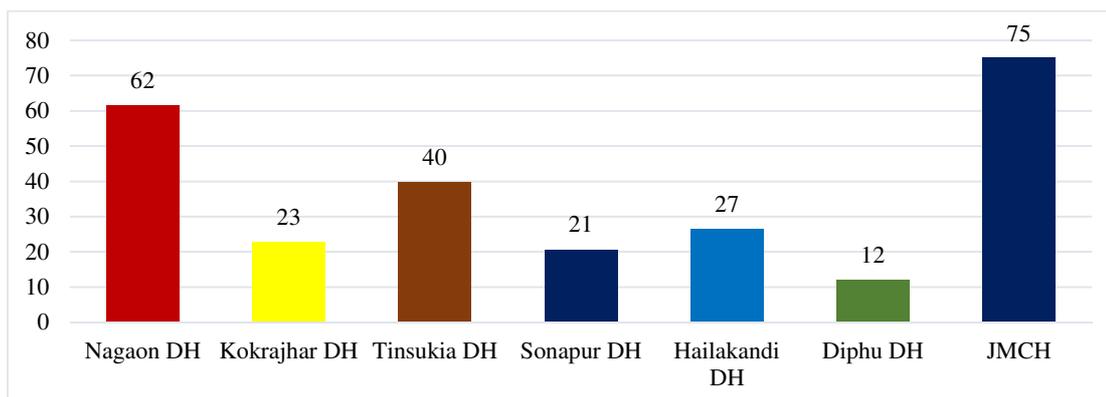
Name of health facility	No. of registered patients	OPD registration hours/ day	No. of OPD working days during 2018-19	No. of registration counter(s)		Shortfall
				Required $\{2 \div (4 \times 3)\} \div 20$	Available	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
DH Nagaon	2,27,312	6	308	6	2	4
DH Kokrajhar	83,792	6	308	2	2	0
DH Tinsukia	1,46,688	6	308	4	2	2
DH Sonapur	76,377	6	308	2	2	0
DH Hailakandi	98,180	6	308	3	2	1
DH Diphu	45,511	6	308	1	5	-4
JMCH	2,75,960	6	308	7	5	2

Source: DHs, JMCH records and joint physical verification

While there were shortages in the number of registration counters in four DHs, there were excess of four counters (against norms) in DH Diphu. The shortage in counters in JMCH is significant since the counters were saddled with increased patient load.

The chart below shows that the average patient load per counter per hour registered during 2018-19 of the test-checked Hospitals ranged from 75 in JMCH, 62 in DH Nagaon and 40 in DH Tinsukia, which was higher than the ideal limit of 20 patients/hour for all test-checked DHs except DH Diphu:

Chart 4.2: Patient load per hour per counter



Source: DHs and JMCH records

4.1.3 Waiting time

The 'wait time' for registration at the Registration counters and wait time between registration and consultation as per the response of 366 patients during Patient Satisfaction Survey conducted in the test-checked DHs is tabulated below:

Table 4.2: Waiting time for registration and between registration and Consultation with the doctor in the test-checked DHs

(A) Wait time for registration:

Name of DH	Available No. of registration counters	No. of Patients surveyed	Wait time in minutes		
			1-5	6-30	31-60
Nagaon DH	2	65	2 (3%)	63 (97%)	-
Kokrajhar DH	2	34	3 (9%)	31 (91%)	-
Tinsukia DH	2	60	-	60 (100%)	-
Sonapur DH	2	30	15 (50%)	15 (50%)	-
Hailakandi DH	2	68	6 (9%)	62 (91%)	-
Diphu DH	5	41	22 (53%)	19 (47%)	-
JMCH	5	68	-	68 (100%)	-

(B) Wait time between registration and consultation with the doctor:

Name of DH	No. of Patients surveyed	Wait time ranged in minutes						
		1-10	11-20	21-30	31-40	41-50	51-60	61 & above
Nagaon DH	65	18 (28%)	30 (46%)	10 (15%)	2 (3%)	1 (2%)	-	4 (3%)
Kokrajhar DH	34	7 (21%)	23 (67%)	2 (6%)	-	-	1 (3%)	1 (3%)
Tinsukia DH	60	5 (8%)	44 (73%)	11 (19%)	-	-	-	-
Sonapur DH	30	18 (60%)	5 (17%)	5 (17%)	-	-	2 (6%)	-
Hailakandi DH	68	11 (16%)	55 (81%)	2 (3%)	-	-	-	-
Diphu DH	41	26 (63%)	11 (27%)	-	2 (5%)	-	-	2 (5%)
JMCH	68	-	8 (11%)	51 (75%)	9 (14%)	-	-	-
Total	366							

Source: Patient's Satisfaction Survey report of test-checked DH and JMCH

From the table above, it can be seen that:

- In DH, Tinsukia, as well as JMCH, all sampled patients were registered after waiting more than five minutes at the counters. In DH Nagaon, 97 per cent patients waited more than five minutes for getting registered at the counters.

- In DH Tinsukia, 92 *per cent* patients waited more than 10 minutes to consult doctors after getting registration and in DH, Hailakandi 84 *per cent* patients had to wait more than 10 minutes to consult doctors after registration while 100 *per cent* patients at JMCH waited for more than 10 minutes to consult the doctor. Shortage of doctors increase in patient load and inadequate registration counters affected the timeliness in provision of services to the patients.

4.1.4 Availability of basic facilities in OPD

As prescribed by IPHS, DHs should provide seating chairs, drinking water, toilets for waiting patients/attendants.

Audit observations in this regard facility-wise are as follows:

OPD facilities	Status	Illustrative Photographic evidence
Availability of adequate/suitable seating facility	Available but inadequate as per patients load in test-checked DHs or JMCH except DH Kokrajhar and Sonapur.	
Availability of separate toilets for men and women	Not available in DH Hailakandi and JMCH. However, in DH Kokrajhar, Nagaon, paid toilet facility was available outside the OPD building.	
Availability of disabled friendly toilet and wash basin	None of the test-checked DHs or JMCH had disabled friendly toilet and wash basin.	
Computerised Registration	Registration of patients were computerised in the sampled DHs or JMCH except DH Hailakandi.	
Referral Cases	Referrals made and referrals received as well as reasons for referrals are not captured in computerised registration system/register.	
Clinical history of the re-visit patients	Diagnosis/clinical history of the re-visiting patients were not captured in computerised registration system/register.	
Online Registration	Online registration facility was not provided by any of the test-checked DHs.	
Availability of entertainment such as TV, health information and reading material in waiting area	None of the test-checked DHs has provided these facilities.	

Source: DHs and JMCH records and joint physical verification

During patient satisfaction survey, out of the 366 OPD patients who responded in the sample DHs and JMCH, 140 (38 *per cent*) patients responded that basic amenities such as drinking water, seating arrangement, wash room was not provided in district hospital.

The Out-patient Department of the sample DHs had various shortcomings in availability of basic facilities like non-availability of separate toilets for men and women, disabled friendly toilet and washbasin, potable drinking water, online registration, in-adequacy of suitable seating facility, except DH Kokrajhar. The referral cases and clinical history of patients was also not computerised.

Conclusion

None of the sampled hospitals had a sound patient registration and history recording system in the form of a suitable IT based Health Information System capable of maintaining electronic health and medical records of the patients. Out of seven hospitals, four hospitals had inadequate registration counters as against the requirements. The average patient load per counter per hour ranged between 40 in DH Tinsukia and 75 in JMCH which was above the norms of 20 patients per hour. The Out-patient Department of the test-checked district hospitals had various shortcomings in availability of basic facilities like non-availability of separate toilets for male and female, disabled friendly toilets and washbasin, online registration, *etc.* The referral cases and clinical history of patients was also not computerised.

Recommendations

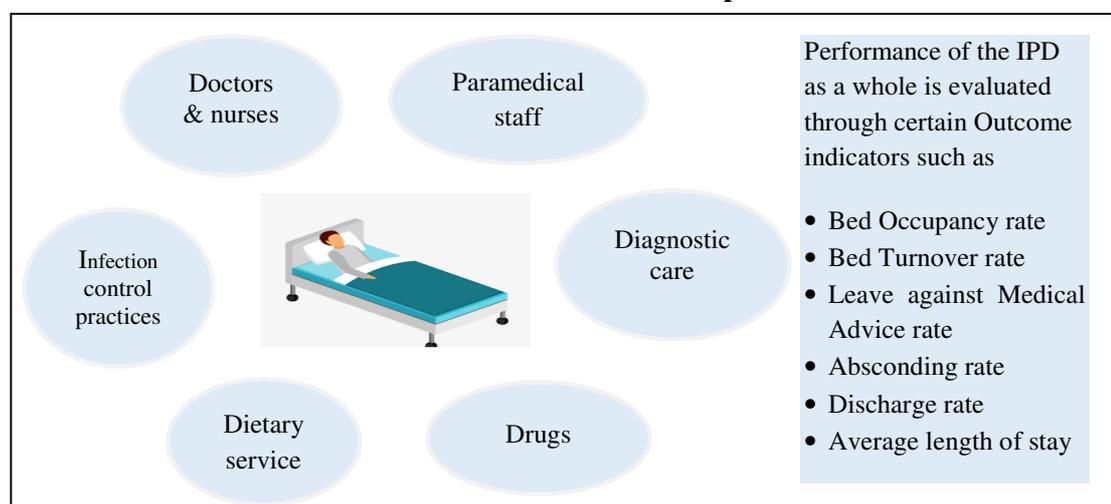
- *The State Government may deploy a suitable Health Information System in all DHs, which is capable of maintaining health and medical records of patients. This should also include documentation/computerisation of referral cases and clinical history of patients.*
- *The State Government may ensure availability of basic facilities/services in the OPD of each hospital as prescribed in the Assessor's Guidebook for Quality Assurance of Services in District Hospitals, 2013 (Vol-1).*
- *The State Government may augment the availability of registration counters in deficit DHs.*

4.2 In Patient Department (IPD) Services

4.2.1 Availability of IPD services in the test-checked DHs

Indoor Patients Department (IPD) refers to the areas of the hospital where patients are accommodated after being admitted, based on doctor's/specialist's assessment, from the Outpatient Department, Emergency Services and Ambulatory Care. In-patients require a higher level of care through nursing services, availability of drugs, observation by doctors, *etc.*

Chart 4.3: IPD services in Hospitals



As per NHM Assessor's Guidebook, a DH should provide specialist in-patient services pertaining to General Medicine, General Surgery, Ophthalmology, Orthopaedics, etc. Audit observed that majority of the required services were, however, not available in the test-checked DHs as shown in **Table 4.3**:

Table 4.3: Status of In-patient services in test-checked District Hospitals

	Act*	Burns	Dia	GM	GS	Oph	Orth	Phy	Psy
DH Nagaon	No	Yes	Yes	Yes	Yes	No	No	No	No
DH Kokrajhar	No	Yes	No	Yes	Yes	Yes	No	No	Yes
DH Tinsukia	No	No	No	Yes	Yes	Yes	No	No	No
DH Sonapur	No	No	No	No	No	Yes	No	No	No
DH Diphu	No	No	No	Yes	Yes	Yes	No	No	No
DH Hailakandi	No	No	No	Yes	No	Yes	No	No	No
JMCH	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: DHs records and physical verification

*Act: Accidents and Trauma, Dia: Dialysis, GM: General medicine, GS: General surgery, Oph: Ophthalmology, Orth: Orthopaedics, Phy: Physiotherapy, Psy: Psychiatry.

As can be seen from above that accident and trauma, orthopaedics, physiotherapy, psychiatry IPD services were not available in any of the sample DHs, barring JMCH. The General Surgery was not available in DHs Hailakandi and Sonapur due to non-availability of surgeons.

Positive feature: The IPD services related to General medicine, General surgery, ENT and Ophthalmology services were available in all the sample DHs.

4.2.2 Referred Outpatients

During 2014-19, out of 3,53,868 patients admitted in the test-checked DHs, 30,965 patients (9.2 per cent) were referred out by the test-checked DHs. Hospital-wise number of cases referred out during 2014-19 is given in **Table 4.4**:

Table 4.4: Cases referred out during 2014-19 in test-checked DHs

	Nagaon	Kokrajhar	Tinsukia	Hailakandi	Diphu	Sonapur
2014-15	852	405	1,433	2,381	211	NA
2015-16	1,087	475	1,179	2,127	267	501
2016-17	969	462	1,127	2,241	311	492
2017-18	2,705	498	1,179	2,411	334	208
2018-19	1,944	541	1,501	2,487	440	197
Total	7,557	2,381	6,419	11,647	1,563	1,398
Total IPD	68,783	52,378	92,681	87,695	46,511	5,820
Percentage of referral	11	5	7	13	3	24

Source: Departmental records

In reply, the Superintendent of DH, Sonapur stated that due to non-availability of required human resource, facilities such as beds, CT scan and Blood bank, the patients were required to be referred to other facilities.

Thus, the DHs had failed in providing intended comprehensive healthcare services to the populace of the districts.

4.2.3 Availability of beds in the DHs

As per IPHS, the number of beds required for a district having a population of 10 lakh is around 300 beds. The department did not prescribe any norms/criteria for the creation of district hospital and hospital beds to deliver the secondary level of quality assured services. In the test-checked district hospitals, it was observed that there was a shortfall of beds ranging from six to 41 *per cent* against IPHS norms as detailed in **Table 4.5**:

Table 4.5: Requirement of Bed as per IPHS and bed available at DH

Name of the district	District Hospital	Population* in lakh	Number of beds		Shortfall (<i>per cent</i>)
			Required (IPHS)	Available	
Nagaon	DH Nagaon	28.24**	776	360	416 (54)
Kokrajhar	DH Kokrajhar	8.87	243	200	43 (18)
Tinsukia	DH Tinsukia	13.28	365	260	105 (29)
Kamrup (M)	DH Sonapur	12.54	344	200	144 (42)
Diphu	DH Diphu	9.56	262	100	162 (62)
Hailakandi	DH Hailakandi	6.59	181	100	81 (45)

Source: Hospital records and IPHS guidelines (*census 2011) (**undivided district)

During physical verification of the IPD wards of the sampled DHs, we noticed instances where shortage of beds had led to patients being kept on the floor of the hospital, and sharing of bed by two patients, thereby raising the risk of cross-infection.



Patient lying on the floor of the post natal care at DH Diphu

patients lying on the floor, female medical ward, DH Nagaon

Further, increase in bed strength hospital wise with the increase in IPD was not found on records. However, it was noticed in DH Kokrajhar that 19 additional beds were installed in the corridor of the hospital due to lack of space for increasing the number of beds for the IPD services to accommodate patients.

In JMCH, against the requirement of 500 beds as per MCI guidelines, the hospital of the medical college had 814 beds.

4.3 Intensive Care Unit Services

As per IPHS, the district hospital should have Intensive Care Unit (ICU) to provide life support care to the patient having severe ailment.

It was observed that except for JMCH, in none of the sampled Hospitals, ICU service was available. Patients admitted in the emergency unit of the hospital were provided with first aid treatment due to the non-availability of equipment and the patients with severe illness were referred to the tertiary care. Audit noticed that the distance from the selected DHs to the nearest tertiary facility was about 34 to 159 kms as shown in **Table 4.6:**

Table 4.6: Availability of ICU and Distance between DH and the nearest Tertiary Facility

Name of DH	Availability for ICU		Name of nearest tertiary facility	Distance between DH and tertiary facility (in km)
	Equipment	HR		
DH Nagaon	Yes	No	GMCH, Guwahati	122
DH Kokrajhar	No	No	FAAMCH, Barpeta	109
DH Sonapur	No	No	GMCH, Guwahati	34
DH Tinsukia	No	No	AMCH, Dibrugarh	50
DH Hailakandi	No	No	SMCH, Silchar	45
DH Diphu	No	No	JMCH, Jorhat	159

Source: DHs records

In the absence of an ICU facility in the remaining DHs, patients approaching these hospitals in an emergent condition were likely to be referred and/or passed on to higher facility of public or private hospitals. Thus, due to the non-availability of the ICU service, the severely sick patients brought to the hospitals were referred to the tertiary facility.

During exit meeting the department stated that work on construction of ICUs in the DHs is under process and the works will be completed in phase manners.

4.4 Operation Theatre Services

Operation Theatre (OT) is an essential service in a DH. IPHS guidelines prescribe OTs for elective major surgery, emergency services and ophthalmology/ ENT (ear, nose and throat) for district hospitals having bed strength of 101 to 500. Availability of OT services and number of surgeons available in the test-checked Hospitals as of March 2019 as shown below:

Table 4.7: Availability of OTs and Surgeons as on 31 March 2019 in the test-checked Hospitals

Hospital	Type of surgeries available (No. of Surgeons)			Eye surgeries
	General	ENT	Orthopaedic	
Nagaon DH	Yes (4)	Yes (2)	No	No
Kokrajhar DH	Yes (3)	Yes (2)	No	Yes (3)
Tinsukia DH	Yes (1)	Yes (2)	No	Yes (3)
Sonapur DH	Yes (2)	Yes (2)	Yes (1)	No
Hailakandi DH	No	No	No	Yes (2)
Diphu DH	Yes (5)	Yes (1)	No	Yes (2)
JMCH	Yes (18)	Yes (5)	Yes (6)	Yes (3)

Source: Departmental records

As can be seen from above that

- Sampled Hospitals, except for DH Sonapur and JMCH, had not provided orthopaedic surgery service during the period 2014-19 due to non-availability of orthopaedic surgeon.

- DH, Hailakandi did not provide general, ENT and Orthopaedics surgery service due to non-availability of human resources. The minor OT attached to the emergency room was not operational since 2014 due to lack of required manpower. The Eye surgery service was provided from the April 2016 but service was not regular due lack of regular surgeon. During April 2016-March 2019, the service was not provided in nine months.

The IPHS guidelines provide that DHs should have Operation Theatres (OTs) equipped with all instruments. The OTs should have the departments of surgery with Central Sterile Supply Department (CSSD) near to the OTs. It further provides that the OTs should have preparatory, pre-operative and post-operative resting rooms.

During test check of records of the sampled DHs it was noticed that DHs did not have the required equipment as per IPHS as shown in **Table 4.8**:

Table 4.8: Position of equipment in OT of the sampled Hospitals

Name of Hospital	Bed Strength	Number of equipment		Shortage (per cent)	Number of equipment	
		Required	Available		Functional	Non-functional
Nagaon	201-300	65	27	38 (58)	25	2
Kokrajhar	101-200	39	20	19 (48)	17	3
Hailakandi	100	39	27	12 (30)	17	10
Tinsukia	201-300	65	30	35 (53)	29	1
Sonapur	101-200	39	17	22 (56)	17	0
Diphu	101-200	39	17	22 (56)	15	2
JMCH*	500	529	283	246 (46)	281	2
Total		815	421	394 (52)	401	20

Source: DHs and JMCH records

*Requirement as per the MCI guidelines

It is seen from the Table above that DHs lacked OT equipment to the extent of 30 to 58 per cent. As discussed in previous chapter, no gap analysis was conducted to assess the requirement and procure equipment for providing assured service. As per IPHS, an Operation Theatre should also have a Preparation Room, Pre-operative Room and Post-operative Resting Room. Out of sampled DHs, it was seen that DH Kokrajhar did not have separate rooms for pre and post-observation of the patients. Thus, patients were directly shifted to concerned wards for post-operative observation.

During the course of audit, the following were noticed:

- UV lamps are to sterilise surgical equipment and the air in operating theatres. However, it was noticed from the records of the sample DHs that against requirement of 32 UV lamps, only one lamp was available in the OTs in DH Diphu.
- The surgery suction machine can be used to remove blood from the area being operated on to allow surgeons to view and work on the area. It was noticed that though suction apparatus was available in all the sampled DHs but against the total requirement of 46 suction apparatus (electric/foot operated) as per IPHS norms, only 25 machines were available in the OT.
- The eye OT of DH Nagaon was non-functional and remained in unserviceable condition even though the specialist doctor was available in the DH with OPD

(eye) being functional. The patients of the DH were referred to the Sankardeva Netralaya, Guwahati for conducting operations. Reasons for non-conducting operation in the Eye OT were not stated to audit. However, it was noticed from records that eye operation service was closed since 13 March 2017, due to serious infection, which had occurred after operation of 13 patients. It was seen from the information furnished by the DPM, National Programme for Control of Blindness (NPCB), Nagaon district that a total of 5,792 cataract operations were conducted through NGOs (Lions Club), private sector institutions (Sankardeva Netralaya, Guwahati) during years 2017-18 and 2018-19 even though the DH was equipped with HR and equipment. Thus, proper utilisation of resources was not ensured, and the patients had to commute distances for the service.

Thus, there was shortage of prescribed essential equipment pertaining to OT services. The resources available for OTs were insufficient and offered little prospect of effective treatment in the concerned hospitals.

4.4.1 Documentation of OT Procedures

NHM Assessor's Guidebook prescribes that surgical safety checklist, pre-surgery evaluation records and post-operative evaluation records for OTs should be prepared for each case. Audit observed that surgical safety check-list was prepared in the sampled DHs except DH Diphu.

4.5 Emergency Services

Emergency services in DH are provided by Emergency ward or Emergency Room (ER) which is a facility specialising in acute care of patients who come in emergency. IPHS envisages 24x7 operational emergency with dedicated emergency room in every district Hospital. Audit observed that adequate facilities/equipment was not available in the sampled Hospitals except JMCH as shown below:

Table 4.9: Adequacy of equipment in emergency room

Sl. No.	Equipment/Facility	Nagaon DH	Kokrajhar DH	Tinsukia DH	Sonapur DH	Hailakandi DH	Diphu DH	JMCH
1	Mobile X-ray	Yes	No	No	No	Yes	No	Yes
2	ECG	Yes	Yes	Yes	No	No	Yes	Yes
3	Pulse Oxymeter	Yes	Yes	No	No	Yes	Yes	Yes
4	Cardiac Monitor with defibrillator	No	No	No	No	No	Yes	Yes
5	Multiparameter Monitor	No	No	No	No	No	No	Yes
6	Ventilator	No	No	No	No	No	No	Yes
7	Laboratory	Yes	Yes	Yes	No	Yes	No	Yes
8	Emergency Beds	Yes	No	Yes	Yes	Yes	Yes	Yes
9	Side labs/ plaster room	No	No	No	No	No	No	Yes
10	Minor OT facilities	Yes	Yes	Yes	Yes	No	Yes	Yes
11	Duty room for Doctors/ Nurses/ paramedic staff	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	Separate waiting area	No	No	No	No	No	No	Yes
13	Public amenities for patients and relatives	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: DHs and JMCH records and physical verification

As can be seen from the Table above, all the sampled DHs were only partially equipped with the required facilities for emergency service.

4.6 Availability of Trauma Care Centre

Non-utilisation of Trauma Care Centres in State has been commented upon separately in **Paragraph-1.2.1** of C&AG's Report on Social, Economic (Non-PSUs) and General Sectors for the year ended 31 March 2019 of Government of Assam. Out of six selected DHs, two DHs (Diphu and Nagaon) had received grants of ₹9.27 crore¹² from GoI in 2009-10 to provide trauma care of which ₹3.29 crore were spent towards construction of building and procurement of equipment during 2010-13. However, none of the DHs could make the trauma care facility operational due to non-deployment of manpower despite availability of fund which had been kept in bank account of concerned DHs. Trauma care facility in other four district hospitals were not available.

4.7 Diagnostic Services

Diagnostic and Radiology Service: As per IPHS, the District Hospital Laboratory shall serve the purpose of public health laboratory and should be able to perform all tests required to diagnose epidemics or important diseases. Efficient and effective diagnostic services, both radiological and pathological, are amongst the most essential health care facilities for delivering quality treatment to the public based on accurate diagnosis.

The District Hospitals had been providing the diagnostic services through the in-house labs on payment of fees as prescribed by the health department till the Free Diagnostic Services scheme under Public-Private Partnership (PPP) arrangement was launched in May 2017 to ensure availability of a minimum set of diagnostics services at health institutions up to PHC level. Under Free Diagnostic Services, CT Scan, X-Ray and Laboratory services are provided free of cost to all the patients. The service providers are paid by NHM at the rate of ₹1,423 per CT Scan, ₹150 per X-ray, and ₹320 per Lab sample.

In JMCH, Diagnostic Services were provided through in-house Lab and the services were charged as per the rate list displayed in the Hospital.

4.7.1 Radiology services

Adequate availability of functional radiology equipment, skilled human resources and consumables are the key requirements for the delivery of quality radiology services. The IPHS prescribed for X-ray, Ultrasonography and CT scan services at DH.

4.7.1.1 X-ray services

IPHS prescribe various types of X-ray machines of varying penetration and radiation levels for different radiological investigations. Audit, however, observed that hospitals having X-ray services, lacked the required machines as prescribed in IPHS as shown in **Table 4.10**:

¹² Diphu DH received ₹2.68 crore and ₹6.59 crore by Nagaon DH during 2009-10

Table 4.10: Availability of X-ray machines in Sampled Hospitals

Sl. No.	Name of X-ray equipment	Nagaon		Kokrajhar		Sonapur		Tinsukia		Hailakandi		Diphu		JMCH	
		R	A	R	A	R	A	R	A	R	A	R	A	R	A
1	500 M.A. x-ray machine	1	1	0	1*	0	1	1	1	0	1*	0	0	2	2
2	300 M.A. x-ray machine	1	1	1	0	1	0	1	1	1	1	1	1	2	1
3	100 M.A. x-ray machine	1	2	1	1	1	0	1	1	1	0	1	0	3	3
4	60 M.A. x-ray machine (Mobile)	1	1	0	0	0	0	1	0	0	1	0	1	3	2
5	Dental x-ray machine	1	0	1	0	1	0	1	2	1	0	1	0	1	0
Total		5	5	3	2	3	1	5	5	3	3	3	2	11	8

Source: DHs and JMCH records and physical verification

R=Requirement as per IPHS/MCI (for JMCH), A=Actually available

*800mA

The X-ray service was provided at a charge of ₹100 per patient till the launch of the Chief Minister's Free diagnostic scheme which was implemented from January 2017. As per the agreement, the service provider M/s Krsnaa Diagnostics Pvt. Ltd had to provide 24 hours service and the report to be generated within 24 hours in general cases and three hours for emergency cases.

During the audit in the sampled DHs, it was noticed that the schedule of the delivery of service varied in different sample DHs. It was noticed that at DH, Nagaon, and Diphu, service was provided during OPD hours from 8 AM to 2 PM only, at DH Kokrajhar, Sonapur and Tinsukia, no X-ray service was provided after 6 PM. Short availability of the full range of X-ray equipment and non-functionality of the available radiology equipment impacted the efficiency and appropriateness of level of care to be offered in the district hospitals.

Audit further observed the following:

- A 500 mA X-ray machine supplied to DH Nagaon was not installed due to the unavailability of room required as per AERB norms and the equipment remained idle since its supply. Further six number of X-ray machines of different category were kept in one room and service was provided using only two machines due to lack of space for installation even though the required human resource was available. Action initiated for installation of the unused machines was not found on record.
- In DH Hailakandi, there were two X-ray machines, but the service was not provided during June 2016 to March 2017, June-August 2017, and November 2017 to March 2018. However, after implementation of CM Free Diagnostic Scheme the services were being provided. On being asked about the reasons for not providing the service, the Superintendent of the DH stated that the machines were out of order due to delay in repairing, the service was not provided.

In absence of indents/prescription of the test prescribed, the number of tests actually prescribed, the actual utilization of X-ray machines was not ascertainable.

4.7.1.2 Ultrasonography

As prescribed in IPHS, every DH should have Intra-cavitary Ultra Sonogram separately for Obstetrics and Gynaecology Department and there should be at least two-colour Doppler machines in the hospitals.

The USG service was provided on payment of ₹250 per patient except pregnant women who were covered under the Janani Shishu Suraksha Karyakram (JSSK) scheme.

During audit for the period 2014-15 to 2018-19, the following were noticed:

Table 4.11: Availability of ultrasonography equipment and human resource

Name of DH	Equipment required	Equipment available	Human resource	Audit observations
DH Nagaon	3	3	1	No regular radiologist was available in the DH. The radiologist performed duties in another facility and service was provided on every alternate day during OPD hours only except Sunday.
DH Kokrajhar	3	1	1	It was observed that regular services were not provided due to frequent leave of Radiologist
DH Tinsukia	3	2	0	Due to the non-availability of radiologist the machine is lying idle.
DH, Hailakandi	3	2	0	Due to non-availability of Radiologist, the service was not provided for 40 months during 2014-19.
DH Sonapur	3	1	2	The equipment was functional and service was provided to the patients requiring diagnosis.
DH Diphu	3	2	1	Out of two available equipment, one equipment was out of order.

Source: DHs records

Thus, short availability of equipment and human resources impacted the efficiency and appropriateness of level of care to be offered in district hospitals for diagnostic services such as ultrasonography.

4.7.1.3 CT Scan Service

Prior to the launch of CM's free diagnostic service, no CT Scan services were provided in DHs. The NHM executed agreement with M/s Spandan to provide 24 hours service. As per the agreement, the reports of CT Scan were to be provided within 24 hours in general cases and within 3 hours in case of emergency.

Out of sampled DHs, CT Scan service was not found available in DH Diphu and Sonapur (Kamrup Metro). In DH Hailakandi, though all equipment for the CT Scan was available but the power backup facility at DH Hailakandi and Kokrajhar was not available and hence, 24 hours uninterrupted service was not ensured.

4.7.1.4 Turnaround time for Radiology Service

It was observed that records relating to turnaround time in respect of USG service, X-ray service provided through in-house service had not been maintained by the

sampled DHs. Hence, turnaround of USG service and in-house X-ray service was not ascertainable in audit. It was noticed from the reports of the service provider that out of the total monthly films received for study, an average of 70 to 80 *per cent* reports were generated within the schedule time of reporting. The delay in providing of reports impacted diagnosis process and provision of quality healthcare service. The turnaround time in respect of DH, Sonapur was not provided.

4.7.1.5 AERB Licenses for Radiology Machines

As per Atomic Energy (Radiation Protection) Rules 2004, for establishing X-ray and CT scan unit, a license from the Atomic Energy Regulatory Board (AERB) is necessary. Contrary to the provisions of the said Rules, the requisite license from AERB had not been obtained in the Sampled District hospitals providing X-ray service. However, the AERB license in respect of CT Scan was available as shown in **Table 4.12:**

Table 4.12: Position of AERB license in sample DHs

Name of DH	AERB status of Radiology department	
	CT Scan	X-ray
DH Nagaon	Yes	No
DH Kokrajhar	Yes	No
DH Tinsukia	Yes	No
DH Sonapur	Service not available during 2014-19	
DH Hailakandi	Yes	No
DH Diphu	Service not available	Yes
JMCH	Yes	Yes

Source: DHs and JMCH records

4.7.2 Laboratory Services at Test-checked DHs

IPHS envisages that the district hospitals having a capacity of 100 to 500 beds should ensure availability of 72 laboratory test services. Prior to implementation of Chief Minister's Free Diagnostic Service, the laboratory service was provided through in-house lab. After the launch of scheme, the service was provided through service provider M/s HLL and in-house lab as well.

4.7.2.1 Availability of Laboratory Equipment

Audit check of availability of laboratory equipment and information furnished by the sample DHs it was noticed that the DHs are not fully equipped with the laboratory equipment as per IPHS.

The position of availability various lab equipment for conducting various test is shown in **Table 4.13:**

Table 4.13: Shortage/non-availability of laboratory equipment in the test-checked DHs

Hospital	No. of equipment required as per IPHS	Available equipment (<i>per cent</i>)	Non-available equipment (<i>per cent</i>)	No. of equipment available but inadequate (shortfall <i>per cent</i> in range)
Nagaon DH	119	72 (61)	47 (39)	26 (16.6-75)
Tinsukia DH	119	91 (76)	28 (24)	18 (16.6-66.6)
Sonapur DH	114	54 (47)	60 (53)	46 (33.3-83.3)
Hailakandi DH	114	34 (30)	80 (70)	15 (50-66.6)

Source: DHs records and Joint physical verification

4.7.2.2 Availability of Laboratory Services

It was observed that in the sampled DHs, out of 72 essential lab test services prescribed by the IPHS, only 35 to 49 lab test services were provided by M/s HLL Life care and the hospital lab. Thus, there was a shortfall of essential tests by 31 to 51 *per cent vis-à-vis* IPHS and the DHs could not provide the service as per requirement of IPHS. Further reasons for variation in availability of different pathological services from hospital to hospital were not stated to audit.

During patients' survey at DH Nagaon, it was noticed that potassium test prescribed by the doctors was not conducted at the lab of service provider though the test was available in the revised list of tests of the service provider. The patient had to go outside the hospital though the service was available at the hospital. Reason for non-conducting the test at the hospital lab could not be stated to audit.

Thus, despite engaging private service providers, pathology services were not available as prescribed in IPHS, depriving the public from availing evidence-based health care.

4.7.2.3 Turn-around Time for Laboratory Services

It was observed that the in-house lab of the sampled DHs had not maintained records such as date of time of collection samples and issue of test results to the patients. As such the turnaround time could not be ascertained in audit.

Positive feature: As per turnaround time report of the service provider in respect of the sample DHs for the period from October 2017 to March 2019, it was noticed that average 92 to 99 *per cent* reports of the sample collected were generated within the schedule time agreed between the service provider and NHM.

4.7.2.4 Availability of Laboratory Technicians

Laboratory Technicians (LTs) are the key personnel for in-house laboratories and are responsible for taking samples and carrying out prescribed pathological investigations.

Audit observed that out of the sampled DHs, four DHs were having excess LTs whereas there was shortage in DH Kokrajhar and DH Tinsukia as shown in **Table 4.14:**

Table 4.14: Availability of laboratory technicians

DH	Required as per IPHS/MCI	Sanctioned Strength	Available
DH Nagaon	12	3	16
DH Kokrajhar	9	3	4
DH Tinsukia	12	4	11
DH Sonapur	9	Not furnished	14
DH Hailakandi	6	NA	10
DH Diphu	9	Not furnished	11
JMCH	51*	Not furnished	49

Source: DHs and JMCH records

*Requirement as per MCI guidelines

4.8 Patient Rights and Grievance Redressal

IPHS prescribes the requirement to display the Citizen's Charter at OPD and Entrance in local language including patient rights and responsibilities. Further, for effective redressal of grievances of patients, NHM Assessor's Guidebook envisaged a mechanism for receipt of complaints, registration of complaints and disposal of complaints on a first-come-first-serve basis, noting of action taken in respect of complaints in a register, periodic monitoring of system of disposals and follow-up by superior authorities as necessary.

4.8.1 Citizen's Charter

As per IPHS, a citizen's charter is to be displayed for appropriate information to the patients/beneficiaries visiting the District Hospitals.

During the audit of the sampled DHs, it was noticed that Citizen's charter had been displayed in the local language wherein the rights, and facilities available in the hospital are explained.

4.8.2 Grievance Redressal

Audit observed that Grievance redressal cell/ complaint cell was not set up as of March 2019. Further, complaint box was available in all the test-checked DHs and JMCH. However, in absence of Grievance Redressal Committee/Cell at all the hospitals, the manner/ basis of disposal of the complaint/suggestion received, could not be verified. Moreover, patient satisfaction survey was not conducted by the sampled DHs and JMCH during 2014-19.

4.9 Patient Safety

4.9.1 Firefighting Equipment and Disaster Management Plan

NHM Assessor's Guidebook envisages that in each hospital, a disaster management committee should be constituted, and SOPs should be available in case of disaster situations. The Disaster Management Plan (DMP) was to be developed in the hospital for ensuring preparedness training of the hospital staff and conducting periodic mock drills in the hospitals was required.

It was observed that fire extinguishers were installed in the sampled DHs but no SOP was developed in the sampled DHs to train the staff of the hospitals and fire safety audit report was not made available to audit, however, Fire Mock Drill was conducted in DH Kokrajhar (February 2019), DH Hailakandi (January 2020).

Conclusion

None of the test-checked Hospitals except JMCH had in-patient services for Accident and Trauma, Orthopaedics, Physiotherapy, Dialysis (except Nagaon where it was started in December 2019). Burn care services was available in DH Nagaon and Kokrajhar only. ICU services were also not available in any of the test-checked DHs. Further, audit also noted shortage of beds in the District Hospitals compared to IPHS norms, ranging from by six to 58 *per cent*. Two DHs (Diphu and Nagaon) could not

make the Trauma Care Centre functional despite availability of funds while the remaining four DHs did not have Trauma Care facilities.

As regards Laboratory Equipment, in test checked DHs, non-availability of essential equipment ranged from 24 to 70 *per cent* whereas shortages in available equipment ranged from 15 to 46 *per cent*, thereby impacting the availability and timeliness of comprehensive diagnostic services to the public.

Recommendations

- ***The availability of round the clock accident and trauma services in DHs be planned for on priority and be put in place and made functional by optimal utilisation of all funding available to the Department.***
- ***The quality of diagnostic services which are crucial for patient care and treatment be made comprehensive as per requirements. The State Government/hospital administration must ensure that available equipment are functional and turnaround time for services is reduced.***
- ***Patient satisfaction survey may be conducted, and a Grievance Redressal Cell be set up in the Hospitals to address the issues related to patient satisfaction based on the feedbacks received.***

CHAPTER V
SUPPORT SERVICES

Chapter-V: Support Services

5.1 Management of Drugs

As per IPHS, the pharmacy of the hospital should have a component of a medical store facility for indoor patients and separate pharmacy with accessibility for OPD patients. Hospitals shall have a standard operating procedure for stocking, preventing stock-out of essential drugs, storage, and retrieval of drugs, checking the quality of drugs, *etc.* The room temperature of the drug store should be below 30⁰ Celsius to maintain the efficacy and shelf life of the medicines.

It was observed in sampled DHs that Pharmacies were open during OPD hours from 8 AM to 2 PM and the pharmacies and drug store of the sample DHs did not have air-conditioning or similar facility to maintain the room temperature below 30⁰ Celsius.

Further, the DHs had not regularly maintained and updated the stock registers for which actual position of receipt medicines by the DHs, distribution of the same to patients against the prescription and stock out of medicines could not be ascertained in audit.

Testing of drug supplied by the suppliers: The NHM stated that the drugs supplied by the suppliers were tested in National Accreditation Board for testing and Calibration Laboratories (NABL), and drugs were not received without dispatch clearance certificates. The Drugs Controller, Assam collects samples and the NHM does not collect samples for testing. During the year 2014-18, out of the total procurement of medicines, the Drug Controller Assam declared 33 medicines not of standard quality against which the NHM debarred the firms to participate in any tender under NHM and penalised by deducting the value of particular batch. However, the total number of samples collected by the Drugs Controller, Assam for testing out of the total procurement made by the NHM was not furnished to audit.

5.2 Disinfection and Sterilisation in Hospitals

Infection control practices are important in maintaining a safe environment for both patients and staff in the hospitals by reducing the risk of potential spread of hospital associated infections. NHM Assessor's Guidebook recommends boiling, autoclaving, high level disinfection (HLD) and chemical sterilisation process for disinfection/sterilisation in the DHs.

5.2.1 Standard Operating Procedures

Guidelines of IPH Standards provide that each hospital should constitute an infection control team and develop Standard Operating Procedures (SOP) for septic procedures, culture surveillance and determination of hospital-acquired infections (HAI). Apart from safe injection administration practices, safe disposal of bio-medical waste,

general cleanliness, and adoption of hygienic practices are important tools in the prevention of infection.

Audit observed that sample DHs did not prepare SOP for Infection Control.

5.2.2 Hospital Infection Control Committee (HICC)

As per NHM Assessor's Guidebook 2013, Hospital Infection Control Committee (HICC) has to be constituted to frame, implement and monitor infection control policies in the hospital. The availability of HICC, date of formation and number of meetings in test-checked DHs discussed below:

- In DH Nagaon, the committee was constituted but the records of meetings held was not made available to audit. It was noticed from the register for OT and Hospital Associated Infection (HAI) that from April 2015 to August 2019, there were 18 cases of HAI and rate of HAI ranged from 0.09 to 0.26 *per cent*. It was also noticed that only three training programme on infection control were conducted during 2014 to 2019.
- In DH Hailakandi, the Infection Control Committee was constituted in November 2018 and quarterly meeting held.
- In DH Diphu, the committee was constituted but no meeting was held by the committee since date of constitution.
- In DH Tinsukia, the committee was constituted, and quarterly meeting was started in November 2018 only.

In other sample DHs records of constitution of HICC were not made available.

5.2.3 Pest and Rodent Control

Controlling spread of infection through rodents and pests in the hospitals is an important component of infection control practices as per NHM Assessor's Guidebook 2013. Audit observed that out of six selected DHs, only DH Tinsukia had maintained records of pest and rodent control. In the absence of records by other DHs, Audit could not derive an assurance whether these hospitals followed pest and rodent control practices.

5.3 Hygiene and Cleanliness in Hospitals

5.3.1 Standard Operating Procedure for Housekeeping

IPHS required framing of SOP for housekeeping by the hospital authority, to provide a clean environment to patients, visitors, staff and to ensure cleanliness of the hospital premises.

Audit observed that SOP for housekeeping was not available in the sample DHs. Audit further observed that only two sampled DHs (Tinsukia and Diphu) have carried out surface swab tests. From the test reports following were noticed:

- Microbiological surveillance was conducted in DH Tinsukia during November 2019 and the report indicated that beds, floors of labour room, OT, contained high mixed bacteria which was not acceptable.
- In DH Diphu, the swab culture test report conducted only in August 2018 and recommended that cleaning of beds, anesthesia area, floor to be done regularly. But subsequent test had not been carried out.

5.4 Immunisation and Medical Check-up of Staff

NHM Assessor Guidebook envisages provision of periodic medical check-ups and immunisation of staff to safeguard them from spread of infection.

We observed that in DH, Kokrajhar, Hepatitis-B and TT vaccination was administered in April 2019 only. In DH Hailakandi, vaccination was done in July and August 2018. Other sampled DHs did not maintain any record in this regard.

5.5 Hospital Waste Management

According to the Bio-medical waste management (BWM) Rule, 2016, a certificate was to be obtained from the State Pollution Control Board for generation, collection, reception, storage, transportation, treatment, processing, disposal or any other form of handling of the bio-medical waste.

Exposure to hazardous health-care waste can result in disease or injury. The main groups at risk are medical doctors, nurses, health-care auxiliaries, and hospital maintenance personnel; patients in health-care establishments; visitors to health-care establishments; workers such as laundries, waste handling, and transportation; workers in waste disposal facilities. The safe and effective management of biomedical waste prevents the incidence of health risks to the healthcare workers, the patients, and their environment and the community at large.

During scrutiny of records and physical verification, it was noticed that none of the DH had obtained the certificate.

Bio-medical wastes were collected and dumped in the deep burial pit constructed in the hospital premises without segregation and treatment and none of the DH had any incinerator facility.

In DH Hailakandi, Bio-medical wastes were collected and dumped in the deep burial pit constructed in the hospital premises without segregation and treatment. No safety equipment was provided to the casual worker who collected the Bio-waste. Further, it was also found that coloured non-chlorinated plastic bags for collection and segregation of bio-waste was not available at DH. Thus, the segregation of waste was not being done and wastes were dumped in deep burial.

Audit also noticed that none of the sampled DHs had established effluent treatment plant (ETPs) except DH Tinsukia which too was not functional and the liquid bio-medical waste was disposed of untreated in open drainage of the town. In the

absence of ETPs, proper treatment of effluents from the hospitals were not ensured, which has serious implications on environment and human health.

5.6 Linen and Laundry Services

As per IPHS, the number of linen (OT coat, bed sheets, bed covers, pillow, blankets, pillow covers) required in DHs has been quantified as per the bed strength of the DH.

On scrutiny of records in the sampled DHs, it was noticed that there was a huge shortfall¹³ of linen against the requirement under IPHS. During physical verification of the wards of the sampled DHs, it was noticed that linens were not supplied to the patients admitted in the wards. In reply, it was stated that linens were not provided to the patients as the patients tend to take away linens with them at the time of discharge.

It is also necessary that hospital should have necessary facilities for washing, drying, pressing and storage of soiled as well as cleaned linens so that clean and sterilised linens are made available to the patients, doctors, and staff of the hospital. IPHS norms also prescribes the same.

However, it was found that the DHs did not have adequate arrangement for washing and storage of linens. For instance, in DH, Kokrajhar cleaned and dirty linens were stacked in the same area without sorting due to the non-availability of almirah and space in the washing area and in DH Tinsukia, only one of the two washing machines was found to be functional. Because of these issues, clean and sanitised linens were not being provided to all the IPD patients in the sampled DHs.

Conclusion

In the prevailing system of storage of drugs in the test-checked hospitals requisite room temperature for storage of drugs was not maintained in pharmacies and drug stores of sample DHs.

Audit also noticed that waste disposal was not done following the guidelines. The incinerator and ETPs facility were not available in any of the DHs. In the absence of ETPs, proper treatment of effluents was not ensured, which may have serious implications for environment and human health. Hospital linen and laundry services were also not adequate to provide clean and hygienic stay of IPD patients.

Recommendations

- *The DHs may ensure proper storage of drugs as per norms and parameters.*
- *The BWM Rules needs to be adhered to and followed rigorously to provide an infection free environment in the hospital.*
- *Effluent Treatment Plants may be installed in all the hospitals for treatment of liquid bio waste before disposal.*

¹³ Shortfall of bed sheet 35 to 97 per cent, pillow 83 to 100 per cent, pillow cover 96 to 100 per cent in the selected DHs

CHAPTER VI
MATERNAL AND CHILD CARE

Chapter-VI: Maternal and Child Care

6.1 Maternal and Child Health

Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period, whereas prenatal health refers to health from 22 completed weeks of gestation until seven completed days after birth. New born health is the babies' first month of life. A healthy start during the prenatal period influences infancy, childhood and adulthood¹⁴.

6.2 Maternal Mortality Ratio (MMR)

Maternal mortality ratio is the number of women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, per 1,00,000 live births.

As per the Sample Registration System (SRS), the Maternal Mortality Ratio (MMR) of India and Assam for the period 2011-13 to 2016-18 is as given in **Table 6.1**:

Table 6.1: MMR and IMR of India and Assam for the period 2011-13 to 2016-18

Maternal Mortality Ratio (Per 1,00,000 births)			Infant Mortality Ratio (Per 1,000 Live Births)		
Year	India	Assam	Year	India	Assam
2011-13	167	300	2014	39	49
2014-16	130	237	2015	37	47
2015-17	122	229	2016	34	44
2016-18	113	215	2017	33	44
			2018	32	41

Source: Sample Registration System

As can be seen from the Table above, MMR and IMR of Assam is still much higher than the national average. While MMR of Assam at 215 is the highest in the country, IMR at 41 is the second highest after Madhya Pradesh. This is an area of concern and serious requires intervention by the Department for holistic redressal.

6.3 Antenatal Care

Antenatal care is the systemic supervision of women during pregnancy to monitor the progress of foetal growth and to ascertain the well-being of the mother and the foetus. A proper antenatal check-up provides necessary care to the mother and helps identify any complications of pregnancy such as anaemia, pre-eclampsia and hypertension, *etc.*

As per the Maternal Health Division, Ministry of Health and Family Welfare, all the eligible pregnant women (PW) are required to be registered and minimum four Antenatal Care (ANC) check-up are needed to be conducted. While registering the name of pregnant woman, a unique ID number is given and details of the PW are

¹⁴ According to World Health Organisation (WHO)

mentioned in the Reproductive and Child Health (RCH) Register in the facility, and is also given a Mother and Child Protection (MCP) card. All the investigations done and date of visit has to be recorded in the MCP card and the same is required to be updated in the RCH Register.

Details of ANC check-up of pregnant women done in the State during 2014-15 and 2018-19 are given in **Table 6.2:**

Table 6.2: Details of Antenatal Care (ANC) done in Assam during 2014-15 to 2018-19

Year	Number of PW registered for ANC		No. of PWs received up to three or more ANC checkups (per cent)	TT2 ¹⁵ or TT booster given to PWs (per cent)	Number of PW received	
	Total	Within first trimester (per cent)			IFA tablets (per cent)	Calcium Tablets (per cent)
2014-15	7,51,185	5,80,194 (77)	6,31,313 (84)	6,64,715 (88)	6,81,490 (91)	0 (0)
2015-16	7,40,884	5,96,809 (81)	6,44,026 (87)	6,72,522 (91)	6,69,205 (90)	0 (0)
2016-17	7,25,046	6,03,268 (83)	6,38,387 (88)	6,65,048 (92)	7,33,387 (100)	0 (0)
2017-18	6,89,620	5,84,521 (85)	5,38,452 (78)	6,32,047 (92)	6,42,701 (93)	91,085 (13)
2018-19	7,01,133	6,01,868 (86)	5,72,055 (82)	6,27,193 (89)	6,84,081 (98)	4,23,370 (60)

Source: HMIS data of the Director, NHM

As can be seen from the Table above, during the period 2014-15 and 2018-19:

- The total number of PW who had received three or more ANC checkups was 84 per cent in 2014-15 to 82 per cent in 2018-19 with a decline in the registration in both 2017-18 and 2018-19. During audit of the six test-checked DH and one Medical College and Hospital, it was found from the minutes of the Maternal Death Review (MDR) Committee of DH Nagaon and DH Tinsukia and Jorhat Medical College and Hospital (JMCH) that lack of proper ANC was recorded as one of the several reasons for maternal deaths. The details are shown in **Table 6.3:**

Table 6.3: Cases of maternal death in which MDR recorded lack of ANC as one of the reasons

Sl. No.	Year	District Hospital/Medical College	No. of cases of maternal death reviewed	No. of maternal deaths in which MDR recorded lack of ANC as one of the reasons for maternal death
1	2014-15 to	Nagaon	114	111
2	2018-19	Tinsukia	34	17
3		JMCH	96	59

Source: Minutes of Maternal Death Review Committee of the DHs and JMCH

- The number of TT2 or Booster dosages administered to pregnant women ranged from 88 per cent in 2014-15 to 92 per cent in 2017-18.
- Distribution of IFA tablets have shown improvement from 91 per cent in 2014-15 to 98 per cent in 2018-19. Further, distribution of Calcium tablets to PW had also increased significantly from 13 per cent in 2017-18 to 60 per cent in 2018-19.

¹⁵ Tetanus Toxoid Injection

6.4 Institutional Deliveries

During 2014-19, a total of 30.71 lakh deliveries were reported, of which, 26.67 lakh (86.84 per cent) were delivered in institutions (Public and Private), while 4.03 lakh (13.12 per cent) were delivered at home. Year-wise figures of institutional deliveries (ID) and deliveries at home in the State are given in **Table 6.4**:

Table 6.4: Institutional deliveries and delivery at home during 2014-19

Year	Details of institutional deliveries (per cent)			Home deliveries (per cent)	Total reported deliveries
	Public Institutions	Private Institutions	Total		
2014-15	4,61,329	67,950	5,29,279 (85)	95,897 (15)	6,25,176
2015-16	4,52,370	86,109	5,38,479 (86)	88,685 (14)	6,27,164
2016-17	4,53,717	85,720	5,39,437 (87)	83,821 (13)	6,23,258
2017-18	4,42,564	84,442	5,27,006 (88)	74,945 (12)	6,01,951
2018-19	4,46,108	86,858	5,32,966 (90)	60,007 (10)	5,92,973
Total	22,56,088	4,11,079	26,67,167	4,03,355	30,70,522

Source: HMIS data of the Director, NHM, Assam

As can be seen from above table, the percentage home deliveries had steadily declined and institutional delivery have increased which is a positive indication and the Department needs to continuously improve upon this parameter in collaboration with Accredited Social Health Activists.

6.5 Post-Natal Care

The first 48 hours after delivery are the most critical in the entire post-partum period. Most of the important complications of the post-partum period which can lead to maternal death occur during these 48 hours. Hence, a woman who has just delivered needs to be closely monitored during the first 48 hours. Thus, ensuring 48 hours stay in hospital during childbirth is an important component for identification and management of emergencies occurring during post-natal period and reducing MMR. The position of women who were discharged within 48 hours of delivery in the six selected districts is shown in **Table 6.5**:

Table 6.5: Number of women discharged within 48 hours of delivery in the selected Hospitals

Year	Nagaon DH			Kokrajhar DH			Hailakandi DH			Tinsukia DH			Diphu DH			Sonapur DH			Diphu DH		
	No. of ID	D	P	No. of ID	No. of ID	No. of ID	No. of ID	D	P	No. of ID	D	P	No. of ID	D	P	No. of ID	D	P	No. of ID	D	P
2014-15	7116	1915	27	4443	2202	2202	2202	918	24	4979	357	7	2202	2010	91	Not available			6801	1305	19
2015-16	7036	3011	43	4309	2223	2223	2223	1194	34	5739	0	0	2223	2003	90	703	0	0	8154	2390	29
2016-17	7396	4000	54	4578	2194	2194	2194	1422	35	4733	171	4	2194	1500	68	1031	0	0	7378	1598	22
2017-18	6947	4219	61	5396	2064	2064	2064	310	8	4647	0	0	2064	181	9	1538	14	0.91	6709	1030	15
2018-19	7046	4348	62	6145	2176	2176	2176	400	9	5690	0	0	2176	314	14	1667	15	0.90	7805	NA	NA
Average			49						22			2			54			4			21

Source: DHs and JMCH records and HMIS data of test-checked districts and MD, NHM

ID= Institutional Deliveries; D=Discharged within 48 hours; P= Percentage

The table above shows that during 2014-19, nearly half of the women in Nagaon and Diphu DH were discharged within 48 hours of childbirth which was against the norms prescribed. Other four hospitals have done relatively well.

6.6 Special Newborn Care Unit (SNCU)

Special Newborn Care Units (SNCU) are meant primarily to reduce the case fatality among sick children born within the hospital or outside, including home deliveries, within the first 28 days of life. Therefore, SNCU plays a vital role in Post Natal Care (PNC). IPHS envisages that every district hospital should provide facilities of Special Newborn Care Units (SNCU) with at least 12 beds and specially trained staff. The number of sick newborn admitted in the SNCU during 2014-19 is shown in **Table 6.6**:

Table 6.6: No. of newborn admitted in SNCU in test checked Hospitals during 2014-19

Name of DH	Year				
	2014-15	2015-16	2016-17	2017-18	2018-19
Nagaon	1,368	1,727	1,829	2,771	1,991
Kokrajhar	1,086	1,109	1,091	1,268	1,341
Hailakandi	743	640	492	1,441	1,341
Tinsukia	771	733	922	1,005	1,168
Sonapur ¹⁶	Data not available	80	92	161	334
Diphu	463	653	798	720	557
JMCH	2,907	2,987	2,597	2,691	3,115

Source: Records of test-checked District Hospitals and JMCH

However, we noted that in Nagaon DH, Hailakandi DH and Tinsukia DH the cases of referral to higher facility was above 20 *per cent*. In this regard, the Superintendent DH Nagaon stated that due to non-availability of equipment like CPAP machine/ventilators and incubators, the new born were being referred to higher facility.

In case of DH Hailakandi, the Superintendent stated that lack of doctors and nurses was one of the main causes of referral. He further stated that there was only one Pediatrician till August 2019 and had to look after Pediatric OPD, IPD and SNCU in addition to other general duties.

Thus, it was evident that DHs lacked SNCU facilities and equipment necessitating referrals to higher facilities thereby, risking the condition of new born child and inconvenience to the mother also due to shifting to other health facilities.

6.7 Availability of Labour Room, Neonatal and SNCU Equipments in DHs

The IPHS prescribed essential equipment for Labour room, Neonatal and Special Newborn Care Unit (SNCU). The details of the availability of equipment are highlighted below:

Sl. No.	Equipment	Utility of the equipment	Audit findings
1	Baby Incubators	Incubators are clear boxes which help keep the baby warm. Premature or sick babies can struggle to stay warm on their own.	Out of the six sample DHs, only DH Kokrajhar and Diphu had this equipment.
2	Foetal Doppler	It is a hand-held ultrasound transducer used to detect the foetal heart beat for prenatal care	Except DH, Kokrajhar other five sampled DHs had this equipment.

¹⁶ Sonapur DH was functional *w.e.f.* 15 June 2015

3	Cardiotocography Monitor	Cardiotocography (CTG) is a technical means of recording the foetal heartbeat and the uterine contractions during pregnancy.	DH Nagaon and Diphu had this equipment the other sample DHs did not have this equipment.
4	Vacuum extractor metal cup	A vacuum extraction, also known as a vacuum-assisted delivery, is used to help move the baby through the birth canal during delivery when a mom's labour has stalled.	Sample DHs did not have this essential equipment, except DH Nagaon.
5	Cardiac monitor baby & adult	A device to monitor the heartbeat.	Out of the six sample DHs, three DHs viz., Nagaon, Sonapur and Kokrajhar did not have this equipment.
6	Nebuliser baby	A nebuliser is a device that turns liquid medicine into a mist, used to treat the swelling in child's airway, shortness of breath, coughing, and wheezing.	Except DH Hailakandi, all sample DHs had this machine.
7	Weighing machine infant	For measuring the weight of baby.	All the sample DHs had this equipment.
8	Haemoglobinometer	A haemoglobinometer is an instrument used to determine the haemoglobin content of the blood by spectrophotometric measurement.	This equipment was not available in DHs Kokrajhar, Hailakandi and Tinsukia.
9	Glucometer	A blood glucose meter is a small, portable machine that is used to measure how much glucose (a type of sugar) is in the blood (also known as the blood glucose level).	This equipment was not available in DH Kokrajhar and Tinsukia.

Thus, incubators and cardiac monitor were not available in four out of the six sampled DHs. Other essential equipment to assist deliveries and for care of new born babies were either not available or inadequate in number in the DHs.

The Department needs to ensure fully equipped SNCU facilities by appropriate spending.

6.8 Zero Day Immunisation and Vaccination

Under this programme, newborns are to be administered doses of three vaccines viz., OPV, BCG and Hepatitis 'B' on the day of birth. OPV vaccine is given for immunisation against Polio, BCG vaccine to prevent Tuberculosis and Hepatitis 'B' vaccine is given against Hepatitis-B.

As immunisation is one of the key interventions for protection of children from life threatening conditions, which are preventable, efforts should be made to provide birth dose vaccination to all the newborns.

During scrutiny of records of the District Hospitals, it was observed that all the newborns were not provided with zero dose vaccination as can be seen from **Table 6.7:**

Table 6.7: Details of birth dose vaccination for newborn in the DHs during 2014-19

Sl. No.	Year	District Hospital	Newborn (Live birth)	Per cent new born given		
				BCG	OPV	Hep-B
1	2014-19	Hailakandi	19,388	53	53	37
2		Kokrajhar ¹⁷	19,989	64	112	60
3		Nagaon	33,195	59	74	55
4		Tinsukia	25,442	90	83	72
5		Diphu	9,923	57	55	55
6		Sonapur	4,898	89	80	82
7		JMCH	36,245	82	82	54
Total			1,49,080	71	77	59

Source: Records of test-checked District Hospitals and JMCH

As can be seen from the Table above, the percentage of immunisation given to newborn in the six test-checked DHs and JMCH ranged from 59 to 77 per cent.

On this being pointed out, it was stated that vaccination was not provided due to stock-out of zero dose vaccines. It was stated by the Superintendent, DH Hailakandi that zero dose vaccination was given to all newborn except those requiring admission in SNCU. The Additional CM&HO, Nagaon also stated that zero dose vaccination is not given to those admitted in SNCU.

The reply was not acceptable as even after not taking into account all the inborn admissions in SNCU of the aforesaid DH, it was found that all the new born had not received immunisation as shown in **Table 6.8**:

Table 6.8: Details of birth dose vaccination for newborn in the DH Nagaon and Hailakandi excluding admissions in SNCU

Year	District Hospital	Live Birth	No. of live birth (excluding inborn admitted in SNCU)	Newborns Vaccinated (per cent)		
				BCG	OPV	Hep-B
2014-19	Nagaon DH	33,195	27,832	19,637 (71)	24,420 (88)	18,312 (66)
	Hailakandi DH	19,388	16,393	10,213 (62)	10,208 (62)	7,113 (43)
Total			44,225	29,850 (67)	34,628 (78)	25,425 (57)

Source: Hospital Records

Viewing the shortage of stock of zero dose vaccine as stated above, audit analysed supply of zero dose vaccines by the Director of Health Services (Family Welfare), Assam to the whole district wherein sampled DHs are located. District Hospital wise supply details of zero dose vaccines was not available with DHS (FW). Also, district wise data was available only for the years 2017-18 and 2018-19. The following was observed in this regard:

- i. Supply of Hep-B vaccine from the Director of Health Services (Family Welfare), Assam to the concerned Districts of the sampled DHs, was found to be less than the live birth who were supposed to be vaccinated except Kokrajhar in 2017-18. Details shown in **Appendix-IV**.
- ii. Supply of B-OPV vaccine from the Director of Health Services (Family Welfare), Assam to the concerned Districts of the sampled DHs was found to be more than the live birth (taking into consideration the percentage of

¹⁷ Data on Live Birth for the year 2014-15 was not available

wastages of vaccine). Though, vaccine was supplied in excess in all the selected districts, none of the concerned Districts has provided vaccination to all the newborns. Details shown in **Appendix-IV**.

Supply of BCG vaccines however, to the concerned districts were found to be adequate and was administered to all the newborns too.

Therefore, the Government should take steps for proper monitoring of supply of zero dose vaccines from Director of Health Services (Family Welfare) to all the districts and ensure that vaccines are given to all the newborns.

6.9 Pregnancy Outcomes

With a view to gauge the quality of maternity care provided by the hospitals, Audit test-checked the pregnancy outcomes in terms of live births, still births and neonatal deaths pertaining to 2014-19, as discussed below:

6.9.1 Still births

Stillbirth or intrauterine foetal death is an unfavourable pregnancy outcome and is defined as complete expulsion or extraction of baby from its mother where the foetus does not breathe or show any evidence of life, such as breathing of the heart or a cry or movement of the limbs¹⁸. World Health Organisation (WHO) defines Stillbirth for international comparison as a baby born with absolutely no signs of life at or after 28 weeks of gestation. Stillbirth rate is a key indicator of quality of care during pregnancy and childbirth.

Audit observed that stillbirth rate of three test-checked DHs during 2014-19 was between 0.57 and 6.60 *per cent* as given in **Table 6.9**:

Table 6.9: Hospital wise stillbirths during 2014-19

Hospital	No of deliveries during 2014-19	No. of live births (<i>per cent</i>)	Still births (<i>per cent</i>)
Nagaon	35,541	33,195 (93.40)	2,346 (6.60)
Kokrajhar ¹⁹	24,871	19,989 (97.85)	439 (2.15)
Hailakandi	19,844	19,388 (97.70)	456 (2.30)
Tinsukia	25,788	25,442 (98.66)	143 ²⁰ (0.57)
Kamrup (M)	4,939	4,898 (99.21)	38 (0.77)
Diphu	10,859	9,923 (91.38)	625 (5.90)
JMCH	36,847	36,245 (98.36)	1,129 (3.06)
Average			739 (3.05)

Source: Records of test-checked district hospitals and JMCH

The still birth rate of Nagaon DH and Diphu DH with 6.60 and 5.90 *per cent* were higher than the average of the six test-checked DHs (3.05 *per cent*).

¹⁸ As per GoI Operational guidelines for establishing sentinel stillbirth surveillance system 2016

¹⁹ Records related to live birth and still birth not available for the year 2014-15. As such, delivery details for the year 2014-15 is not included in the Table

²⁰ Details of still birth for the year 2014-15 are not available

6.9.2 Neonatal Deaths

Neonatal death is death during the first 28 days of delivery. Neonatal death rate is also an indicator of quality of maternity and newborn care services. MNH Toolkit requires hospitals to record the number of neonatal deaths per month with causes of such deaths in the labour room register. The percentage of neonatal death is shown in **Table 6.10:**

Table 6.10: Position of neonatal deaths in the test-checked DHs during 2014-19

Year	Nagaon DH		Kokrajhar DH		Hailakandi DH		JMCH	
	Infant mortality cases	Neo-natal cases						
2014-15	105	40 (38)	63	49 (78)	184	171 (93)	212	155 (73)
2015-16	96	51 (53)	64	53 (83)	196	177 (90)	282	237 (84)
2016-17	69	33 (48)	74	55 (74)	199	181 (91)	270	193 (71)
2017-18	76	39 (51)	92	76 (83)	113	101 (89)	294	227 (77)
2018-19	69	22 (32)	78	72 (92)	118	92 (78)	403	319 (79)
	Tinsukia DH		Diphu DH		Sonapur DH			
	Infant mortality cases	Neo-natal cases	Infant mortality cases	Neo-natal cases	Infant mortality cases	Neo-natal cases		
2014-15	51	40 (78)	50	49 (98)	Data not available			
2015-16	46	28 (61)	62	60 (97)	1	1 (100)		
2016-17	69	53 (77)	67	66 (99)	2	2 (100)		
2017-18	104	88 (85)	34	33 (97)	1	1 (100)		
2018-19	120	90 (75)	34	34 (100)	1	1 (100)		

Source: Records of test-checked District Hospitals and JMCH

The table above shows that neonatal deaths represented 32 to 100 *per cent* of IMR in the test-checked district of Assam. Thus, neonatal deaths continued to be one of the main contributors of Infant Mortality Rate (IMR) which needs to be addressed seriously by combined approach of IEC activities, nutrition, ASHA workers and Hospital administration.

6.10 Veracity of HMIS Data

In order to ascertain the correctness of HMIS data submitted to the Ministry of Health and Family Welfare, Government of India, Audit examined records of selected DHs pertaining to the period 2017-18 to 2018-19. It was observed that the data reported to the Ministry in respect of the two selected parameters during the sampled years were all higher than the actual data recorded in the respective DHs. The details are given in **Table 6.11:**

Table 6.11: Comparison of HMIS data with records of sampled DHs

Year	Total number of IFA tablets provided to pregnant women as per		Total number of Calcium tablets provided to pregnant women as per	
	HMIS data	DH records	HMIS data	DH records
2017-18	20,11,860	9,07,911	38,93,040	2,84,200
2018-19	23,77,800	7,28,200	51,15,240	5,09,400
Total	43,89,660	16,36,111	90,08,280	7,93,600
Difference	27,53,549		82,14,680	
Percentage	63 <i>per cent</i>		92 <i>per cent</i>	

As can be seen from the above table, there is a large discrepancy between HMIS data and records maintained by respective DHs.

Conclusion

The State's MMR and IMR continued to be higher than the National average with the MMR and IMR being the highest and second highest in the country respectively.

The ANC check-ups coverage declined from 84 *per cent* of the registered pregnant women in 2014-15 to 82 *per cent* in 2018-19. However, more efforts are required to be made continuously by the Government as MDR of Nagaon and Tinsukia DH shows that proper ANC check-ups were lacking.

All the essential equipments as prescribed by IPHS were not available in the labour room and SNCUs. Shortage of equipment in the labour room and SNCUs impacted delivery of services. The referrals to higher health facilities risked the conditions of new born child as well as inconvenience to the mother due to shifting to other than local health facility.

Based on the comparison between HMIS and Hospitals data, audit found discrepancies which needs to be addressed.

Recommendations

- i. Efforts may be made to reduce the MMR and IMR as the number is still high compared to national average.*
- ii. Shortages of doctors and nurses in the District Hospitals should be addressed so that delivery of services for Pregnant Women and newborns are not impacted.*
- iii. All the essential equipments prescribed under IPHS may be provided on priority to bring down the IMR.*
- iv. The Department needs to continuously monitor the ANC check-ups performance in DHs and other health facilities in the State to ensure that there are no slippages and enhance the ANC check-ups.*
- v. Neo Natal deaths need to be addressed seriously by combined approach of IEC activities, nutrition, ASHA workers and the hospital administration.*
- vi. Government should take steps for proper monitoring of supply of zero dose vaccines in all the districts and ensure that vaccines are given to all the newborns.*
- vii. Institutional mechanism may be put in place to ensure data integrity and improve reliability of data placed in the public domain.*

CHAPTER VII
EVALUATION OF SERVICES
THROUGH OUTCOMES
INDICATORS

Chapter-VII: Evaluation of Services through Outcomes Indicators

The productivity, efficiency, clinical care capability and service quality of hospital can be evaluated through certain Outcome Indicators (OI) viz., Bed Occupancy Rate (BOR), Leave Against Medical Advice Rate (LAMA), Average Length of Stay (ALoS), Referral Out Rate (ROR) and Patient Satisfaction Survey (PSS).

It was observed in audit that the data in the hospital management information system (HMIS) and data of the registers maintained in the district hospitals were at some variance. Further, IPD registers were not properly maintained and updated regularly. It was also noticed that some columns of the IPD registers were left blank. The outcome indicators were evaluated based on the data provided by the district hospitals from the IPD registers of the hospitals and as per the prescribed norms of the NHM Assessor Guidebook.

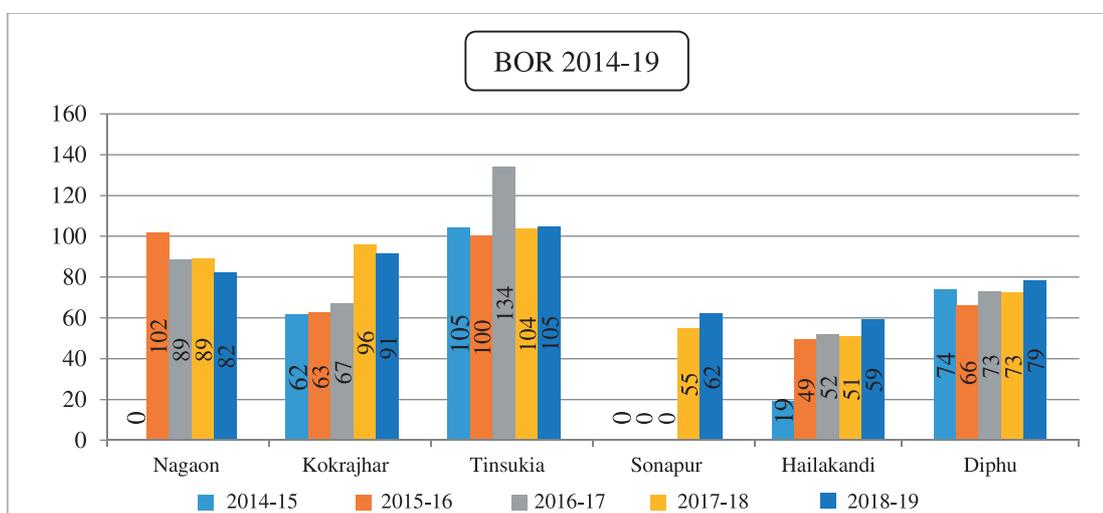
Table 7.1: Categorisation and methodology of evaluating these OIs

Type	Indicator	Numerator	Denominator
Productivity of hospital	BOR (in per cent)	Total of bed days X 100	Total no. of functional beds X Number of days in month
Efficiency of hospital	ROR (in per cent)	Total no. of cases referred to higher facility	Total no. of admissions
Clinical care capability	Average Length of Stay (ALoS)	Mid-night count of patients	Total no. of IPD patients
Service quality of hospital	Left Against Medical Advice (LAMA)	Total no. of LAMA X 1000	Total no. of admissions

7.1 Productivity of the Hospitals

Bed Occupancy Rate (BOR): The Bed Occupancy Rate (BOR) is an indicator of the productivity of the hospital services. As per IPHS, the BOR of DHs should be at least 80 per cent. Details shown in **Chart 7.1:**

Chart 7.1: Bed Occupancy Rate (BOR)

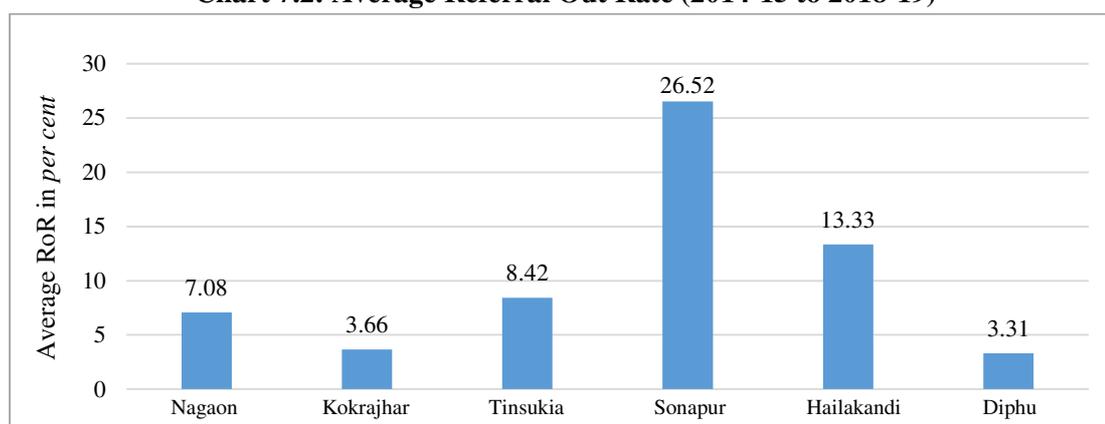


It is seen from above that the productivity of DH, Sonapur, Hailakandi, Diphu and JMCH was below the mark of 80 *per cent* prescribed by IPHS. The BOR above 100 at DH Tinsukia indicated a shortage of resources in the hospital impacting the quality of care.

7.2 Efficiency of Hospital

Referral out Rate (ROR): As per IPHS norms, referral services to higher/other centers denote that the facilities for treatments were not available in the hospitals. The referral out in the six sample District Hospitals for the period covered in the audit shown in **Chart 7.2:**

Chart 7.2: Average Referral Out Rate (2014-15 to 2018-19)



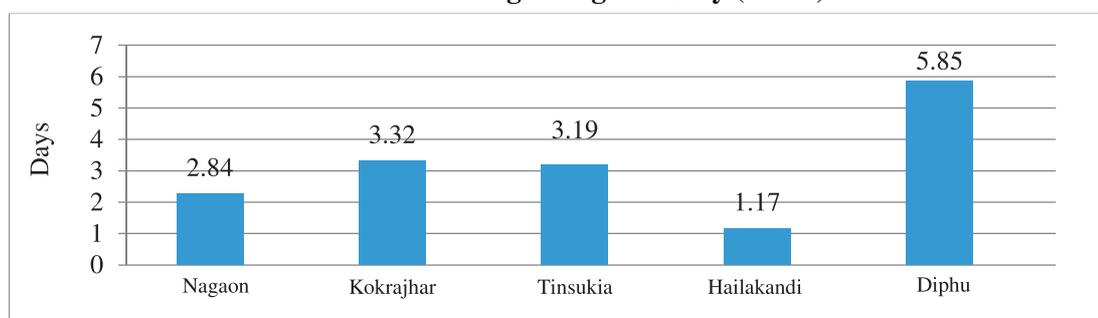
Source: Test checked hospitals Benchmark²¹: 7.91

It can be seen from the above that of the six sampled DHs, the higher ROR was in DHs, Sonapur, Hailakandi indicating that health care facilities were not adequate in these DHs in relation to the other four DHs. The department may take steps to provide adequate resources to enhance the capability of DHs to deliver assured quality services.

7.3 Clinical Care Capability of the Hospital

Average Length of Stay (ALoS): Average Length of Stay (ALoS) is an indicator of clinical care capability and to determine the effectiveness of interventions. ALoS is the time in days between the admission and discharge/death of the patient. ALoS in test-checked district hospitals was as shown in **Chart 7.3:**

Chart 7.3: Average Length of Stay (ALoS)



Source: Test checked hospitals (Data related to Sonapur DH was not maintained) Benchmark²²:3.08

²¹ Weighted average with average annual IPD load as weight

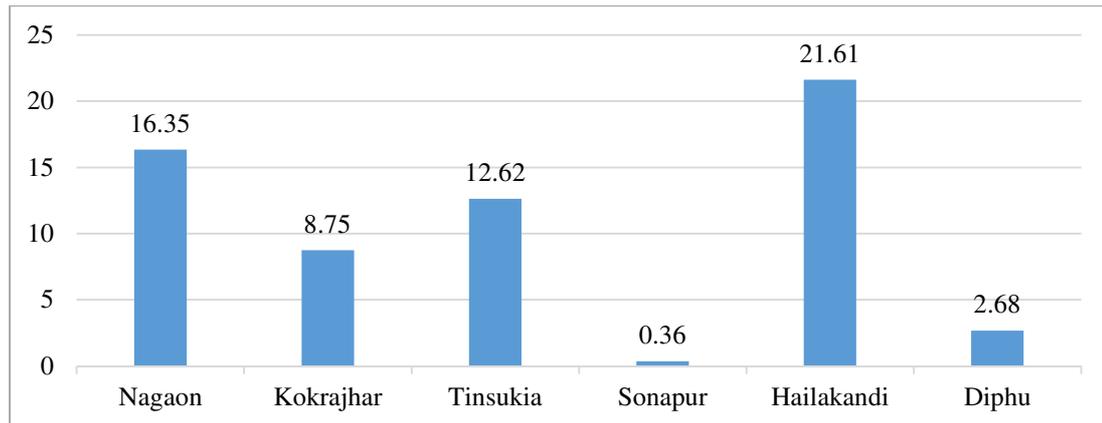
²² Weighted average with average annual IPD load as the weight

It is seen from the above that the average length of stay at DH Hailakandi and Nagaon is low.

7.4 Service Quality of Hospital

Left Against Medical Advice (LAMA): To measure service quality of a hospital, Left Against Medical Advice (LAMA) Rate and Absconding Rates are evaluated. LAMA is a measure of the number of patients who leaves the hospital against the advice of the doctor. The rates of LAMA for the sampled DHs are shown in **Chart 7.4:**

Chart 7.4: Average LAMA (2014-15 to 2018-19)



Source: Records of sampled hospital Benchmark²³:13.60

It is seen from the above that the LAMA rate of DH Nagaon and Hailakandi was higher.

7.5 Patient Satisfaction Score

IPHS prescribes that a patient satisfaction survey is to be carried out by the health institutions to monitor the patients' satisfaction and feedback for improvement of quality of service.

It was observed that no patient satisfaction survey was conducted by the sampled district hospitals during the period from 2014-19. As a part of the audit exercise, a patient survey was conducted during the audit (in six DHs and JMCH) with response of 369 patients and attendants of patients on the overall experience in hospital. Findings of the survey has been summarised and shown in **Appendix-V:**

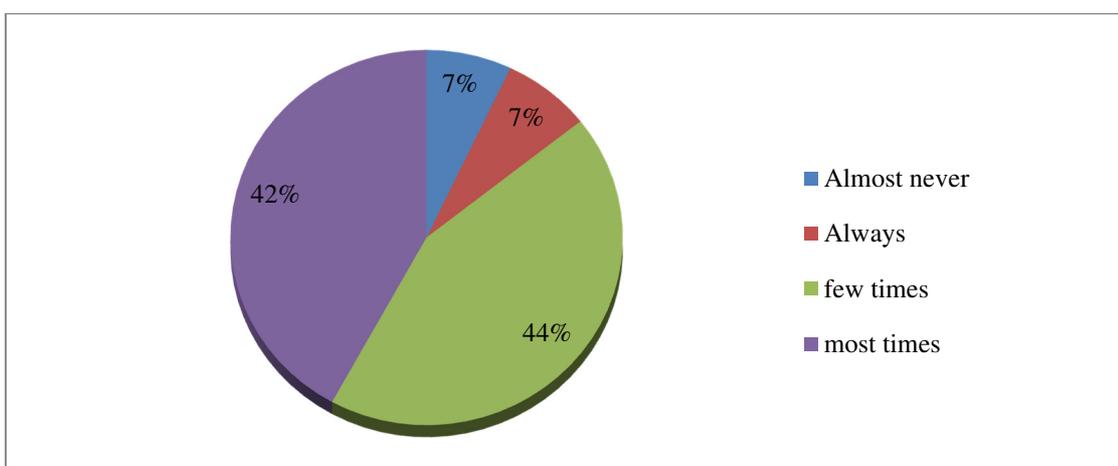
Some of the key findings of the survey are as follows:

- Of the 369 patients who responded, 140 (38 per cent) patients responded that basic amenities such as drinking water, seating arrangement, washroom was not provided in district hospital. During physical verification in the sample district hospitals, audit found that washroom facilities were not available in DH Hailakandi and Tinsukia. The drinking water facilities was available at DH Sonapur and Diphu only and adequate seating arrangement was not available at DH Hailakandi and Nagaon.

²³ Weighted average with average annual IPD load as the weight

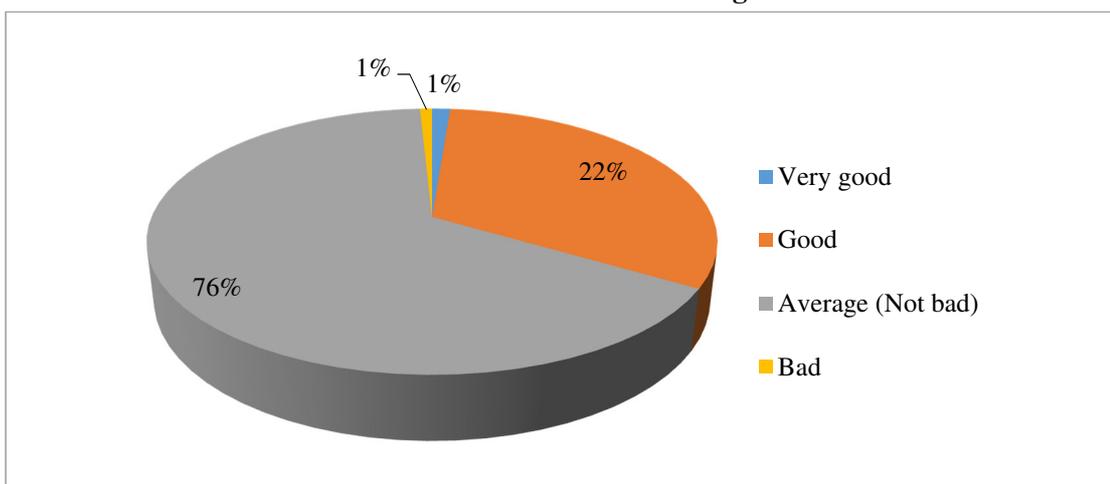
- 108 out of the 369 surveyed patients (29 per cent) said that OPD hours of doctors were not displayed in the hospitals. Audit also observed that OPD hours of doctors were not displayed in DH Kokrajhar and Tinsukia.
- Out of 369 patients who responded, 237 patients (64 per cent) said that rate chart for different services were not displayed in the hospitals. Audit found that rate chart for services were displayed only in DH Diphu, Hailakandi.
- 158 out of 369 patients (43 per cent) said that only few times, all the medicines prescribed by the doctors of the hospitals were distributed from the pharmacy of the hospitals. Details shown in **Chart 7.5**:

Chart 7.5: Distribution of medicines supplied by the hospitals.



- Out of the 369 patients who responded, 283 (76 per cent) patients, rated the overall experience at the hospital as ‘average’ (not bad). Details shown in **Chart 7.6**:

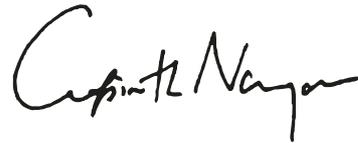
Chart 7.6: Satisfaction rating



- Out of 180 IPD patients who responded, 78 per cent patients expressed that no arrangement was available for the attendants of the IPD patients in the hospitals.
- Of the 180 IPD patients responded 115 patients (63 per cent) told that inpatient area was secured and well-guarded.

Overall Recommendations

- *The Government needs to adopt an integrated approach, allocate resources in ways which are consistent with patient priorities and needs to improve the monitoring and functioning of the district hospitals towards facilitating a significant change in health outcomes.*
- *The monitoring mechanism should be revamped by including measurement of outcome indicators pertaining to productivity, efficiency, service quality and clinical care capability of the hospitals. The high LAMA and Absconding rates in test-checked DHs may also be addressed by improving counselling services.*



(K. S. GOPINATH NARAYAN)
Principal Accountant General (Audit), Assam

Guwahati
The 08 October 2021

Countersigned



(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India

New Delhi
The 22 October 2021

APPENDICES

Appendix-I

Statement on sample selection of District Hospitals on the basis of Z-score Normalisation

(Reference: Paragraph 1.4.6)

Sl. No.	Name of the district	Name of the District Hospital	MMR 2018-19	Z Score- MMR	IMR- 2018-19	Z Score- IMR	Total Z Score	Hill / Plain	IMR/MMR Category	Geographical Area	Selected
1	Tinsukia	L.G.B. Civil Hospital	76	-1.11	9	-1.36	-2.47	Plain	Good	Upper Assam	Yes
2	Morigaon	Morigaon Civil Hospital	116	-0.61	9	-1.36	-1.97	Plain	Good	Central Assam	
3	Nagaon	B P Civil Hospital,Nagaon	118	-0.58	9	-1.36	-1.94	Plain	Good	Central Assam	Yes
4	Kamrup®	T B K Kamrup Civil Hospital	96	-0.86	12	-1.00	-1.86	Plain	Good	Lower Assam	
5	Lakhimpur	North Lakhimpur Civil Hospital	79	-1.08	14	-0.77	-1.84	Plain	Good	Upper Assam	
6	Sibsagar	Sivasagar Civil Hospital	109	-0.70	12	-1.00	-1.70	Plain	Good	Upper Assam	
7	Darrang	Mangaldai Civil Hospital	108	-0.71	13	-0.88	-1.59	Plain	Good	North Assam	
8	Dhubri	Dhubri Civil Hospital	102	-0.79	16	-0.53	-1.31	Plain	Moderate	Lower Assam	
9	Chirang	WhwlsoSwmbblaBasumatary	97	-0.85	18	-0.29	-1.14	Plain	Moderate	Lower Assam	
10	Nalbari	SMK Civil Hospital, Nalbari	89	-0.95	19	-0.17	-1.12	Plain	Moderate	Lower Assam	
11	Dhemaji	Dhemaji Civil Hospital	74	-1.14	21	0.07	-1.07	Plain	Moderate	Upper Assam	
12	KarbiAnglong	Diphu Civil Hospital	191	0.34	10	-1.24	-0.90	Hill	Moderate	Central Assam	Yes
13	Barpeta	Barpeta Civil Hospital	124	-0.51	20	-0.05	-0.56	Plain	Moderate	Lower Assam	
14	Bongaigaon	Bongaigaon Civil Hospital	127	-0.47	21	0.07	-0.40	Plain	Moderate	Lower Assam	
15	Sonitpur	Kanaklata Civil Hospital	170	0.07	17	-0.41	-0.34	Plain	Moderate	North Assam	
16	Dima Hasao	Haflong Civil Hospital	188	0.30	16	-0.53	-0.23	Hill	Moderate	Central Assam	
17	Udalguri	Udalguri Civil Hospital	179	0.18	22	0.18	0.37	Plain	Moderate	North Assam	
18	Goalpara	Goalpara Civil Hospital	183	0.24	25	0.54	0.78	Plain	Moderate	Lower Assam	
19	Jorhat*	Jorhat Medical College hospital	115	-0.62	34	1.61	0.99	Plain	Moderate	Upper Assam	
20	Hailakandi	S K Roy Civil Hospital	227	0.79	28	0.90	1.69	Plain	Poor	Barak Valley	Yes
21	Karimganj	Karimganj Civil Hospital	211	0.59	30	1.13	1.72	Plain	Poor	Barak Valley	
22	Golaghat	Kushal Konwar Civil Hospital	222	0.73	29	1.02	1.74	Plain	Poor	Upper Assam	
23	Dibrugarh*	Assam Medical College Hospital	271	1.34	25	0.54	1.89	Plain	Poor	Upper Assam	
24	Baksa	Dr. Ravi Boro Civil Hospital	188	0.30	35	1.73	2.03	Plain	Poor	Sixth Schedule	
25	Kokrajhar	RNB CH Kokrajhar	278	1.43	26	0.66	2.09	Plain	Poor	Sixth Schedule	Yes
26	Cachar	S.M. Dev Civil Hospital	369	2.58	23	0.30	2.88	Plain	Poor	Barak Valley	
27	Kamrup(M)	Sonapur Civil Hospital	330	2.09	39	2.20	4.29	Plain	Poor	Lower Assam	Yes

Appendix-II

Position of doctors, nurses and paramedics against required beds capacity based on population of the district hospitals of the State

(Reference: Paragraph 3.1)

Sl. No.	District	MMR	District Category Distressed	Population	Beds Required based on Population	Actual Bed Capacity	Beds shortage	Person in position			Required HR based on Population (Shortage in per cent)		
								Doctor	Nurse	Paramedics	Doctor	Nurse	Paramedics
1	Cachar	398	Yes	17.36	477	50	90%	24	52	18	68 (65)	225(77)	100(82)
2	Kamrup M	383	Yes	12.54	344	200	42%	34	63	15	58(41)	180(65)	81(81)
3	Kokrajhar	362	Yes	8.87	243	200	18%	29	79	23	50(42)	135(41)	66(65)
4	Karimganj	362	Yes	12.29	337	200	41%	35	103	13	58(40)	180(43)	81(84)
5	Golaghat	335	Yes	10.67	293	200	32%	23	121	24	50(54)	135(10)	66(64)
6	Dima Hasao	262	Yes	2.14	58	100	-70%	19	45	17	29(34)	45(--)	31(45)
7	Sibsagar	240	Yes	11.51	316	200	37%	33	128	26	58(43)	180(29)	81(68)
8	Udalguri	236	Yes	8.32	228	150	34%	28	58	13	50(44)	135(57)	66(80)
9	Sonitpur	186	No	19.24	529	200	62%	36	121	9	78(54)	270(55)	119(92)
10	Hailakandi	161	No	6.59	181	100	45%	25	82	16	34(26)	90(09)	42(62)
11	Karbi Anglong	161	No	9.56	262	100	62%	37	67	16	50(26)	135(50)	66(76)
12	Marigaon	152	No	9.57	263	100	62%	35	82	17	50(30)	135(39)	66(74)
13	Chirang	151	No	4.82	132	150	-13%	21	38	8	34(38)	90(58)	42(81)
14	Goalpara	149	No	10.08	277	200	28%	38	79	21	50(24)	135(41)	66(68)
15	Dhubri	136	No	19.49	535	200	63%	33	101	29	78(58)	270(63)	119(76)
16	Nagaon	124	No	28.24	776	360	54%	33	114	36	98(66)	360(68)	157(77)
17	Bongaigaon	107	No	7.38	202	200	1%	24	65	25	50(52)	135(52)	66(62)
18	Dhemaji	102	No	6.86	188	250	-33%	28	81	18	34(18)	90(10)	42(57)
19	Darrang	99	No	9.29	255	200	22%	31	98	27	50(38)	135(27)	66(59)
20	Baksa	98	No	9.50	261	150	43%	32	66	17	50(36)	135(51)	66(74)
21	Barpeta	90	No	16.94	465	200	57%	25	55	15	68(63)	225(76)	100(85)
22	Tinsukia	84	No	13.28	365	260	29%	33	107	17	58(43)	180(41)	81(79)
23	Kamrup R	68	No	15.18	417	80	81%	19	26	21	68(72)	225(88)	100(79)
24	Nalbari	61	No	7.72	212	240	-13%	40	105	31	50(20)	135(22)	66(53)
25	Lakhimpur	39	No	10.42	286	200	30%	45	129	22	50(10)	135(4)	66(67)
Total					7902	4490	43%	760	2065	494	1371(45)	4095(50)	1902(74)
Average Shortage % in Distressed Districts											45%	40%	71%
Average Shortage % in Other Districts											40%	44%	72%

Source: HMIS data

Requirement of manpower based on bed capacity as per IPHs.

Bed	Doctors	Nurses	Paramedics
0	29	45	31
101	34	90	42
201	50	135	66
301	58	180	81
401	68	225	100
501*	78	270	119
601*	88	315	138
701*	98	360	157

***Incremental based on the last increment when going from 400 to 500 beds, applies to every 100-bed increase.**

Appendix-III
Position of Equipment in the Clinical department of JMCH

(Reference: Paragraph 3.3.1)

Sl. No.	Name of the Department	No. of Equipment required	Actually available
1	Medicine	325	152
2	Paediatric	133	285
3	TB and Chest Disease	57	7
4	Dermatology	7	0
5	Psychiatry	22	13
6	Surgery	243	54
7	Orthopaedics	83	23
8	Ophthalmology	85	56
9	Otorhinolaryngology	304	240
10	Obsterics & Gynaecology	425	499
11	Anaesthesiology	204	131
12	Radio Diagnosis	26	19
	Total	1914	1479

Appendix-IV

Supply of Zero dose Hep-B, OPV and BCG vaccines to Districts and Percentage of Newborn administered the vaccines.

(Reference: Paragraph 6.8)

Name of the District	Year	Live Birth	Required vaccine dosages* (including wastages)			Supply of vaccines			Shortage (+)/Excess(-) of Supply (in %)			Total vaccines administered (per cent)		
			Hep-B	OPV	BCG	Hep-B	OPV	BCG	Hep-B	OPV	BCG	Hep-B	OPV	BCG
Nagaon	2017-18	59,085	65,584		1,18,170	39,000	2,15,000	1,72,000	41	-228	46	34,464 (58)	36,831 (62)	65,240 (110)
	2018-19	58,678	65,133		1,17,356	32,320	2,45,480	1,82,700	50	-227	56	32,377 (55)	30,666 (52)	56,344 (96)
Kokrajhar	2017-18	16,316	18,111		3,26,32	18,600	98,000	72,000	-03	-441	121	10,160 (62)	10,870 (67)	18,255 (112)
	2018-19	15,454	17,154		30,908	9,870	78,020	71,500	42	-355	131	8,989 (58)	8,574 (55)	17,095 (111)
Hailakandi	2017-18	12,411	13,776		24,822	10,800	7,23,60	53,000	22	-425	114	6,466 (52)	6,609 (53)	15,067 (121)
	2018-19	13,209	14,662		26,418	7,220	83,900	61,500	51	-472	133	6,743 (51)	5,872 (44)	14,808 (112)
Tinsukia	2017-18	21,378	23,730		42,756	9,400	1,22,800	65,000	60	-417	52	8,601 (40)	12,107 (57)	22,322 (104)
	2018-19	22,326	24,782		44,652	11,200	1,04,000	98,580	55	-320	121	6,970 (31)	9,010 (40)	21,368 (96)
Karbi Anglong	2017-18	17,401	19,315		34,802	3,000	1,04,000	80,000	84	-438	130	7,771 (45)	9,237 (53)	21,466 (123)
	2018-19	17,053	18,929		34,106	9,300	73,700	79,480	51	-289	133	7,473 (44)	7,031 (41)	20,186 (118)
Kamrup (M)	2017-18	36,831	40,882		73,662	29,100	91,000	80,000	29	-123	09	20,237 (55)	21,863 (59)	30,012 (81)
	2018-19	36,656	40,688		73,312	18,200	68,800	82,020	55	-69	12	14,609 (40)	31,467 (86)	35,272 (96)
Jorhat	2017-18	16,229	18,014		32,458	N/A	87,000	66,240	--	-383	104	10,403 (64)	12,916 (80)	16,385 (101)
	2018-19	16,497	18,312		32,994	12,750	85,500	58,500	30	-367	77	10,009 (61)	11,721 (71)	17,076 (104)
Total	2017-18	1,79,651	1,99,413		3,59,302	1,09,900	7,90,160	5,88,240				98,102	1,10,433	1,88,747
	2018-19	1,79,873	1,99,659		3,59,746	1,00,860	7,39,400	6,34,280				87,170	1,04,341	1,82,149

*Norms of wastage for Hep-B and B-OPV—1.11 times, BCG—2 times (Source- Handbook for Vaccine and cold chain Handlers, NHM)

Appendix-V

Patient Satisfaction Survey Report

(Reference: Paragraph 7.5)

Sl. No.	Question asked during survey	Patient's reply	Audit analysis																												
1	Number of visits to the hospital for the same ailment	41 Patients (out of 369 patients) stated that they visited more than one time, out of 41 patients, 19 patients stated that their previous registration was traceable and 21 patients stated they registered again for the same ailment.	During audit, it was seen that no mechanism was available as DHs to trace out the patients who visited the hospital more than once. However, it was seen that those patients who carried their medical advice slip during subsequent visits, the doctor further prescribed on the body of the previous registration slip and those patients replied during the survey that their previous registration was traceable.																												
2	Which of the following facilities were available in Reception/registration/OPD area? 1. Washroom facilities 2. Drinking water facilities 3. Adequate seating arrangements 4. None of the above	During survey of 369 patients, they stated that following facilities were available/not available in reception/registration/OPD area: <ul style="list-style-type: none"> • 228 patients stated that no wash room facilities was available at DH; • 103 patients stated that no drinking water facilities was available at DH; • 191 patients stated that adequate seating arrangements were not available at DH; • 140 patients stated that none of the above facilities (i.e., Wash room facilities, Drinking water facilities and Adequate seating arrangements) was available at DH. 	During audit, it was found that following facilities were available at DH in reception/registration/OPD area: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Name of the DH</th> <th style="text-align: center;">Wash room facilities</th> <th style="text-align: center;">Drinking water facilities</th> <th style="text-align: center;">Adequate seating arrangements</th> </tr> </thead> <tbody> <tr> <td>Nagaon</td> <td style="text-align: center;">No</td> <td style="text-align: center;">No</td> <td style="text-align: center;">No</td> </tr> <tr> <td>Kokrajhar</td> <td style="text-align: center;">No</td> <td style="text-align: center;">No</td> <td style="text-align: center;">Yes</td> </tr> <tr> <td>Sonapur</td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">Yes</td> </tr> <tr> <td>Tinsukia</td> <td style="text-align: center;">No</td> <td style="text-align: center;">No</td> <td style="text-align: center;">Yes</td> </tr> <tr> <td>Hailakandi</td> <td style="text-align: center;">No</td> <td style="text-align: center;">No</td> <td style="text-align: center;">No</td> </tr> <tr> <td>Diphu</td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">Yes</td> </tr> </tbody> </table>	Name of the DH	Wash room facilities	Drinking water facilities	Adequate seating arrangements	Nagaon	No	No	No	Kokrajhar	No	No	Yes	Sonapur	Yes	Yes	Yes	Tinsukia	No	No	Yes	Hailakandi	No	No	No	Diphu	Yes	Yes	Yes
Name of the DH	Wash room facilities	Drinking water facilities	Adequate seating arrangements																												
Nagaon	No	No	No																												
Kokrajhar	No	No	Yes																												
Sonapur	Yes	Yes	Yes																												
Tinsukia	No	No	Yes																												
Hailakandi	No	No	No																												
Diphu	Yes	Yes	Yes																												

Sl. No.	Question asked during survey	Patient's reply	Audit analysis																
3	Were OPD hours of doctors displayed?	108 (Out of 369) patients stated that OPD hours of Doctors were not displayed.	<p>Status of display board found during audit is given below:</p> <table border="1"> <thead> <tr> <th>Name of DH</th> <th>Status of display board</th> </tr> </thead> <tbody> <tr> <td>Nagaon</td> <td>Yes</td> </tr> <tr> <td>Kokrajhar</td> <td>No</td> </tr> <tr> <td>Sonapur</td> <td>Yes</td> </tr> <tr> <td>Tinsukia</td> <td>No</td> </tr> <tr> <td>Hailakandi</td> <td>Yes</td> </tr> <tr> <td>Diphu</td> <td>Yes</td> </tr> <tr> <td>Jorhat</td> <td>Yes</td> </tr> </tbody> </table>	Name of DH	Status of display board	Nagaon	Yes	Kokrajhar	No	Sonapur	Yes	Tinsukia	No	Hailakandi	Yes	Diphu	Yes	Jorhat	Yes
Name of DH	Status of display board																		
Nagaon	Yes																		
Kokrajhar	No																		
Sonapur	Yes																		
Tinsukia	No																		
Hailakandi	Yes																		
Diphu	Yes																		
Jorhat	Yes																		
4	Was the rate list displayed in the reception area	237 patients stated that no rate list was displayed in the reception area at the DH.	<p>Status of rate list found during audit is given below:</p> <table border="1"> <thead> <tr> <th>Name of DH</th> <th>Status of display board</th> </tr> </thead> <tbody> <tr> <td>Nagaon</td> <td>No</td> </tr> <tr> <td>Kokrajhar</td> <td>No</td> </tr> <tr> <td>Sonapur</td> <td>No</td> </tr> <tr> <td>Tinsukia</td> <td>No</td> </tr> <tr> <td>Hailakandi</td> <td>Yes</td> </tr> <tr> <td>Diphu</td> <td>Yes</td> </tr> <tr> <td>Jorhat</td> <td>Yes</td> </tr> </tbody> </table>	Name of DH	Status of display board	Nagaon	No	Kokrajhar	No	Sonapur	No	Tinsukia	No	Hailakandi	Yes	Diphu	Yes	Jorhat	Yes
Name of DH	Status of display board																		
Nagaon	No																		
Kokrajhar	No																		
Sonapur	No																		
Tinsukia	No																		
Hailakandi	Yes																		
Diphu	Yes																		
Jorhat	Yes																		
5	Were the prescribed medicines/drugs available in the Hospital?	<ul style="list-style-type: none"> • 27 Patients stated 'Always'; • 155 patients stated 'Most of the time'; • 161 patients stated 'Few Times'; • 26 patients stated 'Almost Never'; 	<p>During audit, it was seen that medicines prescribed to the patient not available fully at DH and in some cases at Kokrajhar DH, it was noticed that patient purchased all the prescribed medicine from outside. Further, it was also seen that at Nagaon and Kokrajhar DH, stock register was not maintained properly and calculation of stock out of medicine displayed only in the board available outside the pharmacy but in this regard no record was being maintained/available.</p>																

Sl. No.	Question asked during survey	Patient's reply	Audit analysis
6	How clean was the ward/room that you were admitted to?	<ul style="list-style-type: none"> • 139 patients stated 'Not applicable' (i.e., they were OPD patients) • 71 patients stated 'Very clean and well maintained'; • 150 patients stated 'somewhat clean'; • 9 patients stated 'very dirty and not maintained'; 	During audit, it was seen that ward/room at Kokrajhar DH, Sonapur DH and JMCH where patients were admitted found clean but ward/room at Nagaon, Hailakandi, Diphu and Tinsukia DH was found not clean.
7	Was there any arrangement for stay of attendants of patients?	<ul style="list-style-type: none"> • 189 patients stated 'Not applicable' (i.e., they were OPD patients) • 40 patients stated 'Yes' arrangement for stay of attendants of patients were available; • 140 patients stated that there was no arrangement available for stay of attendants of patients. 	During audit, it was found that no arrangement was available at sampled DH for stay of attendants of the patients.
8	Was the hospital strict about the visiting hours in IPD?	<ul style="list-style-type: none"> • 204 patients stated 'Not applicable'; • 77 patients stated that hospital was 'somewhat strict' during visiting hours in IPD' • 88 patients stated that hospital was 'Not strict at all' during visiting hours in IPD; 	During audit, it was seen that sampled DHs were not strict about the visiting hours in IPD.
9	Was the inpatient area/enclosure secured and well-guarded?	<ul style="list-style-type: none"> • 170 patients stated 'Not applicable'; • 84 patients stated that inpatient area/enclosure was secured and well guarded; • 115 patients stated that inpatient area/enclosure Was not secured and well-guarded; 	During audit, it was seen that inpatient area/enclosure was not secured and well-guarded. Further, it was also seen that for patient safety only CCTV cameras were found available at all DH and security guard for patients safety available only at DH Kokrajhar.

Sl. No.	Question asked during survey	Patient's reply	Audit analysis
10	At the time of discharge of patient from the hospital whether the doctors explained to the patient/attendant about the follow up treatment and medication/diet, etc.,?	<ul style="list-style-type: none"> • 213 patients stated 'Not applicable'; • 18 patients stated 'No'; • 139 patients stated 'Yes'. 	During audit, it was seen that at the time of discharge of patient from the hospital, the doctors explained to the patient/attendant about the follow up treatment and medication/diet, etc.
11	Whether lifts, wheel chairs, stretchers, ramps, etc, were available for specially abled?	<ul style="list-style-type: none"> • 197 patients stated 'I don't know'; • 6 patients stated 'No'; • 166 patients stated 'Yes'; 	Actual position of wheel chairs and stretchers not furnished to the audit.
12	How will you rate the overall experience?	<ul style="list-style-type: none"> • 03 patients stated 'Very good'; • 82 patients stated 'Good'; • 283 patients stated 'Average (not bad)'; • 02 patients stated 'Bad'. 	

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