सत्यमेव जयते

Report of the Comptroller and Auditor General of India

Performance Audit of Select District Hospitals in Sikkim for the year ended March 2019

लोकहितार्थ सत्यनिष्ठा
Dedicated to Truth in Public Interest

GOVERNMENT OF SIKKIM

Report No. 1 of 2021

Report of the
Comptroller and Auditor General of India
for the year ended March 2019

Performance Audit of Select District Hospitals in Sikkim

Government of Sikkim

Report No. 1 of 2021

TABLE OF CONTENTS

PREFACE

This Standalone Report of the Comptroller and Auditor General of India containing the results of Performance Audit of Select District Hospitals in Sikkim for the period 2014-19 has been prepared for submission to the Governor of Sikkim 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 and of the expected quality standards and norms.

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) and primary care (one CHC and one PHC of State Capital District) in the State of Sikkim. We covered the period from 2014-15 to 2018-19. The audit examination included analysing the data in the Hospital Management Information System (HMIS), test check of records in the Health & Family Welfare Department, two selected district hospitals, State Referral Hospital and selected CHC and PHC. Patient feedbacks were obtained through patients' satisfaction survey on healthcare services being provided by the District Hospitals and joint physical verifications.

What has been covered in this audit?

In this Performance Audit, we have focussed on patient care given by the 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, Fire control measures *etc.* based on pre-determined performance indicators/ criteria in the sampled district level and block level hospitals (CHC and PHC). 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 as well as State norms as 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 budget allotment and expenditure of the Health and Family Welfare Department against the overall State Budget and expenditure during 2014-19 was 6.24 *per cent* and 6.53 *per cent* respectively even as the National Health Policy, 2017 envisaged allocation of at least eight *per cent* of the total budget of the State for Health Sector. During 2018-19, the budgetary allocation on health services decreased to 5.52 *per cent* from 7.70 *per* cent of 2017-18 allocation. State's expenditure on Health Sector stood between 1.37 *per cent* and 1.97 *per cent* of Gross State Domestic Product during 2014-19. The Department did not utilise the allocated funds optimally during the period 2014-19. Further, though the savings reduced from 27.64 *per cent* during 2014-15 to 5.38 *per cent* in 2017-18, it again increased to 9.06 *per cent* in 2018-19.

(Paragraph 2.1.1)

Recommendation

- *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.*

Essential Resources Management

Shortage of doctors and nurses

Human resources, an essential resource for hospital management saw shortages of manpower in various vital departments like surgery, radiology, anaesthetic services, nursing care *etc.*, excesses noticed in other departments like dental care, radiographer, lab technician*, etc.* State Government had not laid down any norms for allocation of human resources to the DHs since State's formation in May 1975 and no sanctioned strength had been notified for various human resources to be deployed in the DHs (March 2019). Despite substantial increase in the number of registered OPD and IPD patients in all the test checked hospitals, neither the strength of the medical and para-medical staff was revised to take care of the increasing patient load nor were the existing shortages in manpower of hospitals filled up.

The State had not implemented any positive measures such as special /hill allowances, accommodation, *etc.* to address the reluctance of doctors to serve in district hospitals.

(Paragraphs 3.2.1)

Recommendations

- *Keeping in view the fact that Health is a State subject, the State Government may come up with a policy intent to address shortfalls in the Human Resources for the State Health Sector, to improve quality of health care.*
- *The State Government also needs to take positive measures such as special allowances, availability of accommodation, etc. to incentivise doctors to get posted to rural/ hilly area of the State. They can enquire about such measures being taken by other States.*
- *The State Government may take urgent steps for recruitment of specialists to address the shortage of specialists in the health facilities of the State.*

Overall shortage of CHCs, PHCs and SCs

There was an overall shortage of 57 Sub-Centres, seven Primary Health Centres and six CHCs across the four districts of the State, constituting a shortfall of 28, 23 and 75 *per cent* respectively (as on March 2019), underlining the need to improve the health infrastructure in the districts and villages.

(Paragraph 3.3.2)

Non-establishment of Blood Banks

Blood Banks had not been established in the two DHs during the period covered by Audit (2014-19) and the Blood requirements were arranged from Namchi DH and the State Referral Hospital, Gangtok.

(Paragraph 3.3.3)

Recommendation

- *The State Government may ensure establishment of blood banks in all the DHs as per IPHS norms.*

Non-availability of essential drugs

During 2014-19, out of 458 essential drugs and consumables prescribed in IPHS, only 104 drugs / consumables were supplied to Singtam DH and 126 drugs/ consumables to Gyalshing DH. There were stock-out situations in 94 to 123 instances lasting up to seven days to five years in the two DHs and the New STNM Hospital had 122 cases of stock out that ranged from seven days to one year. The 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.

(Paragraph 3.5)

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 in order to avoid 'stock outs'.*
- *They may ensure that a formulary of drugs is prepared by each hospital on the basis of disease patterns and inflow of patients. The State Essential Drug List (SEDL) be updated accordingly.*

Quality Control and Testing of Drugs

Department did not have any laboratory facility in the State for testing of drugs. Drug samples were drawn and sent to Guwahati for testing which took on an average six months for analysis and receipt of test reports by which time, the drugs had been consumed by the patients.

(Paragraph 3.6)

Recommendation

- *Drug Testing should be taken seriously and the Government may ensure to set up at least one Drug Testing laboratory in the State, considering its geographical distance to avail of these facilities from other States.*

Delivery of Healthcare Services

OPD Services

The average patient load per doctor per day was 22 and 16 for Singtam and Gyalshing respectively as against the norm of 20 patients per hour for registration. OPD counter

for registration of patients in Singtam DH was located outside the hospital building in a tin roofed open structure with no proper sitting/ waiting area for the patients and their attendants/ relatives. Most of the OPD clinics in the New STNM Hospital did not have adequate seating arrangement for patients. The registration of patients was not computerised in the two DHs. Both the DHs did not have system to record details of OPD patients referred to higher health centres from the OPD clinics.

(Paragraph 4.1)

Recommendations

- *The State Government may ensure availability of basic facilities/services in the OPD of each hospitals as prescribed in the Assessor's Guidebook for Quality Assurance of Services in District Hospitals, 2013 (Vol-1).*
- *They may ensure documentation/computerisation of referral cases and clinical history of patients.*

IPD Services

Number of In-patients in Singtam DH increased by 196 *per cent* and in Gyalshing DH, the increase was by 128 *per cent.* The Bed occupancy rate increased from 22 to 65 *per cent* in case of Singtam DH and 19 to 44 *per cent* in case of Gyalshing DH. Neither the DHs nor the Department had conducted any study or analysis to review/ augment their facilities to cater to the growing number of patients within their jurisdictions.

During the period 2016-19, a total of 2,652 In-patients from Singtam DH and 1,411 In-patients from Gyalshing DH were referred to the State Hospital due to non-availability of essential services in the DHs.

(Paragraph 4.2)

Intensive Care Unit services

Non-availability of ICU facilities in two selected DHs (Singtam and Gyalsing), required critically ill patients of areas falling within jurisdiction of the DHs to travel long distances which increased the risk to patients' life.

(Paragraph 4.4)

Operation Theatre Services and Emergency Department

Major surgery cases in General OTs of test checked DHs were not performed as no Surgeon and radiologist were available in the DHs for handling such cases.

Major surgeries, had to be referred to the tertiary care facility at Gangtok which was over 100 Kms from Gyalshing DH and 27 Kms from Singtam DH, putting pressure on the facilities there besides inconvenience to patients.

(Paragraphs 4.5 & 4.6)

The test checked DHs did not have Trauma Care Centres. There was delay of two years in completion of the Trauma Care Centre in Singtam DH and the building was found lying idle for want of equipment**.**

(Paragraphs 4.7 & 4.7.1)

Diagnostic Services

Diagnostic services *viz*. ENT and Endoscopy were not available in Singtam DH while Endoscopy facility was not available in Gyalshing DH. The labs in both the DHs did not have separate rooms for Biochemistry, Microbiology and Pathology services, in violation of IPHS norms.

(Paragraph 4.8)

Dialysis Unit

In Gyalshing DH, the dialysis unit equipment was found lying unused in packed condition in the hospital corridor whereas Singtam DH did not have dialysis facility.

(Paragraph 4.10)

Patient safety

The District Hospitals had Disaster Management Plan in place but no Standard Operating Procedure was developed to train the staff of the hospitals for disaster preparedness and management.

(Paragraph 4.12.2)

Recommendations

- *Government may proactively synergise availability of specialised in-patient services alongwith the essential drugs, equipment and human resources in district hospitals.*
- *OT services be made available in all the DHs with required manpower, equipment and drugs.*
- *The quality of diagnostic services which are crucial for patient care and treatment be made comprehensive as per requirements. The State Govt. /hospital administration must ensure that available equipment is functional and put to use. Regular upkeep and maintenance of diagnostic equipment be ensured.*
- *The Trauma Care centre in Singtam DH be made functional.*
- *The hospitals may rigorously adhere to the National Building Code 2016 to ensure safety of patients/ attendants/ visitors and the hospital staff from fire incidents. The Hospital administration may also ensure adequate documentation of availability of fire safety measures for verification.*

Support Services

Storage of Drugs

Seepage was noticed in the store room and medicines were found exposed to sunlight as no screen was provided in the windows of the store room of Gyalshing DH. Medicine and consumables Store room in respect of DH Singtam was very congested, not sufficient to store all medicines and consumables

(Paragraph 5.1)

Recommendation

- *The stocking and retrieval of drugs be reviewed and improved and quality testing be implemented.*

Cleanliness in Hospitals

In the New STNM Hospital, cleanliness of stairs, hospital ramps and washrooms/ toilets was not up to the mark. General/ common toilets of almost all floors were very dirty, unclean and unhygienic with blockage of toilets, filthy toilet floors, etc. Hospital waste had not been disposed for more than 22 days (22 February 2020 to 16 March 2020).

(Paragraph 5.3.2)

Bio-medical waste management

Singtam DH was found observing prescribed norms for segregation and disposal of biomedical waste whereas Gyalshing DH had not adopted the prescribed procedure for segregation of wastes due to non-availability of required plastic bags. No designated place for BMW had been assigned and in Gyalshing DH, the BMW was found lifted by Gyalshing Municipal Council only twice or thrice a week, instead of disposing them within 48 hours.

(Paragraph 5.4.3)

Effluent Treatment Plants were not found in the test checked DHs. Out of the three ETPs planned for at New STNM Hospital, the two ETPs were in progress. All the ETPs were within the hospital premises and close to private households exposing the general public to risk of contamination of air/ water and spread of disease.

(Paragraph 5.4.4)

Recommendation

- *The BMW Rules should be adhered and followed rigorously to provide an infection free environment in the hospital. The DHs may improve their coordination with the Municipal Authorities for lifting of the BMW in time.*

Maternal and Child Care

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

State had been able to meet the national as well as Millennium Development Goals of United Nations. During the period 2014-19, against 1,383 and 817 pregnant women (PW) registered for ANC, 1,190 (86 *per cent*) and 741 (91 *per cent*) were registered within the first trimester of pregnancy in Singtam DH and Gyalshing DH respectively. Both DHs were able to restrict the home delivery within one and less than one *per cent* during the period from 2014-19. Referral rate relating to pregnant women (delivery cases) was high in Singtam DH (28 *per cent)* while in Gyalshing DH was only nine *per cent*. Percentage of immunisation given to new-borns ranged from 94 to 97 *per cent* in Singtam DH and 93 to 99 *per cent* in Gyalshing DH during the Audit period.

During 2014-15 to 2018-19, only 24 *per cent* and 13 *per cent* of eligible mothers in Singtam DH and Gyalshing DH respectively were given cash assistance under Janani

Suraksha Yojana. No case of denial of free services under Janani Shishu Suraksha Karyakram was found in the two DHs.

(Paragraphs 6.3.1, 6.4.2, 6.10 & 6.11)

Recommendations

- *The Government may ensure that the hospitals are equipped completely with all the essential equipment for child deliveries and new born baby care.*
- *The Janani Suraksha Yojana needs to be aggressively implemented in the State considering the insufficient coverage.*

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.*

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 has agreed with the recommendations and assured to take necessary action to improve the systems.

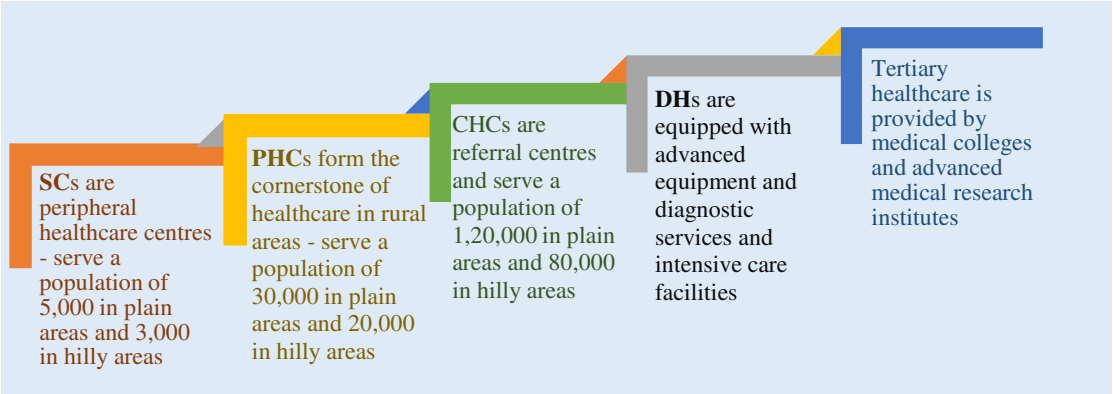
Chapter I
Introduction and Audit Framework

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 Centres (CHCs) form the primary tier to serve 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. The ascending levels of healthcare facilities are shown in the Chart given below:

Chart-1.1: Levels of Healthcare Facilities



1.2 Healthcare Services at District Hospitals

Sikkim had a population of 6.11 lakh (appox.) as per Census 2011 with a total area of 7,096 sq. km. It became a part of the Indian Union on 16 May 1975. To cater to the healthcare services of its citizens at different levels, the State Government established four District Hospitals (DHs) in its four districts[1], two Community Health Centres (CHCs), 24 Primary Health Centres (PHCs), 147 Primary Health Sub Centres (PHSCs), one State Referral Hospital[2]and one Medical College (Public Private Partnership).

1.3 Overview of Public Healthcare Facilities in Sikkim

The achievement of the healthcare services in a State is evaluated based on the benchmark of health indicators. The status of some important health indicators of Sikkim *vis-à-vis* National average are shown in the table below:

---

1 *(i) Singtam DH (East District), (ii) Mangan DH (North District), (iii) Namchi DH (South District) and (iv) Gyalshing DH (West District) - one district hospital for each district*

2 *New STNM Hospital, Sochaythang, Gangtok*

Table 1.1: Health Indicators of Sikkim

Sl. No.	Health Indicators	Sikkim		India	
		2012	2017	2012	2017
1.	Birth Rate (in *per cent*)	17.2	16.4	21.6	20.2
2.	Death Rate (in *per cent*)	5.4	4.5	7.0	7.6
3.	Infant Mortality Rate (IMR) (per thousand live births)	24	12	42	33
National Family Health Survey (NFHS) Indicators		**Sikkim**		**India**	
		2005-06	**2015-16**	**2005-06**	**2015-16**
4.	Total fertility rate (child per woman)	2.0	1.2	2.7	2.2
5.	Mothers who had Full Antenatal Check-up (ANC) (in *percent*)	22.4	39.0	11.6	21.0
6.	Institutional Births (in *percent*)	47.2	94.7	38.7	78.9
Prevalence of AIDS (NACO Data)		**Sikkim**		**India**	
		2011	**2017**	**2011**	**2017**
7.	Prevalence of AIDS(*in per cent*)	0.15	0.05	0.27	0.22

Source: National Family Health Survey-4, Sample Registration System (SRS) data, GoI

The health indicators of the State of Sikkim as evident from above table were better in all parameters considering its small population, as compared to the national average numbers.

According to NFH Survey[3] 90 *per cent* of households use a government health facility in Sikkim. All India average for use of government health facility is 45 *per cent.*

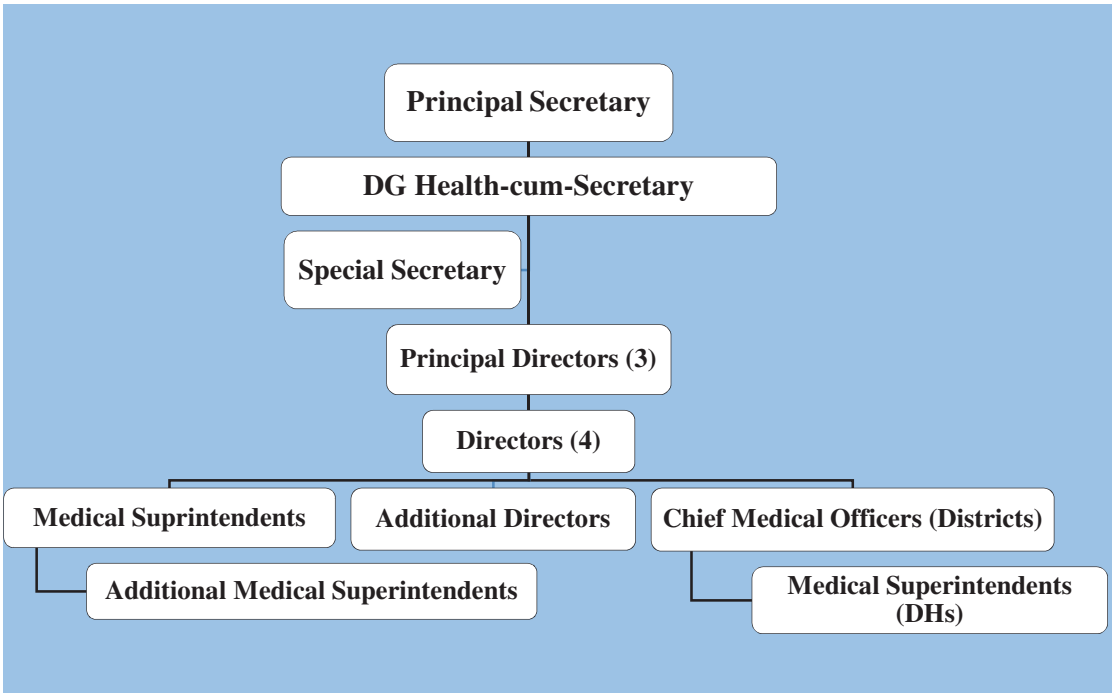
- Presence of private service providers in the Health Sector in the State is insignificant.
- Major Health Indicators of the State registered improvement over the years and remained ahead of the national average.
- The National replacement level of Total Fertility Rate (TFR) for 2015-16 (NFHS IV) was fixed at 2.1. The TFR of Sikkim, however, declined to 1.2 under NFHS IV, far below the desired replacement level of 2.1.

1.4 Accountability Structure for Healthcare in the State

At the Apex level, District Hospitals come under the purview of the Health and Family Welfare Department, which is responsible for policy formulation and oversight. At the organisational level, the Directorate of Health Services is responsible for implementation of the policy initiatives and developmental programmes relating to healthcare. At the administrative level, the Chief Medical Officer (CMO) is responsible for coordinating all the activities relating to healthcare services in the district. At the operational level, the Medical Superintendent heads the District Hospitals and is directly responsible for functioning of the DHS.

[3] *National Family Health Survey, No.IV (2015-16)*

Chart-1.2: Organogram of the Health & Family Welfare Department



1.5 Audit Framework

1.5.1 Background

Healthcare services in the North Eastern Region (NER) are inadequate, in terms of the number of health facilities available, as well as the quality of facilities provided. The primary reasons for inadequacy of the health services are hilly and difficult terrain, insufficient budgetary outlay on health, shortage of generalist and specialist doctors and other medi-care personnel and absence/ shortage of sophisticated diagnostic equipment, limited presence of private sector, *etc*. As per Government of India (GoI) (written statement of the Union Minister of State for Health & Family Welfare in Parliament), as of June 2019, the entire NER accounted for about 10 *per cent* (88 out of 851) of the district hospitals available across the country. Sikkim accounted for four out of these 88 (five per *cent*) district Hospitals.

The Comptroller and Auditor General of India (CAG) has reviewed the provision of healthcare services by Government of Sikkim, at periodic intervals. The C&AG had earlier (Report No. 3 of 2011) reviewed the Functioning of Primary Health Centres (PHCs) and Community Health Centres (CHCs) of the State. 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.

1.5.2 Audit Domains

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

Chart 1.3: Audit Domains

Resources	Line Services	Support Services	Auxiliary Services
• Manpower • Infrastructure • Equipment • Drugs& Consumables	• Out-patients • In-patients • Emergency • Operation & ICU • Laboratory & diagnostics	• Drug storage • Hygiene • Infection control • Ambulance • Power backup	• Patient rights • Patient safety • Referral services

1.5.3 Audit Objectives

In pursuance of the audit domains/themes identified above, the objectives of carrying out Performance Audit of select district hospitals were to assess whether:

i. adequate and essential resources - manpower, drugs, infrastructure, equipment, and consumables were available for effective functioning of the district hospitals;
ii. timely and quality healthcare was delivered through line services like OPD, IPD, ICU, OT, trauma & emergency, *etc.* and diagnostic services;
iii. support services like drug storage, sterilisation, hygiene, waste management, infection control, ambulance, power back-up/ UPS, *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.

1.5.4 Audit Criteria

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

i. Indian Public Health Standards (IPHS) guidelines for district hospitals
ii. NHM guidelines 2005 and 2012
iii. National AIDS Control Organisation (NACO) Programmes
iv. Janani Sishu Suraksha Karyakram (JSSK) guidelines
v. National Quality Assurance Standards (NQAS) for district hospitals
vi. Swacchhta guidelines for public health facilities, GoI
vii. Assessor's Guide Book for quality assurance in district hospitals 2013, GoI
viii. Operational guidelines for prevention, screening, and control of common non-communicable diseases, GoI
ix. Maternal and newborn Health Tool kit, 2013
x. Government policies, orders, circulars, budgets, annual reports, *etc*.

1.5.5 Audit Scope and Methodology

The audit scope involved assessing the functioning of selected district hospitals during the five-year period of 2014-19, and evaluating the outcomes of health indicators. At

the State level, the analysis of the data in the Hospital Management Information System (HMIS), test check of records in the Health & Family Welfare Department and State Referral Hospital was conducted. At the district hospital level, the data captured in the local HMIS was analysed and samples were drawn to carry out a substantive checking to gain assurance about the integrity of data. Patient feedbacks were obtained through patients' satisfaction survey on healthcare services being provided by the DHs and joint physical verifications of the facilities were conducted by involving the hospital authorities. Photographic evidences were also obtained to support audit findings.

An entry conference was held on 10 August 2019 where in the audit objectives, criteria, scope and methodology of audit were explained to senior officers of Health and Welfare Department, GoS.

Audit findings were reported to the Government on April 2020 and their written responses and responses during the exit conference (June 2020) have been suitably incorporated in the Report.

1.5.6 Audit Sample

There are four districts in Sikkim, each district has a District Hospital. The audit selected a sample of two out of the four DHs in the State - District Hospital, Gyalshing (West District) and District Hospital, Singtam (East District) and 1,000 bedded New STNM Multi-Specialty Hospital (Gangtok) for test check. In addition, CHC, Rhenock and PHC, Machong were also selected from the East District (State Capital District).

Table 1.2: Sampling

Sl. No.	Name of Unit	Population	Sample Selected	Sample Size (*per cent*)	Sampling adopted for drawing the sample
1	The New STNM Hospital (State Referral Hospital)	1	1	100	
2	District Hospitals	4	2	50	Selected based on remoteness of location from State Capital (Gyalshing DH) and one Capital District Hospital (Singtam DH).

1.6 Acknowledgement

The Office of the Principal Accountant General (Audit), Sikkim acknowledges the co-operation extended by the Health and Family Welfare Department and the sampled district-level hospitals in the conduct of this Performance Audit.

Chapter II
Financial Resources

Chapter-II: Financial Resources

2.1 Fund Management

The Health & Family Welfare Department (HFWD), Government of Sikkim received funds from two main sources: (i) State budget, which also included funds from North Eastern Council (NEC) and (ii) Grants-in-Aid from GoI, under National Health Mission (NHM) with corresponding share of the State Government.

2.1.1 Funds under State Budget

National Health Policy (NHP), 2002 envisaged the 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 Expenditure to more than eight *per cent* of the budget by 2020. The overall budget allotment and expenditure of the State Government and of the Health and Family Welfare Department during 2014-19 was as shown in the table below:

Table 2.1: Utilisation of State Government funds during 2014-15 to 2018-19

(₹ in crore)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Overall Budget Allocation	6666.71	5669.97	5884.43	6364.03	7132.59	31717.73
Overall Expenditure	4363.92	4305.59	4525.37	5675.58	7083.41	25953.87
Outlay on Health	361.17	348.83	314.76	489.95	465.33	1980.04
Expenditure on Health	261.34	262.08	283.57	463.58	423.19	1693.76
Excess (+)/Shortfall (-) w.r.t Budget Allocation	99.83	86.75	31.19	26.37	42.14	286.28
Percentage of Excess (+)/Shortfall (-) *w.r.t* Budget Allocation	27.64	24.87	9.91	5.38	9.06	14.46
Percentage of Health Sector budget against State Budget	5.42	6.15	5.35	7.70	5.52	6.24
Percentage of Expenditure on Health to Total Expenditure	5.99	6.09	6.27	8.17	5.97	6.53
Expenditure of all four DHs	59.98	51.38	84.63	54.03	56.99	307.01
Expenditure of two sampled DHs	32.76	33.02	47.23	32.04	38.62	183.67
Percentage of Expenditure on sampled DHs to all DHs	54.62	64.27	55.81	59.30	67.77	59.83

Source: Detailed Appropriation Accounts

As can be seen from the above table, budgetary outlay on health services in the State during the period 2014-19 ranged between 5.35 *per cent* and 7.70 *per cent* of the State budget. State Government did not achieve eight *per cent* budgetary allocation to the Health Sector, whereas in 2018-19 the budgetary allocation on health services decreased to 5.52 *per cent* from 7.70 *per cent* of 2017-18.

During the period 2014-19, the expenditure on Health Sector was 6.53 *per cent of* the *State's* total expenditure. The proportion of expenditure on health care in overall

expenditure of the *State* rose from 5.99 *per cent* in 2014-15 to 8.17 *per cent* in 2017-18 but declined to 5.97 *per cent* in 2018-19.

It was further seen that actual expenditure on health remained lesser than the budgeted provisions, with the savings ranging between ₹ 26.37 crore in 2017-18 and ₹ 99.83 crore in 2014-15. Though the savings reduced from 27.64 *per cent* during 2014-15 to 5.38 *per cent* in 2017-18, it again increased to 9.06 *per cent* in 2018-19. The shortfall in expenditure as compared to the budgeted provision was due to non-receipt of anticipated funds from Government of India (GoI) for central schemes (NHM, NEC schemes, etc.) and State's inability to provide funds against allocated provisions.

During the period 2014-15 to 2018-19, the State utilised ₹ 307.01 crore on four DHs, out of which ₹ 183.67 crore (60 *per cent*) was utilised for the two sampled DHs.

Similarly, NHP 2017 envisages increase in health expenditure as a percentage of the State GSDP, from current 1.15 *per cent* to 2.5 *per cent* of GSDP by 2025. Comparison of the State's GSDP with the budget and expenditure on Health Sector during 2014-19 is indicated below:

Table 2.2: Budget Allocation and Expenditure on Health Sector vis-à-vis GSDP in Sikkim

(₹in crore)

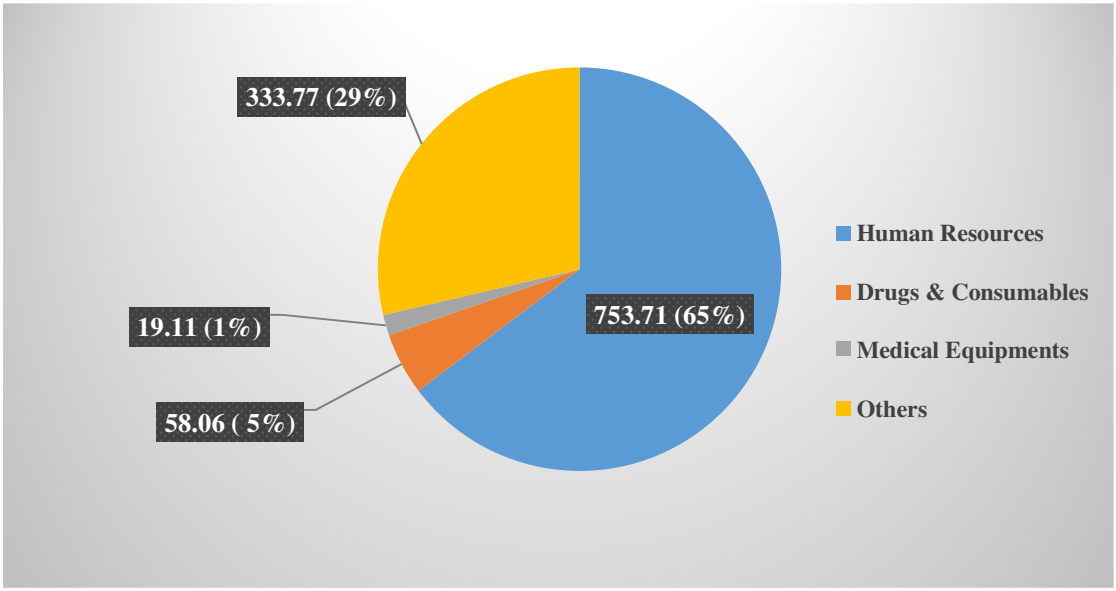
Year	GSDP	Budget	Expenditure	Health Budget as *per cent* of GSDP	Health Expenditure as *per cent* of GSDP
2014-15	15,407	361.17	261.34	2.34	1.70
2015-16	18,034	348.83	262.08	1.93	1.45
2016-17	20,687	314.76	283.57	1.52	1.37
2017-18	23,495	489.95	463.58	2.09	1.97
2018-19	26,786	465.33	423.19	1.74	1.58
Total	**1,04,409**	**1,980.04**	**1,693.76**	**1.90**	**1.62**

Source: Directorate of Economic, Statistics, Monitoring & Evaluation and Detailed Appropriation Accounts

Thus, it can be seen that during 2014-19, the State's expenditure on health sector, ranged between 1.37 to 1.97 *per cent* of the GSDP.

Out of the total expenditure of ₹ 1,693.76 crore incurred on health sector during 2014-19, the revenue expenditure constituted ₹ 1,164.65 crore (69 *per cent*) while the capital expenditure was ₹ 529.11 crore (31 *per cent*). Revenue expenditure (component-wise) incurred by the Health & Family Welfare Department during 2014-19 is presented in the following chart:

Chart 2.1: Component wise revenue expenditure during 2014-19 *(₹in crore/in per cent)*

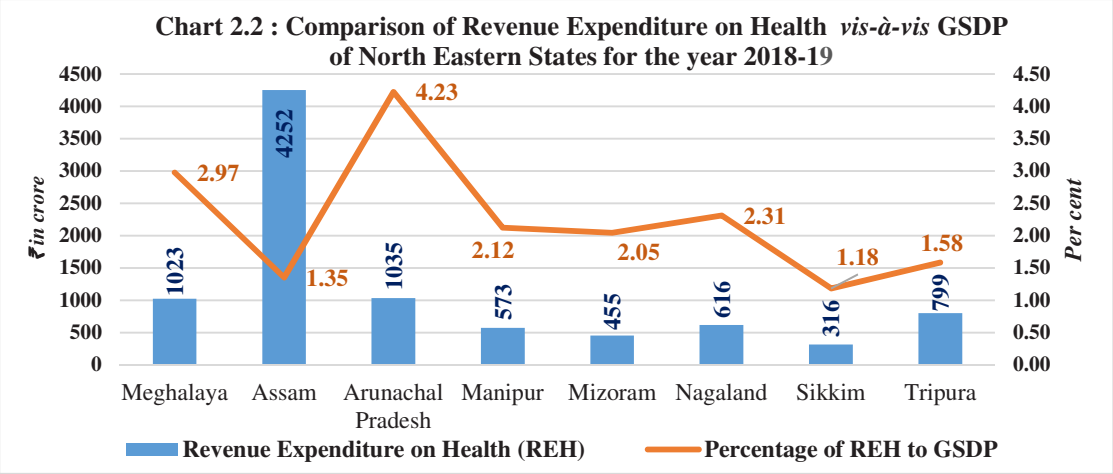


As can be seen from the chart above, 65 *per cent* of the revenue expenditure was incurred on human resources; five *per cent* on procurement of drugs and consumables, one *per cent* on equipment and 29 *per cent* towards 'Others'. It is observed that expenditure under 'Others' comprised of items like office expenditure, motor vehicles, referral services, Grants-in Aid, minor works, repair & maintenance *etc.* during the period.

While accepting the audit observations, the Department stated (July 2020) that efforts would be made to achieve the norm, however, no reason for decline in expenditure on health during 2018-19 was cited.

2.1.2 Revenue expenditure on Health compared to other North Eastern States

In terms of revenue expenditure on Health during the financial year 2018-19, Sikkim contributed ₹316 crore which was only 1.18 *per cent* of GSDP. Further, while comparing the revenue expenditure on Health with respect to GSDP, the position of Sikkim was the lowermost as shown in the following ***Chart 2.2***:



Source: *Appendix 1.1 of SFAR 2018-19, Government of Sikkim*

2.1.3 Funds under National Health Mission (NHM)

The National Health Mission (NHM) a centrally funded programme implements various health programmes through different units under the State Health Mission (SHM). At the State level, the NHM schemes are implemented under the overall guidance of the State Health Mission (SHM), headed by the Chief Minister of the State. The functions under the Mission are carried out through the State Health Society (SHS), Sikkim headed by the Chief Secretary, Government of Sikkim. At the district level, every district has a District Health Society (DHS) headed by the Deputy Commissioner of the district and Chief Medical Officer, Health Services of the district as Member Secretary.

The SHM Sikkim implements various programmes of health care introduced by GoI and the State of Sikkim (GoS). The ratio of contribution of funds for NHM by the GoI and GoS is 90:10. The position of fund received and utilised under various programmes of GoI and GoS during the years 2014-15 to 2018-19 are as below:

Table 2.3: Funds under National Health Mission

(₹ in crore)

Year	Opening Balance	Funds available during the year			Total funds available	Expenditure (*per cent*)	Closing balance (*per cent*)
		GoI	GoS	Interest earned			
2014-15	20.34	29.62	6.00	0.80	56.76	32.84 (58)	23.92 (42)
2015-16	23.92	36.63	2.50	0.81	63.86	51.19 (80)	12.67 (20)
2016-17	12.67	26.87	3.00	0.48	43.02	42.57 (99)	0.45 (1)
2017-18	0.45	30.68	5.75	0.54	37.42	34.12(91)	3.30(9)
2018-19	3.30	30.88	5.00	0.40	39.58	35.56(90)	4.02(10)

Source: Sikkim State Health Society, NHM

During the period 2014-15 to 2018-19, the State received ₹ 200.30 crore funds[1] under NHM *(O.B., GoI share, State share & Interest)* against which the expenditure was ₹ 196.28 crore. There was no short contribution of funds by the State during the period.

The unspent balances decreased from 42 *per cent* (2014-15) to one *per cent* in 2016-17, however, it increased to nine and 10 *per cent* during 2017-18 and 2018-19.

2.2 Leveraging of CSR Funds for Health

The Ministry of Corporate Affairs, GoI notified Section 135 and Schedule VII of the Companies Act, 2013 as well as provisions of the Companies (Corporate, Social Responsibility Policy) Rules, 2014 which came into effect from 01 April 2014. Accordingly, every company, private or public limited, which either has a net worth of ₹ 500 crore or a turnover of ₹ 1,000 crore or net profit of ₹ five crore, needed to spend at least two *per cent* of its average net profit for the immediately preceding three financial years on CSR activities. CSR activities included eradicating hunger, poverty and malnutrition, promoting preventive healthcare, education, gender equality, setting up homes for women, orphans and the senior citizens, etc. while giving preference to the local areas around it for spending the amount.

CSR funds have been identified as an important source of resource by the GoI under National Health Policy (NHP) 2017 which could be leveraged for filling health infrastructure gaps in public health facilities across the country. The policy recommended engagement of private sector through adoption of neighbourhood schools/ colonies/ slums/ tribal areas/ backward areas for healthcare awareness and services. It was seen that 15 manufacturing units based in Sikkim (Pharma companies) liable to spend ₹ 211.57 crore towards CSR activities[2] in the State during 2014-18, had spent only ₹ 35.06 crore on activities such as purchase of ambulances, organising health camps, assistance to Government schools towards boundary fencing, providing computers, water filters, contribution to local festivals etc. There was thus short-contribution of funds of ₹ 176 crore towards CSR activities by the industrial units during the period. This amount would increase if contribution from hydropower companies was also reckoned (data of CSR funds from the hydropower companies was not available with the Department concerned). The State Government, however, had not taken any action to assess the size of CSR funds available and access the same for health care spending till date, despite its inability to meet the demand for health sector expenditure as required under NHP till date.

The Department stated (June 2020) that the hospital equipment viz. orthopaedic unit, ICU & Eye Unit were provided to Gyalshing DH by two pharma companies[3] during

---

1 *₹200.30 Cr = ₹20.34 Cr (O.B.) + ₹154.68 Cr (GoI) + ₹22.25 Cr (State) + ₹3.03 Cr (int).*

2 *The State neither had any data of funds liable to be contributed towards CSR activities by the industrial units nor the complete details of CSR activities undertaken by the units. The data on CSR funds & activities included here was collected by Audit directly from the industrial units in coordination with the Commerce and Industries Department while conducting PA on Manufacturing Industries during 2017-18 (featured in AR 2017-18; Government of Sikkim).*

3 *M/s CIPLA and M/s ALKEM Pharmaceuticals*

2019. During Exit conference, the Department further stated that various equipment including ambulances were provided by Power and Pharma companies to DHs and PHCs. The Department may ensure that the DHs keep records of such Assets provided out of CSR funds.

Conclusion

The overall budget allotment and expenditure of the Health and Family Welfare Department during 2014-19 was 6.24 *per cent* and 6.53 *per cent* respectively even as the National Health Policy, 2017 envisaged allocation of at least eight *per cent* of the total budget of the State for Health Sector. During 2018-19 the budgetary allocation on health services decreased to 5.52 *per cent* from 7.70 *per cent* of 2017-18 of its Budget. During the period 2014-19, the State spent ₹ 529.11 crore constituting 31 *per cent* of the total expenditure on Capital expenditure relating to creation of health infrastructure. The State had not formulated any Health Policy till date nor had it put in place any norms of expenditure for creation of physical infrastructure over a defined period of time. The Department's performance in utilising allotted funds improved with the savings decreasing from 27.64 *per cent* during 2014-15 to 9.06 *per cent* in 2018-19.

Recommendations

- *The State Government may enhance the budget provision and expenditure on healthcare services in conformity to the National Health Policy to ensure that adequate and quality healthcare infrastructure and services are provided to the people of the State.*
- *Steps may be initiated to assess availability of CSR funds with the industrial units to channelise such funds for filling up the gap in providing basic as well as quality healthcare to the people.*

Chapter III
Essential Resources Management

Chapter-III: Essential Resources Management

Adequacy of essential resources - manpower, drugs & consumables, equipment, and infrastructure for the effective functioning of the district hospitals

3.1 Standardisation of service and resources

For ensuring efficient operation of public sector hospitals, it is essential to prescribe norms for providing various resources in the hospitals. On the basis of these norms, requirement of resources should be assessed and provisions should be made accordingly. Further, facility development plans comprising of components such as infrastructure, equipment, human resources, drugs and supplies, quality assurance systems and service provisioning were to be prepared for each hospital. These plans were to be prepared on the basis of analysis of gaps in the health facilities *vis-à-vis* the norms. Audit noticed that the State Government has not prescribed separate norms for providing resources *viz.* human, infrastructure, equipment, drugs & consumables in the district hospitals but stated to have adopted IPHS norms for the purpose. Audit also observed that gap analysis to ascertain the requirement of resources and service provisioning in the hospitals was not done by the Department.

3.2 Manpower Resources

The delivery of quality healthcare services in hospitals largely depends on the adequate availability of doctors, staff nurses, para-medical and other supporting staffs. Audit noticed that the Department of Health and Family Welfare did not have any centralised database of the sanctioned strength and deployment of doctors, nurses and other paramedical staffs in the health care facilities in the State. In the absence of this information, overall shortage of staff in the state could not be ascertained. Audit scrutiny further revealed that the State Government had in position 2,068 posts of doctors, nurses and other paramedical staffs as of March 2019. However, since the state has not worked out the Sanctioned Strength, the basis on which these 2,068 posts were created was not known. The availability of doctors (including dentists), nurses and paramedics for the State's population is tabulated below:

Table 3.1: Availability of doctors, nurses and paramedics in the State

Sl. No.	Posts	Available	Population of State	Average population served
1	Doctors	399[1]	6,67,000	1,672
2	Nurses	1,193		559
3	Paramedics	476		1,401
Total		**2,068**		

Doctors include Specialists, MOs, & AYUSH MOs. Population of State 2019 – 6,67,000 (projected).

Indian Public Health Standards (IPHS) guidelines envisage that doctors and nurses should be available round the clock in the IPDs to provide due medical care to the

[1] *Including 71 Dentists.*

in-patients. These guidelines also prescribe the minimum number of doctors and nurses to be available in different hospitals upto the District level according to the number of sanctioned beds.

The State Government had not laid down any norms for allocation of human resources to the various categories of Health facilities existing in the State *(State Referral Hospital, DHs, PHCs & PHSCs)* since the State's formation in May 1975. No sanctioned strength had been notified for various human resources to be deployed in the Health facilities.

3.2.1 Shortage/Excess of Doctors, Nurses and Paramedical staffs in the test-checked DHs

The State Government had not laid down any norms for allocation of human resources to the DHs since the State's formation in May 1975. No sanctioned strength had been notified for various human resources to be deployed in the DHs. We therefore reviewed the manpower availability *w.r.t* the IPHS norms.

A summary of the availability of manpower *vis-à-vis* IPHS norms in the cadre and the shortfall or excess (**Appendix Ia**) is given below:

Table 3.2: Shortfall or Excess Manpower in District Hospitals

Sl. No.	Particulars	Essential norms (IPHS)	Gyalshing DH		Singtam DH	
			Available	Shortfall (-) /Excess (+)	Available	Shortfall (-) /Excess (+)
1	Doctors	20	11	(-) 9	19	(-) 1
2	Staff Nurse	45	36	(-) 9	37	(-) 8
3	Paramedics	22	16	(-) 6	18	(-) 4
Total		**87**	**63**	**(-) 24**	**74**	**(-) 13**

Source: Information provided by hospitals

While there was shortage of manpower in various vital departments like surgery, radiology, anaesthetic services, nursing care *etc.*, excess manpower beyond IPH Standards was found deployed in other departments like dental care, radiographer, lab technician, *etc.*

- Vital specialists in departments of General Surgery and Radiology were not in position in both test-checked DHs. Hence cases requiring services of a General Surgeon could not be managed in the two DHs and were referred to higher medical centres at Gangtok. Against requirement of two anaesthetists in each DH, they had only one anaesthetist each.
- Against requirement of 11 MOs in each DH, Gyalshing DH had only three MOs while Singtam DH had five, leading to shortfall of eight and six MOs respectively.
- Against requirement of 45 Staff Nurses (SNs) in each DH, Gyalshing DH had 36 SNs and Singtam had 37 SNs registering a shortfall of nine and eight SNs respectively.

- There was shortfall in the categories of Lab technician, pharmacist, CSSD[2] Assistant, dark room Assistant, rehabilitation therapist in Gyalshing DH.
- In Singtam DH, shortages were noticed in the cadres of pharmacist, dietician, CSSD Assistant, dark room Assistant, rehabilitation therapist and biomedical engineer.

The DH authorities (January 2020) attributed the shortfall in various medical, paramedical and nursing staffs in the DHs to non-deployment of staff by Head Office which was the cadre controlling and deploying authority. Further, reluctance of staff to be posted far from the Capital to remote places was also one of the reasons of shortfall in medical personnel in the DHs. The State government had not taken any steps to incentivise doctors and staff for posting to district/ interior places.

While accepting the Audit observations, the Department stated (June 2020) that human resource policy which was yet to be approved, will be a part of Health Policy and will include employment roster policy, rotational transfer policy to deal with the shortage of manpower in far flung areas. During Exit conference, the Department further stated that the Health Policy has been drafted and will be submitted to the Government for approval very soon. Regarding shortfall in human resources, it was due to shortage of qualified manpower such as Surgeon, Radiologist, etc. in the State and despite efforts made by the Department. Further, most of the MOs preferred to undergo higher education after their appointment. Thus, there was shortage of manpower in DHs. Regarding excess of Dental Surgeons, the Department justified stating that Dental Surgeons have been assigned multi-tasking functions such as District Programme Officer in addition to their own duty and they are also provided orientation sessions about the programme objectives and sensitized on the programme needs before they conduct such programme activities.

3.2.2 New STNM Hospital

The New STNM Multi-Specialty Hospital[3] (1000 bedded), Sochyagang, Gangtok started functioning from 14 January 2019. Against the capacity of 1000 beds, 603 beds had been made functional till date (March 2020).

The HFWD had not notified any sanctioned strength of manpower to run the New STNM Hospital based on job analysis and need assessment. There were no manpower norms prescribed for a 1000 bedded hospital even by GoI.

In the absence of norms, availability of manpower in the 1000 bedded hospital was examined in Audit with reference to twice the norms for a 500 bedded multi-specialty hospital (IPHS), on pro-rata basis. Details **(Appendix Ib)** are depicted in the table below:

---

[2] *CSSD – Central Sterile Supply Department*
[3] *State Referral Hospital*

Table 3.3: Shortfall or Excess Manpower in New STNM Hospital

Sl	Particulars	IPHS norm for 500 BDH	Essential for 1000 BH (STNM) (pro rata)	Availability at STNM	Shortfall (-)/ Excess (+)
a	*b*	*c*	*d = 2xc*	*e*	*f =d-e*
1	Specialist Services	43	86	80	(-) 6
2	Medical Officers	25	50	75	(+) 25
3	Staff Nurse	225	450	305	(-) 145
4	Paramedical Staffs	94	186	28	(-) 158

Source: Information provided by hospital

It is observed that while there were shortages of manpower in various important specialities/ departments like General Medicine, Surgery, Gynaecology and Paediatrics, excesses were noticed in the cadre of MOs, Dental Department and Psychiatry.

- There was shortage of manpower in eight out of the 15 specialities that ranged from 25 *per cent* (Ophthalmology) to 100 *per cent* (Forensic specialist).
- Excess manpower was deployed in Dental department to the extent of 200 *per cent*, Psychiatry 150 *per cent* and in the MO's cadre by 56 *per cent*.
- Among the paramedics, severe shortages were noticed in the cadres of Pharmacists (100 *per cent*), OT technicians (93 *per cent*), Radiographers (89 *per cent*), Lab technicians (81 *per cent*) Staff nurses (32 *per cent*), *etc*.
- Twenty-five excess MOs *w.r.t* IPHS norms had been posted in the STNM hospital despite there being shortage of 14 MOs in the sampled DHs.

This indicated that the Health Department had not rationally deployed available manpower in its hospitals.

The Department stated (May 2020) that the posting of manpower in New STNM Hospital is done as per the directives of the State Government. However, the Hospital did not furnish records relating to assessment of manpower, submission of its proposal to the Government for posting/ appointment of the manpower.

3.2.3 Adequacy of Manpower

District Hospitals provide health and diagnostic services to a large number of patients in the State, besides performing surgical operations and other medical treatments for in-patients.

Audit analysed adequacy of manpower (Medical and para medical staff) *vis-à-vis* increase in the number of patients (both OPD and IPD) during the period 2014-19. The details are given in the following table:

Table 3.4: Adequacy of manpower *vis-à-vis* patient load in the test-checked DHs

DH	Number of OPD and IPD patients (*per cent* increase over previous year)					*Per cent* increase over 2014-19
	2014-15	2015-16	2016-17	2017-18	2018-19	
Gyalshing	57,668	64,900 (13)	64,434 (-1)	71,082 (10)	80,727 (14)	40
Singtam	61,227	84,251 (38)	1,01,719 (21)	1,24,257 (22)	1,38,287 (11)	126

Source: - HMIS data

It is evident from the table above that the patients registered at both the test-checked DHs showed a radical increase over the period 2014-19 specially in Singtam DH (East District), where the patient load increased by 126 *per cent.* Further, the average yearly increase in the patient load in the test checked DHs ranged between 11 and 38 *per cent* except in Gyalshing DH during 2016-17.

Despite substantial increase in the number of patients in the test checked hospitals, the State Government had not put in place any norms for allocation of manpower resources and had yet to notify sanctioned strength for various human resources in the DHs (April 2020).

The increased patient load puts an immense pressure on the existing medical system and inadequate infrastructure thereby, adversely impacting quality of patient care and patient safety.

Conclusion

Human resources, an essential resource for hospital management in the State saw shortages of manpower in various vital departments like surgery, radiology, anaesthetic services, nursing care *etc.* However, there was excess deployment in other departments like dental care, radiographer, lab technician*, etc.* State Government had not laid down any norms for allocation of human resources to the DHs since the State's formation in May 1975 and sanctioned strength had not been notified for various human resources to be deployed in the DHs (March 2019).

Further, despite substantial increase in the number of registered OPD and IPD patients in all the test checked hospitals, neither the strength of the medical and para-medical staff was revised to take care of the increasing patient load nor were the existing shortages in manpower of hospitals filled up.

The State had not implemented any positive measures such as special /hill allowances, accommodation, *etc.* to address the reluctance of doctors to serve in district hospitals.

Recommendations

- *Keeping in view the fact that Health is a State subject, the State Government may come up with a policy intent on addressing shortfalls in the Human Resources for the State Health Sector, to improve quality of health care.*
- *The State Government also needs to take positive measures such as special allowances, availability of accommodation, etc. to incentivise doctors to get posted to rural/ hilly area of the State. They can enquire about such measures being taken by other States.*
- *They may assess and notify norms for deployment of medical and para medical staff in DHs and redistribute available manpower rationally as per requirements.*
- *The State Government may take urgent steps for recruitment of specialists to address the shortage of specialists in the health facilities of the State.*

3.3 Physical Infrastructure

To deliver quality health services in the public health facilities, adequate and properly maintained building infrastructure is of critical importance. As per IPHS, one DH should be created in each district to cater to the secondary health care needs of the public at the district level. IPHS also prescribes that the total beds required for a DH should be based on a district's population.

All four districts in Sikkim had one DH each with uniform bed strength of 100 beds each irrespective of the size of population of the district.

3.3.1 Hospital buildings

3.3.1.1 District Hospitals

As per IPHS, Hospital Management Policy should emphasise on hospital buildings with earthquake-proof, flood-proof and fire protection features. Infrastructure should be eco-friendly and disabled (physically and visually handicapped) friendly.

Audit of the sample DHs revealed the following:

- The State Government has not prescribed any norm for the size of area over which a DH was to be established. In terms of the IPHS, area of a DH with bed capacity 100 could be between 0.25 hectare to 0.50 hectare. The Singtam DH[4] was built over 0.85 hectare of area as per the Khatian (Record of Rights) of the Hospital. However, the area occupied by the Gyalshing DH[5] could not be ascertained as the hospital authorities did not have the land records of the hospital with them.
- The areas of respective functional departments within each DH, whether the buildings incorporated earthquake resistant features, *etc.* could not be ascertained as records such as DPR, layout and blueprint of the building structure were not available with the District Hospital authorities[6].
- Fire-fighting equipment were found installed in both sampled DHs. The buildings of the DHs had ramps for movement of wheel chair bound patients and for stretchers. Gyalshing DH had a functional lift in addition to a ramp.
- The DHs were accessible by vehicle and had parking space for staff vehicles and ambulances. The parking space however had not been designated separately for staff, ambulances and general public. The parking space in front of two DHs were congested and inadequate.

---

[4] *Singtam DH operates from an old three storied concrete structure constructed in 1978.*
[5] *Gyalshing DH operates from a three storied concrete structure commissioned in January 2004*
[6] *The land record documents of only Singtam DH and blue print of the newly constructed trauma centre in Singtam DH were available with the hospital authority.*

Defunct vehicles – Singtam DH

Defunct vehicles – Gyalshing DH

- Old, damaged and defunct vehicles stood parked in the narrow parking area causing further congestion and spoiling the overall ambience of the hospital complex.
- Signage were displayed in English and Local language at appropriate places in and around the hospital premises indicating the facilities available in the hospital, emergency helpline numbers, citizen charter, direction for different facilities within the Hospital, etc.
- The physical upkeep, repairs and maintenance of Singtam DH building was found wanting. Windows were found broken in several places and ceiling damaged. Floor of the hospital building at few places was found worn out and damaged.

Damaged windows and ceiling

Damaged Floors

Damaged & Non-functional Toilets

While accepting the Audit observations, the Department (June 2020) stated that the hospital building of Singtam DH is a very old structure constructed in late 70s, however, proposal for construction of a new hospital building at alternative place has already been processed. Shortcomings as compared to IPH Standards as pointed out by Audit will be looked into at the time of construction of new hospital building. No reply was received for shortage infrastructure as pointed out in Gyalshing. It was further stated that due to limited open space in DHs, only few parking spaces were available for public.

3.3.1.2 New STNM Hospital

The New STNM Multi-Specialty Hospital (1,000 bedded) was running since 14 January 2019, but handing and taking over of the facility between the contractor, the executing department *i.e.* Building and Housing Department (BHD), and between BHD and the HFW Department, however, had not been effected as of January 2020.

Audit observed the following:

- Against the capacity of 1000 beds, 603 beds had been made functional till date (March 2020). One hundred and fifty-four rooms constructed for Laboratory and OTs, Private Cabins, Doctors' Room, Nurses station, Inpatient Wards, etc. were yet to be utilised. Ninth floor comprising of six 24 bedded wards, two three bedded rooms along with four other rooms, two stores and one hall were vacant and under locked condition.
- Patient waiting areas were severely insufficient at various locations (General OPD, Medicine OPD, *etc.*) leading to overcrowding.

The Department stated (June 2020) that most of the vacant rooms at New STNM Hospital have been occupied and 8th and 9th floors have been developed as dedicated Covid Centre for treatment of patients.

3.3.2 Availability of CHCs, PHCs and SCs

To ensure universal availability and accessibility of healthcare, the IPHS/NRHM has specified the following norms / criteria for setting up healthcare facilities in the categories of SCs, PHCs and CHCs, as detailed in the table below:

Table 3.5 -Norms for creation of health facilities

Health facilities	Norms
Sub-centre (SC)	One SC for every 3,000 people
Primary Health Centre (PHC)	One PHC for every 20,000 people
Community Health Centre (CHC)	One CHC for every 80,000 people

The population of Sikkim in terms of the Census of 2011 was 6,10,577. The State was accordingly required to have 204 SCs, 31 PHCs and eight CHCs, in terms of the IPHS / NRHM. The position of health centres as on March 2019 in the State *vis-à-vis* the IPHS norms was as under:

Table 3.6: Position of health centres as on March 2019 in the State *vis-à-vis* the IPHS norms

Healthcare facility	Requirement as per population	Actually available	Shortfall wrt population norms	Percentage Shortfall
a	b	c	d=b-c	e
SC	204	147	(-) 57	28
PHC	31	24	(-) 07	23
CHC	08	02	(-) 06	75

As can be seen from the table above, the shortfall of SCs, PHCs and CHCs was 57 (28 *per cent*), seven (23 *per cent*) and six (75 *per cent*) respectively. The Health and Family Welfare Department, however, had not planned the establishment of the SCs, PHCs and CHCs based on the State's population and other characteristic features such as mountainous terrain, connectivity constraints and sparse population. Availability of universal health services is required so as to reduce the physical distances of availability of health centres for rural habitations.

Further, even the only test-checked CHC (Rhenock CHC) was found to be not well equipped with to various OT and Labour equipment such as Diathermy Machine, Lamps shadow less, Sterilizer, OT Table (Hydraulic) etc. for OT and Cradles baby, Cabinet Instrument, Shadow less lamps and Table for Obstetric Labour/Examination for Labour Room.

Besides, there was shortfall in specialist services, MOs, para-medical as well as staff nurse. However, in the test-checked PHC, excess deployment of manpower in cadres of MO, Pharmacist and Staff nurse was noticed.

3.3.3 Non-establishment of Blood Banks

As per IPHS, blood bank is one of the essential services which is to be provided to a District Hospital. Blood bank should be in close proximity to pathology department and at an accessible distance from operation theatre, intensive care units and emergency & accident departments. The GoI formulated the National Blood Policy (NBP) in 2002 which was adopted by the State Government in 2005. The Sikkim State Blood Transfusion Council (SSBTC) implements the NBP in the State.

It was seen in audit that Blood Banks had not been established in the two DHs during the period covered by Audit (2014-19). Blood required by these two DHs were arranged from Namchi DH and the State Referral Hospital, Gangtok, which were at a distance of 20-50 km and 61-115 km respectively.

The Department stated (June 2020) that the Blood Banks in all DHs including the sampled DHs have been set up and are now fully operational.

Conclusion

The physical upkeep and maintenance of the DHs were found wanting. We could not ascertain whether the DH buildings were earthquake resistant, considering the State's geographical vulnerability to earthquakes. The 1000 bedded STNM Multi speciality hospital was yet to be made fully functional with the balance 370 odd beds and the patient waiting areas were found to be overcrowded. The shortage in availability of health care facilities of SCs/PHCs/CSCs during the period ranged from 23 to 28 *per cent.*

Further, Blood Banks had not been established in the two DHs during the period covered by Audit (2014-19) requiring blood to be arranged from Namchi DH and the State Referral Hospital, Gangtok, which were at a distance of 20-50 km and 61-115 km respectively.

Recommendations

- *The State Government may review the earthquake resistance measures for the DHs and ensure that they are made safe to the extent possible.*
- *The State may plan to augment the health care facilities in the rural areas in accordance with the population norms. The STNM Multi speciality hospital may be made fully functional with complete infrastructure and equipment so as to boost the healthcare facilities in the State.*
- *The State Government may ensure establishment of blood bank in all the DHs as per IPHS norms.*

3.4 Equipment for Health Facilities

3.4.1 District Hospitals

IPHS has prescribed norms of equipment for DHs under different categories based on the number of beds, keeping in view the assured services recommended for various grades of the DH.

The State Government did not formulate Equipment Procurement Policy (EPP) or any Standardised norms/ procedures for procurement of equipment for different health facilities. However, the State authorities stated that they have adopted IPHS norms for procurement of equipment *etc.*

Audit observed that in the two selected DHs against the requirement of a total 1,420 equipment prescribed by IPHS for various services, only 627 equipment were available. Thus, there was shortfall of equipment by 56 *per cent* in the sampled DHs as shown in the following table:

Table 3.7: Shortfall of Equipment in District Hospitals

District Hospital	No. of equipment required as per norms	No. of equipment actually available	Shortage (2-3)	No. of equipment functional	No. of equipment non-functional	No. of equipment functional but not operational
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Singtam	710	190	520	183	7	0
Gyalshing	710	437	273	433	4	1
Total	**1,420**	**627**	**793**	**616**	**11**	**1**

Source: Information from hospitals

Further, out of the 627 equipment available in the sample DHs, 616 (98 *per cent*) were functional, 11 (two *per cent*) non-functional and one remained idle during the period covered in the audit.

Shortfall in availability of equipment in different departments of DHs are detailed below:

Table 3.8: Department-wise Shortfall of Equipment in District Hospitals

Sl. No.	Department	Essential (IPHS)	DH Singtam		DH Gyalshing	
			Available	Shortfall *(Per cent)*	Available	Shortfall *(Per cent)*
1	Imaging Equipment	5	1	4 (80)	3	2 (40)
2	X-Ray Room Accessories	25	11	14 (56)	25	0
3	Cardiopulmonary Equipment	69	5	64 (93)	43	26 (38)
4	Labour Ward, Neo Natal Equipment	57	18	39 (68)	51	8 (14)
6	Equipment Newborn Care Unit (SNCU)	34	8	26(76)	4	30 (88)
7	Equipment for disinfection of SNCU	17	7	10(59)	2	15(88)
8	Equipment for individual patient care in SNCU	14	10	4(29)	12	2 (14)
9	Immunisation Equipment	26	19	7 (27)	24	3(11)
10	Ear, Nose, Throat Equipment	20	4	16(80)	5	15(75)
11	Eye Equipment	26	19	7(27)	20	6(23)

Sl. No.	Department	Essential (IPHS)	DH Singtam		DH Gyalshing	
			Available	Shortfall *(Per cent)*	Available	Shortfall *(Per cent)*
12	Operation Theatre Equipment	39	8	31(79)	27	12(31)
13	Laboratory Equipment	119	45	74 (62)	76	43 (36)
14	Surgical Equipment	108	4	104(96)	32	76(70)
15	PMR Equipment	16	4	12(75)	0	16(100)
16	Endoscopy Equipment	3	0	3 (100)	0	3(100)
17	Anesthesia Equipment	97	26	71 (73)	95	2 (2)
18	Post Mortem Equipment	35	2	33 (94)	18	17 (49)

Source: Information from hospitals

From the table above, it can be seen that there was a shortfall in essential equipment like Immunisation, Eye Equipment and Endoscopy Equipment in Singtam DH, whereas in Gyalshing DH, Endoscopy and PMR Equipment were not at all available. Details of equipment of Singtam and Gyalshing DHs are given in ***Appendix– IIa & IIb)***. Though requirement of equipment and manpower are reflected in annual Programme Implementation Plan (PIP), these were not provided by the Department. Non-availability of essential equipment [7]was bound to have adverse impact on health care which these DHs were supposed to provide to the public.

3.4.2 New STNM Hospital

The Hospital was not provided with a number of essential equipment as compared to the norms for a 500 bedded hospital on pro-rata basis, as shown below:

Table 3.9: Department-wise Shortfall of Equipment in New STNM Hospital

Sl. No.	Equipment	Essential for 500 bedded hospital (IPHS)	Essential (on pro-rata) basis for 1000 bedded hospital	Available (*per cent*)	Not Available (*per cent*)
1	Imaging Equipment	9	18	5 (28)	13 (72)
2	X-Ray Room Accessories	44	88	6 (7)	82 (93)
3	Cardiopulmonary Equipment	129	258	47(18)	211(82)
4	Labour Ward, Neo Natal Equipment	39	78	33(42)	45(58)
5	Equipment for Eclampsia Room	26	52	00(00)	52(100)
6	Equipment Newborn Care Unit (SNCU)	34	68	10(15)	58(85)
7	Equipment for disinfection of SNCU	11	22	3(14)	19(86)
8	Equipment for individual patient care in SNCU	14	28	9(34)	19(66)
9	Immunisation Equipment	27	54	5(9)	49(91)
10	Ear, Nose, Throat Equipment	43	86	15(17)	71(83)
11	Eye Equipment	45	90	33(37)	57(67)
12	Operation Theatre Equipment	55	110	32(29)	78(71)
13	Laboratory Equipment	4154	8308	75(1)	8233(99)
14	Surgical Equipment	187	374	22(6)	352(78)
15	PMR Equipment	16	32	4(12)	28(88)
16	Endoscopy Equipment	8	16	1 (6)	15(94)

[7] *Reference Paragraph no. 4.3.1*

Sl. No.	Equipment	Essential for 500 bedded hospital (IPHS)	Essential (on pro-rata) basis for 1000 bedded hospital	Available (*per cent*)	Not Available (*per cent*)
17	Anaesthesia Equipment	147	294	8(3)	286(97)
18	Post Mortem Equipment	50	100	4(4)	96(96)

Source: Information from hospital

Non-availability of medical equipment in different departments of the New STNM Hospital ranged from 58 *per cent* (Labour and Neo-natal Equipment) to 100 *per cent* (Eclampsia Room). Similarly, essential equipment (42 *per cent)* was not available (Labour, Neo-natal Equipment.). In absence of essential equipment, patients had to be referred to private hospital (CRH Tadong) or outside the State for medical treatment.

3.4.3 Idle equipment in New STNM Hospital

A joint physical inspection (March 2020) of the Hospital revealed that a number of hospital equipment was either idling in disuse, non-functional for want of repair or lying unused due to want of technical personnel to operate them, etc. Some equipment was also found dumped in the store of the central blood bank which could not be identified, with no timeline or plan for their installation and usage on record. Details of idle equipment are given below:

Table 3.10: Idle equipment in New STNM Hospital

Sl. No.	Asset/ Equipment	Nos.	Status
1	Heart Lung Machine	1	Idle since installation for want of Surgeon and technical staff.
2	OT for Open Heart Surgery	1	
3	Cardiopulmonary equipment	1	Idle since installation due want of space as it has been placed in the OT of Open-Heart Surgery.
4	Ventilator	1	
5	Cardiac Monitor	1	
6	Bone Testing Machine	1	Idle since installation as the equipment has been kept in standby for future use.
7	Blood Separators	2	
8	Refrigerators & Deep Fridges	30	Unused and in packed condition as it has been kept in buffer for future use.
9	Dialysis Equipment for Kidney patients	1	Idle for want of accessories
10	Whole Body Phototherapy Unit	1	Idle since installation as it has been kept in standby for future use.
11	Endoscopic Equipment for Pediatric Department	1	Idle since installation due to want of proper handing and taking over of the equipment with the executing agency.
12	Hematology Equipment for Complete Blood Test	2	Idle since installation due to non-availability of reagents.
13	Blood Gas Analysers	7	
14	OPG equipment for Dental X-ray	1	Non-functional due to damage.
15	Fluorescent Microscope for histopathology	1	Idle since installation as it has been kept for future use.
16	Auto analysers for Pathology Department	2	Idle since installation due to want of reagents.
17	Bone Cutting Machines	2	Idle since installation as these have been kept in standby for future use.
18	Roller Iron for Laundry	1	
19	Tumble Driers	2	Non-functional due to want of repair.
20	Physiotherapy Equipment	2	Non-functional due to damage.

Sl. No.	Asset/ Equipment	Nos.	Status
21	Hydraulic Beds	2	Idle since installation due to damage.
22	Unidentified Miscellaneous Equipment dumped in Stores	NA	Idle since installation due to non- handing and taking over of the equipment.
	Total	**63**	

Source: Physical verification

Photographs below exhibit some of the important equipment/ assets lying idle in the New STNM Hospital.

Equipment lying idle in Cardiology Department for want of surgeon

Unused OT for Open heart surgery

Heart Lung Machine

Ventilator

Two blood separators (six chamber) for blood component separation and four refrigerators / deep fridges meant for storage of blood had not been put to use since inception (January 2019).

Idle blood separators (two units)

Idle blood storage refrigerators (four units)

Idle Bone testing Machine

Blood gas analyser equipment lying idle for want of reagents

Idle fluorescent microscope and deep freezer at Histopathology Department

Idle auto analysers equipment (Pathology Department)

Idle Dialysis equipment

Idle dermatology equipment

Idle Physiotherapy machine

Thus, while a number of essential equipment as compared to the IPHS norms for a 500 bedded Hospital were not available in the 1,000 bedded hospital, a large number of other equipment procured by the Department were idling in disuse. The idling of equipment in the hospital indicated unplanned and excessive procurement without framing plan for their utilisation. The hospital had no plan and strategy for using the procured equipment. The chances of warranty/ guarantee of the equipment expiring before use cannot be ruled out. Release of payment to the suppliers/ contractors without installation and test-run of these equipment was not only irregular but indicated also lack of internal control in the hospital.

While accepting Audit observations, the New STNM authority stated (May 2020) that most of the equipment were idle due to non-availability of Surgeons and required technical personnel and also due to want of repairs. Some equipment were kept as stand by for future use.

3.4.4 Maintenance and Downtime of Equipment

For smooth operation of the equipment, regular maintenance and repair is to be done as per requirement. It was observed that annual maintenance contracts were executed by the Department with private service providers during the period covered under audit.

In the event of breakdown of equipment, a complaint was to be lodged telephonically to the designated officer stationed at Head Office, who in turn would instruct the service providers for necessary remedial action. As per agreement, equipment was to be repaired by the service providers immediately on receipt of complaint**.** Records relating to complaint lodged and action taken by the service providers were not produced and

hence, audit could not verify the promptness in attending to the complaints by the service providers.

The equipment of the New STNM Hospital had been supplied by the contractor of the hospital as part of turnkey contract under which the hospital was constructed. Despite inauguration and commissioning of the hospital in January 2019, the handing and taking over of the facility between the contractor, the executing agency (Building & Housing Department) and the Health and Family Welfare Department had not been effected till date. Consequently, modality for ensuring maintenance of the equipment could not be ascertained.

Conclusion

Audit noted absence of Equipment Procurement Policy (EPP) or any Standardised norms/ procedures for procurement of equipment for different health facilities. Thus, the types of equipment available in the test-checked DHs differ from one DH to another DH. In two test checked DHs, against the requirement of a total 1,420 equipment prescribed by IPHS for various services, 627 equipment were available resulting in shortfall of equipment of 56 *per cent.* Further, out of the 627 equipment available in the DHs, 616 (98 *per cent*) equipment were functional, 11 (two *per cent*) non-functional and one remained idle. Critical equipment required by Departments were found wanting. In STNM Hospital, costly equipment procured were either idling in disuse, non-functional for want of repair or lying unused due to want of technical personnel to operate them, etc. The Hospital/Department had formally not taken over the STNM hospital and equipment from the contractor and hence maintenance contracts for existing building and equipment in the hospital were not done.

Recommendations

- *State Government may ensure availability essential equipment in every hospital, particularly in view of the increasing reliance on diagnostics for treatment of patients.*
- *Proper utilisation of equipment may be ensured with requisite manpower for smooth delivery of healthcare services.*
- *Regular maintenance of equipment especially in the STNM multi-speciality hospital may be ensured through Annual Maintenance Contracts so as to reduce the breakdown time of critical equipment for diagnosis and improve the quality of health care.*

3.5 Drugs and Consumables Management

The State Government has adopted policy of providing free medical treatment *(registration & doctors' charges, medicines, diagnostic services, food for in-patients, etc.)* to the people of the State. Accordingly, no charges are imposed on patients visiting the hospital for treatment. Medicines, consumables and equipment are procured centrally by the Central Health Stores Organisation (CHSO), Gangtok and sent to the State Hospital/ DHs, CHCs, PHCs and PHSCs as per requirement.

The Department stated that it had adopted the IPHS norms for the facilities and services to be provided in the DHs. In terms of the IPHS, a DH is required to have at least

458 types of essential drugs and consumables in stock for patients visiting the hospital for providing minimum assured services. The status of availability of essential drugs and consumables in the sample DHs and New STNM Hospital during 2014-19 and stock out situations is depicted in the tables below:

Table 3.11: Availability of Drugs and Consumables in District Hospitals

District Hospital	Types of drugs/ consumables essential for a DH as per IPHS	Types of drugs/ consumables received 2014-19	Types of drugs/ consumables actually available on date of Audit (spot verification)	Status of stock-out of available drugs
Singtam	458	104	78	94 Stock-out situations ranging between 7 days to 2 years
Gyalshing	458	126	48	123 Stock-out situations ranging between 7 days to 5 years

Source: Information from hospitals

Table 3.12: Availability of Drugs and Consumables in New STNM Hospital

Hospital	Types of drugs/ consumables essential for a 500 bedded hospital as per IPHS	Types of drugs/ consumables received during Jan 2019 to Dec 2019	Types of drugs/ consumables actually available on date of Audit (spot verification)	Status of stock-out of available drugs during Jan 2019 to Dec 2019
New STNM	458	163	63	122 cases ranging between minimum 7 days to 1 year

Source: Information from hospital

- It was seen that against 458 essential drugs and consumables prescribed in IPHS, only 104 drugs / consumables were supplied to Singtam DH and 126 drugs/ consumables to Gyalshing DH during 2014-19. Further during spot verification by Audit, only 78 and 48 drugs/ consumables were available in stores in Singtam & Gyalshing DH respectively.
- Out of the 163 types of drugs and consumables supplied to New STNM Hospital, only 63 types of drugs and consumables were available in stock, during spot verification (February 2020).
- There were stock-out situations in 94 to 123 instances lasting up to seven days to five years in the two DHs and the New STNM Hospital had 122 cases of stock out that ranged from seven days to one year.
- Despite shortage of medicines in the DHs, it was seen that ₹ 6.09 crore allotted in the State Budget (2014-15) for purchase of medicines were diverted by the Department for repair of hospital equipment and vehicles.

During physical verification and patient survey, it was noticed that most of the medicines prescribed by the doctors could not be provided from the pharmacies of the DHs and the patients had to purchase the same from outside. Thus, the objective of providing medicines free of cost to the patients of the State was not fully achieved.

The Department stated (June 2020) that the funds provided for procurement of drugs and consumable was not sufficient to cater to the demands resulting in the shortage of drugs and consumables.

3.6 Quality Control and Testing of Drugs

The Department did not have any laboratory facility in the State for testing of drugs. Drug samples were drawn and sent to Guwahati for testing which took on an average of six months for analysis and receipt of test reports. Scrutiny of samples sent for analysis and the test reports thereof revealed that all drugs tested were found qualified and termed as standard. However, till receipt of analysis reports, drugs were already issued to health facilities and utilised by health facilities. Thus, the absence of drug testing facilities in the State led to considerable time lag in testing of the drugs and receipt of test results, causing the risk of consumption of untested drugs by patients.

While accepting the Audit comments, the Department stated (June 2020) that construction of Drug Testing Centre is being taken up, and the issue of testing of drugs within shortest possible time will be solved after construction of the Centre in the State.

Conclusion

During 2014-15, out of 458 essential drugs and consumables prescribed in IPHS, only 104 drugs / consumables were supplied to Singtam DH and 126 drugs/ consumables to Gyalshing DH. There were stock-out situations in 94 to 123 instances lasting between seven days and five years in the two DHs and the New STNM Hospital had 122 cases of stock out that ranged from seven days to one year. The serious non-availability of essential drugs in the test-checked DHs, compelled the patients to purchase the prescribed medicines from the open market by paying out of their pocket. Diversion of funds for drug purchases was seen in one year and considering the shortage of drugs, further diversion of funds cannot be ruled out for the period. The absence of drug testing facilities in the State led to considerable time lag in testing of the drugs and receipt of test results, causing the risk of consumption of untested drugs by patients.

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 in order to avoid 'stock outs'.*
- *They may ensure that a formulary of drugs is prepared by each hospital on the basis of disease patterns and inflow of patients. The State Essential Drug List (SEDL) be updated accordingly.*
- *Drug Testing should be taken seriously and the Government may ensure to set up a Drug Testing laboratory in the State, considering its geographical distance to avail of these facilities from other States.*

Chapter IV
Delivery of Healthcare Services

Chapter-IV: Delivery of Healthcare Services

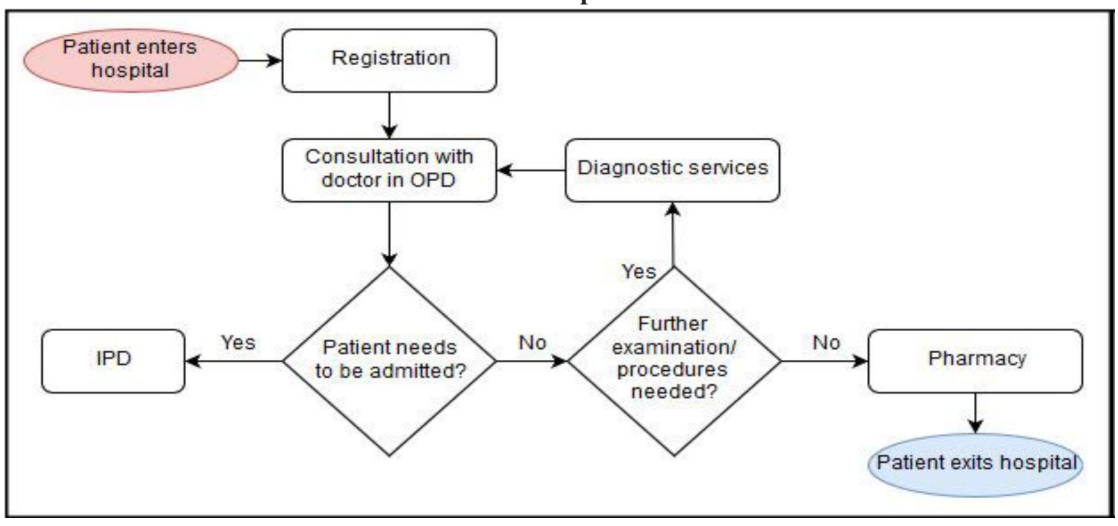
Delivery of quality and timely healthcare services - OPD, IPD, ICU, OT, Trauma and emergency and diagnostic services.

High-quality healthcare services involve the right care, at the right time, responding to the users' needs and preferences, while minimizing 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 (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. The detailed process flow is shown in the chart below:

Chart 4.1: Flow of patient services



The following paragraphs discuss Audit findings pertaining to OPD services like registration, consultation, waiting time and other basic OPD facilities/ services in the test-checked DHs.

4.1.1 Inflow of Patient in OPDs

The year-wise position of patients handled by the OPD clinics of Singtam and Gyalshing DHs is given below:

Table 4.1: Number of Outdoor Patients in District Hospitals

Year	No. of Patients		Percentage increase over 2014-15	
	Singtam	Gyalshing	Singtam	Gyalshing
2014-15	52,827	50,709	--	--
2015-16	72,914	52,031	38	3
2016-17	86,367	51,359	63	1
2017-18	1,04,876	59,188	99	17
2018-19	1,13,408	64,844	115	28

Source: HMIS data

The number of patients visiting Singtam DH for treatment/ medical check-up increased from 52,827 in 2014-15 to 1,13,408 in 2018-19, recording an increase of 115 *per cent* over 2014-15, whereas the number of patients in Gyalshing DH increased by 28 *per cent* during the same period. During 2018-19, the average daily load of patients in the OPD of Singtam DH was about 311 and in Gyalshing it was 178. The average patient load per doctor[1] per day was accordingly 22 and 16 for Singtam DH and Gyalshing DH, respectively. The New STNM Hospital registered a flow of 2,96,852 out patients during the period January 2019 to December 2019, with an average of 813 OPD patients on a daily basis.

Both the DHs did not have any system to record details of OPD patients referred to higher health centres from the OPD clinics. Hence, the number and details of patients who were outright referred to other centres after examination by the doctors/ specialists in the DHs were not available on record.

4.1.2 Non-computerisation of Registration Management System in DHs

Registration is a process of enrolling patients into the records of the hospital to provide services and keep track of various services that are availed by each patient. This is also the first step to generate a medical record of the patient in which all medical details of the patient are documented.

Audit noticed that in both DHs, the patient's details' (name, age, gender and address) were recorded manually in the OPD counter in a register. Plain paper slips were issued to the patients affixed with patient details and a registration number. The DHs had no system of recording patients' details in digital form in a computerised system. Nor was there any system to record the subsequent lab tests, medicines prescribed and results of tests/ diagnosis.

Thus, in absence of vital information which could be used for tracking health of patients and helpful for analysis in future, was not be utilised.

New STNM Hospital

- Patient data stored in digital manner.
- After registration, patients were given OPD cards with a registration number.

[1] *Total available doctors (including specialists) in the DHs as per IPHS. Where there were excess doctors (for example - dentists), only number of doctors as per the IPHS have been reckoned.*

While accepting the Audit comments, the Department stated (June 2020) that in absence of fully digitized Hospital Information System, complete data could not be maintained and few OPDs, not maintaining proper record were instructed to add the column for diagnosis in the OPD register for tracking and future reference.

4.1.3 Availability of basic facilities in OPD

As per the IPHS, OPD facility in a DH should be planned keeping in mind maximum peak hour patient load and should have scope for future expansion. OPD should have approach from main road with signage visible from a distance. Reception and Enquiry/'May I Help desk' should be available with competent staff fluent in local language. Services available at the hospital should be displayed at the Inquiry. Name and contact details of responsible persons like Medical Superintendent, Hospital Manager, Causality Medical Officer, Public Information Officer, *etc.* should be displayed. Waiting Spaces with adequate seating arrangements should be provided.

Patient amenities like potable drinking water, functional and clean toilets with running water and flush, fans/ coolers, seating arrangement as per load of patient should be available. The clinics should include General, Medical, Surgical, Ophthalmic, ENT, Dental, Obstetrics &Gynaecology, Post-Partum Unit, Paediatrics, Dermatology & Venereology, Psychiatry, Neonatology, Orthopaedic and Social Service Department.

Audit observed that :

- The OPD counter for registration of patients in Singtam DH was located outside the hospital building in a tin roofed open structure with no proper sitting/ waiting area for the patients and their attendants/ relatives. There was also no scope for future expansion.
- The OPD counter in Gyalshing DH was located within the Hospital building and had proper and adequate arrangement for sitting/ waiting comfort of the patients and their attendants coming to the hospital for treatment.

	
OPD Registration Counter, Singtam DH	**OPD Registration Counter, Gyalshing DH**

- Most of the OPD clinics in the New STNM Hospital did not have adequate seating arrangement for patients, though it was a new hospital. Further, there was no provision of ceiling fans in the Registration Counters, Waiting Areas for patients and public in general.

- OPDs in both DHs had approach from main road with signage visible from a distance. Reception and Enquiry/May I Help desk were available with staff fluent in local language.
- Services available at the hospital were displayed at the Enquiry. Contact details of Medical Superintendents were found displayed. Patient amenities like potable water, functional and clean toilets with running water and flush were available.
- Both the DHs had clinics for General, Medical, Ophthalmic, ENT, Dental, Obstetrics & Gynaecology, Post-Partum Unit, Paediatrics, Dermatology & Venereology, Psychiatry, Neonatology, Orthopaedic and Social Service Department. However, full range of services under the above-mentioned streams could not be provided by both the sampled DHs due to non-availability of essential required equipment as discussed in Paragraph 3.4.1.
- The OPD hours in the DHs and New STNM Hospital started from 9 a.m. and stretched upto 3 p.m. from Monday to Friday and 9 a.m. to 1 p.m. on Saturday. During Sundays and holidays, the OPD opened for 1 hour from 9 a.m. to 10 a.m.

Conclusion

Two test-checked DHs namely Singtam and Gyalshing had inadequate registration counters as against the requirements. OPD counter for registration of patients in Singtam DH was located outside the hospital building in a tin roofed open structure with no proper sitting/ waiting area for the patients and their attendants/ relatives. Most of the OPD clinics in the New STNM Hospital also did not have adequate seating arrangement for patients despite being a newly planned hospital. Further, except for the New STNM Hospital, the registration of patients was not computerised in the two DHs. Both the DHs did not have system to record details of OPD patients referred to higher health centres from the OPD clinics.

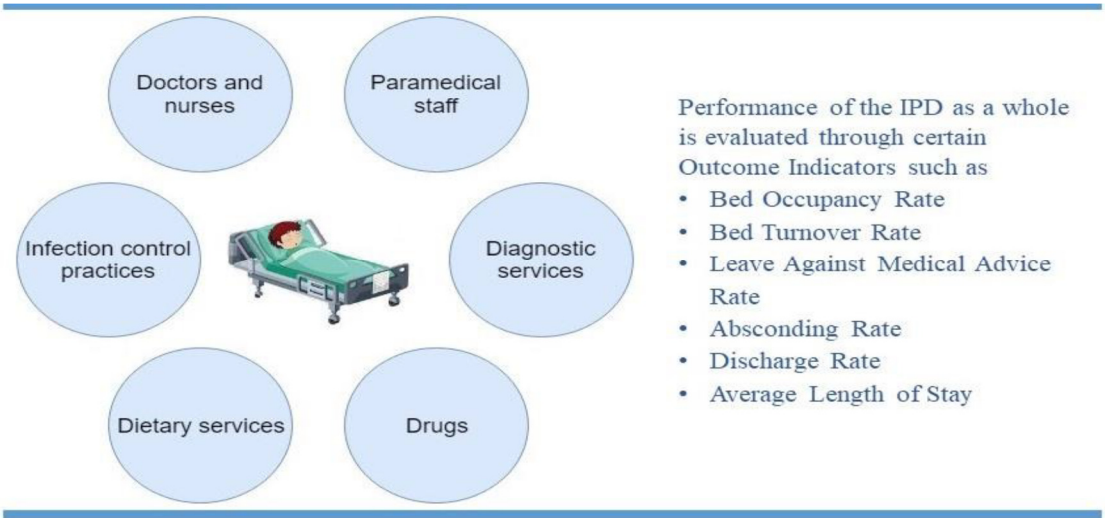
Recommendations

- *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).*
- *They may ensure documentation/computerisation of referral cases and clinical history of patients.*

4.2 In Patient Department (IPD) Services

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 OPD, Emergency Services and Ambulatory Care. In-patients require a higher level of care through nursing services, availability of drugs/ diagnostic facilities, observation by doctors, *etc*.

Chart 4.2: IPD services in a hospital



There were seven IPD wards in Singtam DH (Male, Female, Geriatric, Maternity and Gynae, Paediatric, Eye and Emergency) and eight IPDs (Male, Female, Paediatric, Antenatal, Post Natal, Surgical, Emergency and TB Isolation Ward) in Gyalshing DH.

Due to want of Isolation unit, TB patients in Singtam DH were housed in the same floor (in separate rooms) sharing same corridor with General Male and Female Wards, exposing patients and their attendants to the risk of transmission of the disease.

4.2.1 Inflow of patients in IPDs and Bed Occupancy

The table below depicts number of inpatients who were provided medical care and services in the two DHs during the period 2014-19:

Table 4.2: Bed Occupancy in District Hospitals

Year	No. of inpatients		Bed Occupancy Rates (in *per cent*)		Remarks
	Singtam DH	Gyalshing DH	Singtam DH	Gyalshing DH	
2014-15	8,400	6,953	22	19	Singtam DH – 105 functional beds. Gyalshing DH 98 functional beds
2015-16	11,337	12,869	30	36	
2016-17	15,352	13,075	40	37	
2017-18	19,381	11,894	51	33	
2018-19	24,879	15,883	65	44	

Source: HMIS data

- Number of In-patients who were provided services increased from 8,400 to 24,879 in case of Singtam DH (196 *per cent*) and from 6,953 to 15,883 in case of Gyalshing DH (128 *per cent*) during the period 2014-19.
- The Bed occupancy rate accordingly increased from 22 to 65 *per cent* in case of Singtam DH and 19 to 44 *per cent* in case of Gyalshing DH.
- The DHs had not conducted any study or any analysis of the increase of In-patients over the years to review/ augment their facilities to cater to the growing number of patients within their jurisdictions.

- The New STNM Hospital registered 17,677 in-patients during 2019. On an average, 48 patients were being admitted daily in the in-patient Department of the Hospital.

In none of the three hospitals, any system had been laid down for regulating flow of patients' relatives/attendants by issuing visitors cards and restricting the number of visitors for the patients, to control crowding of the IPDs / Hospital premises.

The Department stated (June 2020) that the inflow of higher number of patients in Singtam DH was due to floating population and also due to admission of patients from other districts as it lies at the border of South district and National Highway. Further, less inflow of patients in Gyalshing DH was due to its remoteness and location not being appropriate.

4.2.2 Referred out Patients

During the period 2016-19, a total of 2,652 in-patients from Singtam DH and 1,411 in-patients from Gyalshing DH were referred to the State Hospital (STNM, Gangtok) due to non-availability of essential services in the DHs (specialists, equipment, trauma services and diagnostic facilities).

During the year 2019, 1,973 patients were referred from the STNM Hospital to higher health facilities (CRH, Tadong and outside State) for medical treatment due to non-availability of required facilities (manpower, equipment, infrastructure, *etc.*) in the hospital.

As the STNM hospital was planned for specialised services and had idle equipment lying, the Department may enquire into these referrals from STNM to other hospitals, for optimal use of resources and in interest of patient convenience and treatment.

4.2.3 Availability of medicines at IPD

Each ward in the IPD maintained a small stock of medicines and consumables in the Nurses Stations, sourced from the main stores of the DHs. Although, stock registers showing medicines received and issued were maintained, patient-wise details of medicines issued based on prescriptions were not recorded. The patient-wise records of medicines prescribed by the doctors was also not maintained in IPD. Hence the status of availability of medicines in the IPDs as per requirement, whether medicines were issued only to the inpatients of respective wards could not be ascertained.

A survey of 66 patients (33 for each DH) done by the audit during December 2019 (Gyalshing DH) and January 2020 (Singtam DH) regarding availability of essential services in the hospitals showed that three patients (five *per cent*) responded that all medicines prescribed to them were available in the DHs, nine patients (13 *per cent*) responded that medicines were mostly available whereas 36 patients (55 *per cent*) responded that medicines were available on few occasions and 18 patients (27 *per cent*) responded that the prescribed medicines were almost never available in the DHs.

The Department needs to advise the DHs to keep stock records of receipt and issue of medicines and monitor the same.

4.3 Referral from CHC and PHC to DHs

The primary responsibility for maternal and infant care in rural areas is with the PHCs and CHCs and generally, only referral cases are handled by the DHs. To have a holistic picture for the State as a whole, Machong PHC and Rhenock CHC within the district hospital radius (Singtam) of the capital district (East District) were test-checked in audit and referral cases, relating especially to maternal and child care issues from these health facilities, were examined. Details of cases which were referred to higher Health facilities (District Hospital Singtam / STNM Hospital Gangtok/Manipal Hospital) for further treatment is shown in the Table 4.3 below:

Table - 4.3 : Details of referral cases of sampled CHC & PHC

Year	CHC			PHC
	Maternal Issues	Child Issues	Others	All referral cases (separate records not maintained for maternal, child & other issues)
2014-15	NA	NA	NA	19
2015-16	61	9	98	22
2016-17	66	18	108	17
2017-18	59	10	180	21
2018-19	40	7	177	09
Total	**226**	**44**	**563**	**88**

The Quality assurance guidelines prescribe that when a patient is referred to a higher level health facility, the hospital authorities are required to inform in advance about the referral of the patient to higher health facilities in order to enable them to avail better medical care. The authorities should also follow-up with the treatment of the referred patients. Audit observed that this requirement was not observed by the PHC/CHC.

Machong PHC acted as referral centre to five sub-centres linked to this PHC. Patients requiring medical care beyond the capacity of the MO / PHC were required to be referred to the Singtam DH. All cases from Machong PHC, however, were being referred to the STNM Hospital, Gangtok instead of DH Singtam due to nearness of STNM Hospital and better health care facilities available there. Moreover, all *referral-in* cases from five PHSCs under Machong PHC were being referred to Pakyong PHC due to topographical advantage and better facilities available in Pakyong PHC. This indicated that the establishment of the PHC at Machong had been done without considering its utility as a higher referral centre to the PHSCs under it.

4.3.1 Non-availability of essential facilities in the selected CHC & PHC

The high referral cases from the selected PHC/CHC was due to non-availability of specialty services, non/short availability of equipment and lab investigation and imaging services, non/short availability of essential drugs and consumables, as elucidated below:

- There was no availability of manpower in 10 different cadres of the Rhenock CHC as prescribed by the IPHS such as general surgeon, physician, obstetrician /

gynaecologist, paediatrician, anaesthetist, public health specialist, public health nurse etc. Due to non-availability of essential manpower in such vital areas, the services expected to be rendered by the CHC in terms of the IPHS norms could not be delivered.

- The IPHS prescribed 12 different types of equipment to be available in the CHC. None of the instrument / equipment sets prescribed by the IPHS were completely available with the CHC. The non-availability of equipment / instruments was much more pronounced than the actual availability. There was also no blood storage facility available.
- Out of nine basic instruments / equipment required for the Operation Theatre in the CHC, only four were available, and, out of seven instruments / equipment required for the labour room, only three were available while four were not available.
- Similarly, out of 12 equipment / consumables required for new-born corner in the CHC, eight such equipment / consumable were available while four were not available.
- Out of total 36 laboratory test services to be essentially available in the CHC as per IPHS, only 13 services were available, 5 services were partially available while 18 services were not available at all.
- Shortage of essential equipment and other items such as General equipment, equipment for labour room, Paper Smear, Laboratory, Furniture and medical/surgical items in Machong PHC ranged from zero *per cent* (equipment for operation labour room) to 30 *per cent* (General equipment).
- Against the requirement of 17 laboratory investigations / imaging services, laboratory and imaging services such as Rh Typing, Diagnosis of RTI/STCs with wet mounting, Grams stain, etc, Rapid test kit for faecal contamination of water, Estimation of chlorine level of water using orthotoludine reagent and imaging services were not available in Machong PHC.
- Against the norm of 176 drugs and consumables as per the IPHS, only 34 drugs / consumables were available in the CHC on the date of spot verification by Audit.
- Out of 176 essential drugs / consumables, only 62 drugs were supplied during April 2018 to February 2020 while 114 drugs/consumables were never supplied / received by the CHC.
- Even among the 62 drugs which were supplied during April 2018 to February 2020, majority of the drugs numbering 60 suffered stock-out situations on and off for periods ranging between seven to 365 days.
- Out of 168 essential and lifesaving drugs prescribed by the IPHS for PHCs, only 70 drugs were available in Machong PHC while 98 essential drugs / consumables were not available.

- 15 drugs out of the essential 168 drugs were never received in the PHC during the entire five years 2014-19. Out of the 153 drugs which were received on and off during 2014-19, there was stock-out situation of 44 drugs on one to 14 occasions for periods ranging from 4 days to 1335 days (more than three and half years).

Since CHCs/PHCs are primary units for health services to citizens in interior areas, the non-availability of doctors/equipment and drugs deprived the population of even basic health services and exposed them to inconvenience of travel elsewhere and risk to their lives.

4.4 Intensive Care Unit (ICU)

The IPH Standards envisage that each DH should have an Intensive Care Unit (ICU) to attend critically ill patients such as major medical and surgical cases, head injuries, severe haemorrhage, etc., requiring highly skilled lifesaving medical aid and nursing care. The IPH Standards further provide that the number of beds in the ICU may be restricted initially to five *per cent* of the total bed capacity of the hospital and gradually expanded to 10 *per cent*. Lifesaving equipment such as High End Monitor (HEM), Ventilator, Thrombosis Prevention Device (TPD), Oxygen therapy for each bed and common Ultrasonography (USG) and Defibrillator were essential to save critical patients.

The Singtam DH was established (1978) more than 40 years ago and Gyalshing DH was established (2004) more than 15 years ago. Despite this fact, ICU facilities were not available in the two DHs. The distance from Singtam and Gyalshing DHs to the nearest tertiary facility was about 27 km and 107 km respectively. Non-availability of ICU facilities in these two DHs, specially Gyalshing DH, required critically ill patients of areas falling within jurisdiction of the DHs to travel long distances which could lead to fatalities. The number of such critically ill patients could not be ascertained as details of such patients had not been maintained in the DHs.

A 14-bedded ICU Ward was in operation in New STNM Hospital at Gangtok for providing healthcare services to critically ill patients with major medical and surgical cases, head injuries, severe haemorrhage, etc., requiring highly skilled lifesaving medical aid and nursing care.

4.5 Operation Theatre Services

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.

Gyalshing DH had two OTs – one for Gynaecology& Obstetrics and other General OT. Singtam DH had one OT for Gynaecology & Obstetrics and one for Ophthalmology. The General OT attached with the trauma unit in Singtam DH had not been made fully operational due to delayed completion of construction of Trauma Care Centre and non-procurement of equipment.

Major surgery cases in General OTs of these DHs were not performed as no Surgeon and radiologist were available in the DHs for handling such cases. Only first aid and minor surgical procedures like suturing and dressing of minor injuries, wounds, abscess, etc. were performed in the General OTs. Further only one Anaesthetist (for Gynecology & Obstetrics Department) was available in each DH against the IPHS norm of two Anaesthetists per DH.

Facilities like Central Sterile Supply Department (CSSD), preparatory, pre-operative and post-operative resting rooms were available in both DHs. In the New STNM Hospital, there were 26 functional OTs.

4.6 Emergency Department

Emergency services in DH are provided by Emergency ward or Emergency Room (ER) which is a medical treatment facility specialising in acute care of patients who come in emergency situation. Due to the unplanned nature of patient attendance, the department provides initial treatment to a broad spectrum of ailments and injuries, some of which may be life threatening and require immediate medical attention. Therefore, IPHS envisages 24x7 operational emergency with dedicated emergency room in every district Hospital.

Emergency room was available in all test-checked DHs, however, the following deficiencies were noted as against IPH norms:

- There were no surgeons and anaesthetists available in the DHs for handling major surgical procedures. Hence only minor procedures like providing first aid to victims of accident, clearing / cleaning of wounds / abscesses, suturing etc. could be provided in the Emergency facilities in the DHs.
- Cases requiring major surgeries therefore had to be taken to the tertiary care facility at Gangtok which was 107 km from Gyalshing DH and 27 km form Singtam DH.

4.7 Trauma Care Centre

Road traffic deaths and injuries are unpredictable and preventable. It is an accepted strategy of Trauma Care that if basic life support, first aid and replacement of fluids can be arranged within first hour of the injury (the golden hour), lives of many of the accident victims can be saved.

Audit observed that Trauma care centre was not available in any of the test-checked DH (March 2019)[2]. In the absence of a functional Trauma care centre in the test-checked DHs, patients with serious injuries were referred to higher facilities located within and outside the State/districts thus, losing the golden hour to save the life of the victims.

[2] *A Level II Trauma Care Centre was operational in New STNM Hospital.*

4.7.1 Delay in completion of Trauma care centre at Singtam DH

In Singtam DH, establishment of a Level III Trauma care centre was taken up (November 2016) with a sanctioned cost of ₹ one crore. The building infrastructure, scheduled to be completed by November 2017, was finally completed in December 2019. Equipment for the trauma care centre had not been provided till date (January 2020) and the trauma care building was lying idle.

Idle Trauma Centre Singtam DH

The Department stated (June 2020) that the proposal for Trauma Care Centre for Gyalshing DH is being proposed to GoI, while Trauma Care Centre at Singtam DH has been operationalised and is functional. The reply of the Department is not acceptable in absence of non-provision of equipment by the Department.

4.8 Diagnostic Services

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 availability of diagnostic services is detailed below:

Table 4.4: Availability Diagnostic Services of Hospitals

Hospital	Availability of diagnostic services							
	Clinical pathology	Haematology Bone Marrow/Sickle Cell Anaemia/Thalassemia	Micro biology	Bio-chemistry	Cardiac	Ophthalmology	ENT	Endoscopy
Singtam DH	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Gyalshing DH	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
New STNM	Yes	Partly available[3]	Yes	Partly available[4]	Yes	Yes	Yes	Partly available[5]

Source: Information from hospitals

Thus, diagnostic services *viz.* ENT and Endoscopy were not available in Singtam DH while Endoscopy facility was not available in Gyalshing DH. The labs in both the DHs were functioning in a same room and did not have separate rooms for Biochemistry, Microbiology and Pathology services, in violation of IPHS norms.

In New STNM Hospital, diagnostic services such as haematology, bio-chemistry and endoscopy were only partly available. Lab services viz. sickle cell anaemia, thalassemia, serum magnesium, blood gas analyser, estimation of residual chlorine, bronchoscopy, arthroscopy, colposcopy, hysteroscopy, *etc.* were not available. Non-

[3] *Sickle Cell Anaemia and Thalassemia not available.*
[4] *Ictetric index, Serum Magnesium, Blood gas analyser, Estimation of residual chlorine in water, Salt and Urine for Iodine and Iodometry Titration not available.*
[5] *Bronchoscopy, Arthroscopy, Laparoscopy, Colposcopy and Hysteroscopy not available).*

availability of lab facilities was attributed to non-availability of equipment, reagent and trained manpower.

4.8.1 Radiology Services

The role of radiology is central to disease management for the detection, staging and treatment of diseases. Adequate availability of functional radiology equipment, skilled human resources and consumables are the key requirements for the delivery of quality radiology services.

The IPH Standards provide that each DH should have imaging facilities such as X-ray, Portable X-ray, two Ultra-sonography (USG) – one for Gynae and one for other patients, C.T. Scan, Mass Miniature Radiography (MMR) for chest and Barium Meal Test (BMT), etc. Availability of imaging services in the sampled hospitals was as under:

Table 4.5: Availability of Imaging Services of Hospitals

Hospital	X-ray	Portable X-ray	USG		CT Scan	MMR	BMT
			Gynae	Others			
Singtam DH	Yes	No	Yes	No	No	No	No
Gyalshing DH	Yes	No	Yes	No	No	No	No
New STNM Hospital	Yes	Yes	Yes	Yes	Yes	Yes	No

Source: Information from hospitals

Facilities such as Portable X-ray, CT Scan, MMR and BMT were not available in both DHs. In absence of these equipment, the patients had to get necessary testing done from the private labs. Further, only one USG machine for Gynaec cases was available in both the DHs. As a result, general patients (other than gynae cases) had to approach outside labs for tests. There was no radiologist available in the DHs for operating the USG (others) machines.

Audit further observed that:

➢ One X-ray machine (300 MAS) at Gyalshing DH was not functional since March 2016 due to want of repairs. Similarly, one digital X-ray machine (500 MAS) was non-functional since October 2018 in Singtam DH.

Defunct X-Ray machine Singtam DH

Atomic Energy Regulatory Board (AERB) guidelines (August 2004) on licensing of X-ray units stipulate that license for operating radiation installation should be obtained and the X-ray units should adhere to prescribed safety standards, availability of appropriate radiation monitors and dosimeter devices for radiation surveillance. The technicians manning the X-ray units should be provided Thermo Luminescence Dosimeter (TLD) badges to indicate levels of exposure to radiation. The TLD badges were not provided nor any safety certification from the competent authority was obtained in Gyalshing DH. In the absence of TLD badges and safety certification, mandatory surveillance of exposure to radiation to the technicians could not be ensured.

4.9 Quality Assurance of pathology services

In terms of the IPHS, quality checks of pathological tests were to be validated by an External Quality Agency (EQA). The HFW Department had not established any system or procedure for conducting quality checks of pathological tests by EQA as of January 2020.

4.10 Dialysis Unit

The Gyalshing DH had earmarked space for establishing a Dialysis Unit for patients with kidney related ailments. The dialysis room was found locked during Audit inspection. The equipment for the unit had been procured centrally by the Department. The equipment was lying unused in packed condition in the hospital corridor outside the dialysis room. Singtam DH did not have dialysis facility.

		
Biochemistry, microbiology and pathology tests conducted in same room.	**Locked Dialysis room**	**Idle Dialysis Equipment**

The hospital administration of Gyalshing DH stated that the equipment had been brought to the hospital in August 2019 by the supplier. The DH administration was unsure when the equipment would be installed as this was to be done by the supplier engaged by the CHSO.

Due to absence of data on the number of patients requiring dialysis services in the DHs, Audit could not quantify the denial of dialysis services to the critically ill patients requiring such services.

The New STNM Hospital had a dialysis unit for providing health care services to critical patients.

The Department replied (June 2020) that the Dialysis equipment was installed at Gyalshing DH and it would be operational soon. Regarding Dialysis equipment of New STNM Hospital, it was stated that the equipment is meant for use of patients with certain conditions and as of now STNM has not received such patients. It was further stated that since the cost of the consumable items was also too high, equipment has been kept for future use.

The Department's reply is not tenable, since having procured the equipment unless the availability of service is made known to the patients, they will not come forward to avail the services.

4.11 Patient rights

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 where the rights of citizens and facilities available in the hospital were explained. Citizen's charter had not been displayed in New STNM Hospital.

The STNM Hospital authority stated (May 2020) that the order to print the Citizen's Charter has been placed and will be displayed in the Hospital shortly.

4.12 Patient Safety

4.12.1 Firefighting equipment

National Building Code of India 2016, Part 4, Fire and Life Safety requires that fire extinguishers be installed in every hospital, so that the safety of the patients/ attendants/ visitors and the hospital staff is ensured in case of a fire in the hospital premises. Further, NHM Assessor's Guidebook envisages that in every hospital, Standard Operating Procedure (SOP) should be available and a Disaster Management Committee should be constituted.

It was observed that the sampled DHs had fire safety devices installed at appropriate places within the Hospital premises. The fire extinguishers were found to be recharged timely and were found to be within currency period of their life cycle (during joint physical inspection). Yearly mock drills were conducted for handling fire and other disaster situation.

While accepting the Audit observations, the Department stated (June 2020) that SOP will be put in place for training of staff.

4.12.2 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.

The DHs had DMP in place but no SOP was developed to train the staff of the hospitals for disaster preparedness and management.

While accepting the Audit observations, the Department stated (June 2020) that SOP will be put in place for training of staff.

Conclusion

Non-availability of ICU/Emergency facilities in these two select DHs, required critically ill patients of areas falling within jurisdiction of the DHs to travel long distances exposing them to risk and inconvenience. Major surgery cases were not performed in General OTs of these DHs due to non-availability of Surgeon and radiologist. The dialysis facilities of Gyalshing DH were not put to use and equipment were lying idle, whereas the facility at STNM hospital was kept idle despite equipment being available for ostensible reason of costly consumables. The Trauma care centres were not available in any of the test-checked DH resulting in patients with serious injuries being referred to higher facilities located within and outside the State/districts, thus, losing the golden hour, to save the life of the victims. In Singtam DH, a Level III Trauma care centre was taken up (November 2016) with sanctioned cost of ₹ one crore, and even though finally completed in December 2019 after delay of two years, was not made functional, till date (January 2020) for want of equipment and the trauma care building was lying idle.

As regards diagnostic services, facilities *e.g.* Portable X-ray, CT Scan, MMR and BMT were not available in both DHs due to which the patients had to get necessary testing done from the private labs. One X-ray machine (300 MAS) at Gyalshing DH was not functional since March 2016 for want of repairs and one digital X-ray machine (500 MAS) was non-functional since October 2018 in Singtam DH.

Further, only one USG machine for Gynae cases was available in both the DHs, as a result general patients (other than gynae cases) had to approach outside agencies for tests. Though the DHs had DMP in place but no SOP was developed to train the staff of the hospitals for disaster preparedness and management.

Recommendations

- *Government may proactively synergise availability of specialised in-patient services alongwith the essential drugs, equipment and human resources in district hospitals.*
- *The Department may make OT/Emergency services available in all the DHs with required manpower, equipment and drugs.*
- *The quality of diagnostic services, which are crucial for patient care and treatment, be made comprehensive as per requirements. The State Govt. /hospital administration must ensure that available equipment is functional and put to use. Regular upkeep and maintenance of diagnostic equipment be ensured.*
- *The Trauma Care centre in Singtam DH be made functional.*
- *The hospitals may rigorously adhere to the National Building Code 2016 to ensure safety of patients/ attendants/ visitors and the hospital staff from fire incidents. The Hospital administration may also ensure adequate documentation of availability of fire safety measures for verification.*

Chapter V

Support Services

Chapter-V: Support Services

Whether support services like drug storage, sterilisation, hygiene, waste management, infection control, ambulance, power back-up/ UPS, etc. had aided the line departments in providing a safe and sterile environment.

5.1 Storage 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.

- Both DHs had central storage facility for drugs and consumables received from the Central Health Stores, Gangtok. There were separate pharmacies for OPD and IPD patients. Pharmacy functioned from 8 am to 2 pm. However, the drug stores and the pharmacies were not air-conditioned. The DHs had not prescribed standard operating procedures for stocking, preventing stock-out of essential drugs, storage, and retrieval of drugs, checking the quality of drugs, etc.
- The storage facility for storing drugs and consumables in Gyalshing DH (GDH) was provided on the first floor of a two-storied building close to the main hospital building. Seepage was noticed in the store room and medicines were found exposed to sunlight as no screen was provided in the windows of the store room of Gyalshing DH. Due to exposure to sunlight, some medicines were reduced to dust and change in colour was noticed. For storing injections including lifesaving ones, one small refrigerator was provided.
- Medicine and consumables Store room in respect of Singtam DH (SDH) was very congested and not sufficient to store all medicines and consumables and to facilitate free movement in and out.

Drugs exposed to direct sunlight (GDH)

Damp walls, Drug Store (GDH)

Congested Drug Store (SDH)

- Storage facilities for medicines and consumable at The New STNM Hospital were located at first floor of annex building below main hospital building with sufficient space.

5.2 Infection Control

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.

To prevent hospital-acquired infections in patients, visitors and staff, the NHM Assessor's Guidebook 2013 required each DH to frame a schedule of procedure to be followed by the health care facilities known as Standard Operating Procedures (SOP) for septic procedures, culture surveillance and determination of hospital-acquired infections (HAI).

Audit observed that both DHs had functional Infection Control Committees headed by CMO of the respective DH and had SOPs for septic procedures, culture surveillance and determination of hospital-acquired infections (HAI). However, no records of hospital acquired infections in the DHs during 2014-19 were available.

The New STNM Hospital had constituted the Hospital Infection Control Committee (ICC) under the Chairmanship of the Medical Superintendent. Monthly meetings were being held by the Committee to improve the infection control in the hospital and also for recommending appropriate measures for its improvement. No SOP, however, had been prepared for infection control so far.

5.3 Cleaning Services

5.3.1 Cleanliness in DHs

There were separate wash-rooms for male and female patients in the wards. Generally, the washrooms had running water and were regularly cleaned. Cleanliness and proper upkeep was found wanting in the Paediatric ward of Gyalshing DH. The water cistern, commode covers and faucets were found broken and unrepaired. The toilet / bathroom walls were damp and stained. The doors were stained, damaged and in need of replacement. Normal water taps were installed in the washrooms of both Hospitals instead of elbow taps *(except in the OT)* for facilitating touch free operation of the taps to prevent spread of infection. Soap or liquid soap dispensers were, however, not provided in the hand washing area for patients to ensure hygiene.

5.3.2 Cleanliness in New STNM Hospital

Joint physical verification of the Hospital on management of cleanliness of the Hospital revealed the following:

- Hospital wards were clean and well maintained. However, cleanliness of stairs, hospital ramps and washrooms/ toilets were not up to the mark. General/ common toilets of almost all floors were very dirty, unclean and unhygienic with blockage of toilets, filthy toilet floors, *etc.* as depicted in the picture below:

Filthy common/general toilet

Dirty & unclean toilets of wards

- Open space at 8th floor of main hospital building was empty and unutilised. It was being used by the patients/ patient attendants for drying clothes. The space was unclean and very filthy as shown below:

Filthy open space at 8th floor

Open space utilised for drying cloth and dirty and unclean floor

- Staircase leading to different wards and hospital ramps of the main hospital building were unhygienic and unclean. The corners of ramps and stairs were unclean and filthy with chewed pan (betel nut) stains.

Unclean stairs of main hospital building

- Huge quantities of construction debris were found dumped in and around hospital premises by the contractor. No action had been taken by the concerned Department to remove the debris from the hospital premises.

Scrap building materials dumped at hospital premises

- It was observed that only three different coloured plastic containers were being utilised by the Hospital.
- Hospital waste collected for incineration and disposal, required to be incinerated and disposed of within 48 hours, had not been disposed of for more than 22 days (22 February 2020 to 16 March 2020).

Colour plastic used for collection of hospital waste at different wards.

Wastes collected in different coloured plastic bags to be incinerated and disposed off within 48 hours, waiting to be disposed off for more than 22 days.

- The bio-degradable hospital waste, not required to be incinerated, was collected and lifted by the Gangtok Municipal Corporation (GMC) on daily basis. The sampled DHs had functional incinerators and all wastes requiring incineration were treated (burnt). For collecting the hospital waste, a specified area with necessary safety measures was required to be arranged to avoid spread/ contamination of disease. During physical verification, it was observed that no such designated area for dumping such waste was provided. The waste was being dumped at the basement of the main hospital building in a non-functional Ambulance, as depicted in picture below:

Hospital waste dumped in the basement in a damaged ambulance

5.4 Hospital Waste Management

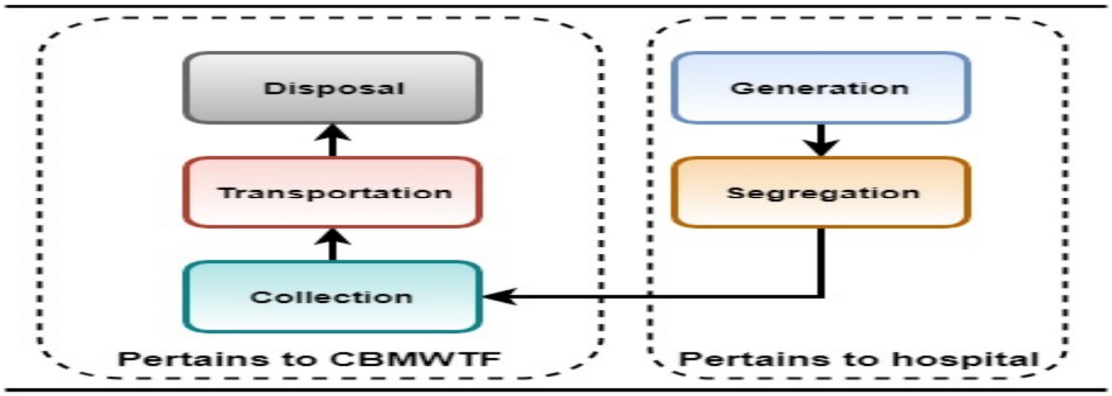
Hospital waste management, also known as medical waste management, is a system that handles hospital-*generated* waste, including infectious, chemical, expired pharmaceutical and radioactive items, and sharps.

5.4.1 Bio-medical waste management

Bio-medical waste (BMW) is generated during procedures related to diagnosis, treatment and immunisation in the hospitals and its management is an integral part of infection control within the hospital premises. The GoI framed Bio-Medical Waste (Management and Handling) Rules, 1998 under Environment (Protection) Act, 1986,

which were superseded by Bio-Medical Waste Management Rules, 2016 (BMW Rules). These rules stipulate the procedures for collection, handling, transportation, disposal and monitoring of the BMW with clear roles for waste generators and Common Bio-Medical Waste Treatment Facilitator (CBMWTF) as shown in the chart below.

Chart 5.1



5.4.2 Authorisation for generating BMW

The BMW Rules required the hospitals generating BMW to obtain authorisation from the State Pollution Control Board (SPCB). The category-wise quantity of BMW generated and their disposal were to be forwarded to SPCB in a prescribed format annually.

Audit observed that two test-checked DHs had obtained authorisation from the SPCB for generation and disposal of BMW.

5.4.3 Segregation and collection of BMW

As per Biomedical Waste (Management and Handling) Rules, 2016, it is the duty of every occupier of an institution generating biomedical waste to take all steps to ensure that such waste is handled without any adverse effect to human health and the environment. Further, no untreated biomedical waste should be stored beyond a period of 48 hours. Hazardous and toxic bio-medical waste has to be separated for its safe transportation to a specific treatment. In terms of the Biomedical Waste (Management and Handling) Rules, 2016, colour coded plastic containers of four different colours[1] were to be used for collection of different types of hospital wastes.

Audit however observed the following:

- Singtam DH was found observing prescribed norms for segregation and disposal of biomedical waste., whereas Gyalshing DH had not adopted the prescribed procedure for segregation of wastes due to non-availability of required plastic bags. At the time of physical verification (September 2019), only black and yellow plastic bags were

[1] ***Red*** *- disposable contaminated waste which can be recycled-will be disposed by autoclaving treatment followed by shredding;* ***Yellow*** *– human anatomical wastes, body parts, tissues, cotton dressings, plaster casts, gauze pieces, antibiotics and other drugs, microbiological waste, culture devices, stock or specimen of micro-organism etc.;* ***Blue*** *– broken glassware, contaminated glass, medicines viales and ampoules;* ***White*** *– wastes sharps including metals, needles, syringes with fixed needles etc.*

available. The bio-medical waste to be collected in blue and red containers were being collected in cardboard cartons.

- Bio-medical waste from Gyalshing DH such as infected plastic, etc. were collected and kept in the hospital to be lifted by waste disposal vehicles of Gyalshing Municipal Council which visited only twice or thrice a week, instead of disposing them within 48 hours.
- Both DHs had sharp pits for deep burial of sharp used objects like cut needles etc. and functional incinerators for burning wastes categorised for incineration.

The Department stated (June 2020) that separate budget provision has been made for management of biomedical waste, hence, problem in its management will be solved with the provision of funds.

5.4.4 Effluent Treatment Plant (ETP)

For treatment of hospital effluent, the Department proposed three ETPs in the New STNM Hospital. Out of the three ETPs, only one was functional. The construction of other two ETPs was still under progress. Joint physical verification of the ETPs revealed the following:

The functional ETP for treatment of effluent from the main hospital was not maintained properly. Water was found leaking out of the plant and flowing directly into open area in the hospital premises leading to health hazard and environmental pollution. All three ETPs were within close proximity of the hospital building and private households.

	
Water leakage from ETP connected with main hospital	**ETP close to human habitation and households**

Construction of ETP close to hospital and private households was also fraught with the risk of contamination of air/ water and spread of diseases to patients and general public.

While accepting the Audit observations, the New STNM Hospital authority stated (May 2020) that the contractor "Civil Engineers Enterprises Private Limited", (CEEPL) Kolkata, who was awarded the work for construction of New STNM Hospital on turnkey basis, had proposed that they will handover the plant to the Hospital only when a minimum of six skilled technicians are provided for running the ETPs. Proposal for the same has been submitted to the Government and is under process. Construction of ETP close to the Hospital and private households was as per the design of the Hospital.

However, the Hospital could not provide the NOC of the State Pollution Control Board for construction of ETP close to the Hospital.

5.5 Linen and Laundry Service

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. Records relating to supply, issue and receipt of linens were not maintained properly in the DHs. Audit could not ascertain the status of availability of linen in the two DHs. A dedicated laundry service facility was available at New STNM Hospital.

Patients using own bedding

During physical verification, use of hospital issued linen like bed sheets, blankets and pillows by the patients was found very rare. There was no provision for providing dresses to the in-patients. The patients preferred to use their own linen and blankets rather than that provided by the hospitals. Washing machines and ironing facilities were not available in both the DHs and laundry services for washing patients' bed sheets, blankets and other linen were outsourced to local washer men. In the New STNM Hospital one iron roller machine was not put to use and two tumble drier machines were idle due to want of repair.

The authorities of STNM Hospital stated (May 2020) that proposal for repairing of the tumble dryer machine has been forwarded to the company and will be repaired once the lockdown is over.

5.6 Ambulance Service

IPHS specify the number of ambulances required for each DH according to the number of beds. Further, IPHS envisage that the ambulances should be provided with basic life support/ advanced life support equipment and communication system.

Audit noticed that there were two stand-by Ambulances in Gyalshing DH for referral services in case of emergencies. These two ambulances were fitted with basic life support system (oxygen support and suction machines). The ambulances were used for transferring patients referred from the DH to higher medical facilities at Gangtok. Besides, there were additional eight ambulances in the PHCs of West District which could be availed through Call Centre Nos. 102 (delivery cases) and 108 Ambulance services (other emergencies) were available for carrying patients from the PHCs to Gyalshing DH.

As regards, Singatm DH though the DH had two ambulances, they did not have basic life support system of oxygen, suction machine etc. Apart from these, there were at least one ambulance in each of the six PHCs and two ambulances in one CHC under Singtam DH that were used for transferring patients to higher centres. The ambulances under Singtam DH were not linked with the Call Centres 102 and 108.

There were four functional ambulances in the New STNM Hospital for providing referral transport service to the patients.

The ambulances in the two DHs and the New STNM Hospital did not have GPS communication system.

5.7 Power Backup

As per IPHS, a 100 bedded DH should have 24-hour uninterrupted stabilised 3-Phase power supply. For uninterrupted supply of power during power cuts, one DG set of 75 KV and a portable Set of 2.5 KV have been prescribed. Gyalshing DH had a standby DG set of 40/50 KV capacity while Singtam DH had DG set of 75 KV capacity. Both DHs did not have any portable DG set. The indoor patient wards in the DHs were provided with power invertors.

It was observed that the DG sets had not been integrated with the electrical supply system of the DHs for auto-start in case of power failures from the regular public supply. Absence of power supply would risk the lives of patients in emergent conditions.

5.8 Quality Assurance and Monitoring

IPH Standards advocate that hospitals should develop and implement standard operating procedures for the administrative and clinical processes to ensure quality of all services provided by the hospitals. The details of implementation of IPH Standard recommendations in the two DHs are shown below:

Table 5.1: Status of District Hospitals in Quality Assurance and Monitoring

Sl. No.	*IPH Standards envisage*	*Status at DHs*
1	**Check List** – For proper monitoring and delivery of services, hospitals would develop and implement checklist for various processes viz. Housekeeping, Bio-Medical Waste, Surgical Safety, etc.	Not implemented in both DHs.
2	**Internal Audit** – Internal Audit of the services available in hospital should be done on regular basis. Findings are to be discussed in meeting of hospital management /monitoring committee and take corrective action.	Not implemented in both DHs.
3	**Medical Audit** – A medical audit committee shall be constituted in all hospitals. The committee shall select records of patients randomly. Records shall be evaluated for completeness against standard content format and clinical management.	Not implemented in both DHs.
4	**Mortality Review** – Review of all mortality that occurs in hospitals shall be done on fortnightly basis. All maternal deaths in hospital shall come under this review.	Implemented and being done in both DHs
5	**Hospital Management Information System (HMIS)** – A standard format for capturing key performance indicators should be developed and reviewed regularly.	Implemented in both DHs

The Department stated (June 2020) that though the check list was available, it was not followed properly. Staff would be trained on the same for better compliance. Internal Audit was being done through KAYAKALP activities and RKS and added that there was need for revival of the concerned Committee. Further, the Department had initiated the process for constitution of medical audit committee.

Conclusion

No standard operating procedures for stocking and preventing stock-out of essential drugs was in place. Storage of drugs was deficient exposing them to damage and the stocking was not conducive for easy retrieval of the drugs in the DHs. The quality of drugs was not checked, despite the requirement. Audit noticed that in the test checked DHs the Cleaning services and hygiene practices were not satisfactory to provide an assurance regarding an infection free environment to the medical staff and patients. Though Singtam DH was observing prescribed norms for segregation and disposal of biomedical waste, Gyalshing DH had not adopted the prescribed procedure for segregation of wastes due to non-availability of required plastic bags. No designated place for BMW had been assigned and the Gyalshing Municipal Council lifted the waste of the DH, only twice or thrice a week, instead of disposing them within 48 hours. The ETPs in the new STNM hospital was close to the hospital and private housing, exposing the patients/citizens to infection risks. Quality control and assurance monitoring of services was not implemented in the test-checked hospitals.

Recommendations

- *The stocking and retrieval of drugs be reviewed and improved and quality testing be implemented.*
- *The BMW Rules should be adhered and followed rigorously to provide an infection free environment in the hospital. The DHs may improve their coordination with the Municipal Authorities for lifting of the BMW in time.*
- *Effluent Treatment Plants may be constructed in all the hospitals and State Government may ensure the completion two ETPs at the New STNM Hospital.*
- *Quality control Assurance and monitoring arrangements be implemented.*

Chapter VI

Maternal and Child Care

Chapter-VI: Maternal and Child Care

Adequacy of healthcare services relating to maternal and infant care

6.1 Introduction

India has adopted the 2030 Agenda for Sustainable Development, at the heart of which are 17 Sustainable Development Goals (SDGs). SDG Goal 3 avowed to *"Ensure healthy lives and promote well-being for all at all ages"* while sub-goal 3.1 envisaged to reduce the global maternal mortality ratio to less than 70 *per* 100,000 live births by 2030 and sub-goal SDG 3.2 pledges to end preventable deaths of newborns and children under five years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under five mortality to at least as low as 25 *per* 1,000 live births, by 2030.

6.2 MMR, IMR and TFR (State Level)

The Ministry of Health and Family Welfare, GoI in its document "Framework of Implementation of Mission (2012-17)" has laid down the outcome indicators including Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR) and Total Fertility Rate (TFR) and framed time specific targets for their achievement. Similarly, targets with respect to these outcome indicators have also been specified in the Millennium Development Goals (MDG) outlined by the United Nations in the year 2000. A comparison of these indicators to be achieved in both documents is given below:

Table 6.1: IMR, MMR & TFR Targets

Sl. No.	Framework of Implementation (2012-17)	Millennium Development Goals (2015)
1	Reduce IMR to 25/1,000 live birth	Reduce IMR to 27 per 1,000 live birth
2	Reduce MMR to 100/1,00,000 live births	Reduce MMR to 109 per 1,00,000 live birth
3	Reduce TFR to 2.1	

As against the above targets, the indicators of Sikkim State are shown in following Table:

Table 6.2: Health indicators in Sikkim

IMR	MMR	TFR
12/1000	96[1]/1,00,000	1.2

Source: For IMR and TFR Annual Report (2018-19) of Family Welfare Department, Sikkim, for MMR SRS.

[1] *As per the Sample Registration System (SRS), the MMR of Sikkim was not worked out separately, but the State was clubbed with other NE states. The MMR for the period 2004-06 and 2015-17 is as given in the table below:*

MMR of India and Sikkim for the period 2004-06 to 2015-17

Sl. No.	*Year*	*MMR (India)*	*MMR (Sikkim included among 'other States' constituting small NE States etc.)*
1	*2004-06*	*254*	*206*
2	*2015-17*	*122*	*96*

(Source: Sample Registration System)

The State had been able to meet the national as well as MDG targets set for these indicators.

Audit of sampled two DHs was taken up to assess the condition of Maternal and Child care services. The findings are narrated in the following paragraphs.

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, hypertension, etc.

6.3.1 Antenatal Care (ANC) check-up

As per the Maternal Health Division, Ministry of Health and Family Welfare, all pregnant women (PW) are required to be registered and minimum four Antenatal Care (ANC) check-ups are needed to be conducted. Each pregnant woman is given a unique ID while registering her name and details in the Reproductive and Child Health (RCH) Register in the facility, and is given a Mother and Child Protection (MCP) card. All the investigations done and date of visit have to be recorded in the MCP card and the same is required to be updated in the RCH Register. All pregnant women who are registered with MCP card are to be given Iron Folic Acid (IFA) tablets and Calcium tablets compulsorily. IFA tablets (180) have been prescribed for six months during pregnancy and are to be continued for six months post-partum.

During the period 2014-15 to 2018-19, the District Hospitals conducted three / four ANC of registered PWs. The percentage of ANC carried out ranged between 59 to 92 *per cent* of the registered PW in case of Singtam DH and 73 to 122 *per cent* in case of Gyalshing DH, as detailed in the tables below:

Table 6.3: Antenatal Care in Singtam DH

Year	Total PW registered for ANC	Registered within first trimester (12 weeks)	PWs who received three/ four ANC check-ups (percentage)	PWs who received less than three ANC check-ups	No. of PW with severe anaemia
2014-15	291	239	205 (70)	86	7
2015-16	252	213	194 (77)	58	1
2016-17	270	212	205 (76)	65	1
2017-18	305	283	180 (59)	125	42
2018-19	265	243	244 (92)	21	48
Total	**1383**	**1190**	**1028 (74)**	**355**	**99**
Percent		**86**	**74**	**26**	

Source: HMIS data

Table 6.4: Antenatal Care in Gyalshing DH

Year	Total PW registered for ANC	Registered within first trimester (12 weeks)	PWs who received three/ four ANC check-ups (percentage)	PWs who received less than three ANC check-ups	No. of PW with severe anaemia
2014-15	169	165	176 (104)	0	8
2015-16	159	146	194 (122)	0	1
2016-17	161	146	183 (113)	0	1
2017-18	160	136	141 (88)	19	0
2018-19	168	148	122 (73)	46	1
Total	**817**	**741**	**816**	**65**	**11**
Per cent		***91***	***100***	***8***	

Source: HMIS data. Note: The higher number of PWs given ANCs in Gyalshing DH during 2014-17 as compared to the number of PWs actually registered in the DH was due to some PWs registered in adjoining PHCs also being given ANCs in the DH.

Analysis of the data on ANC during 2014-19 reveal the following:

- During the period 2014-19, against 1383 and 817 PWs registered for ANC, 1190 (86 *per cent*) and 741 (91 *per cent*) were registered within the first trimester of pregnancy in Singtam DH and Gyalshing DH respectively. There was shortfall of 14 and 9 *per cent* in registration of PWs in Singtam DH and Gyalshing DH respectively.
- During the period covered by audit, 355 and 65 PW representing 26 and 8 *per cent* did not receive minimum three ANC check ups in Singtam DH and Gyalshing DH respectively during the pregnancy period.
- Out of 1,383 and 817 PW registered for ANC in these two hospitals, 99 and 11 PWs suffered from severe anaemia which was a major cause of maternal and infant mortality as per maternal mortality review.

The Department stated (June 2020) that in few cases pregnancies occur during Lactational Amenorrhea in such cases patient herself may not know that she is pregnant, whereas in some cases of mothers having kids, if they become pregnant, they hesitate to come for the registration/ checkup. Further some patients may come from outside the State also.

6.3.2 Institutional Deliveries

To minimise the Maternal Mortality Rate (MMR), deliveries in hospital and health institutions are encouraged for safe delivery and survival of the child as well as mother. The details of deliveries in Singtam and Gyalshing DHs during the period 2014-19 were as below:

Table 6.5: Status of Institutional Deliveries

Year	Singtam DH		Gyalshing DH		Home delivery attended by trained Skilled Birth Attendant (SBA)		Home delivery attended by non-trained SBA		New born weighing less than standard weight (2.5 kg)	
	Institu-tional	Home	Institu-tional	Home	Sing-tam	Gyal-shing	Sing-tam	Gyal-shing	Sing-tam	Gyal-shing
2014-15	444	11	354	3	0	3	11	0	30	15
2015-16	544	5	334	3	2	1	3	2	32	20
2016-17	527	5	348	2	1	1	4	1	31	15
2017-18	525	5	335	2	4	0	1	2	31	15
2018-19	499	2	361	0	1	0	1	0	32	14
Total	**2,539**	**28 (1%)**	**1,732**	**7 (0.4%)**	**8**	**2**	**20**	**5**	**156 (6%)**	**79 (5%)**

Source: HMIS data

- The institutional deliveries were 99 *per cent* and almost 100 *per cent* in Singtam DH and Gyalsing DH respectively during the period 2014-19. Thus, both DHs were able to restrict deliveries at home within one and less than one *per cent*.

- As compared to total deliveries in DHs, the number of new born babies weighing less than the standard norm of 2.5 kgs during the period 2014-19 were 156 (six *per cent*) and 79 (five *per cent*) in Singtam DH and Gyalshing DH. The number of low birth weight babies was almost static in both DHs during the period covered under audit (2014-19), except in 2015-16 in Gyalshing DH, when it was higher. Though Low Birth Weight (LBW) was one of the major causes of infant mortality in both DHs, no action as envisaged by the Ministry of Health and Family Welfare (GoI) had been initiated by the DHs to minimise the LBW cases.

6.3.3 Distribution of Iron Folic Acid (IFA) and Calcium Tablets

The status of distribution of IFA and Calcium tablets to PW by sampled DHs during the period 2014-15 to 2018-19, is shown in the table below:

Table 6.6: Distribution of IFA and Calcium tablets in sampled DHs

Year	Singtam DH			Gyalshing DH		
	Total PW registered for ANC	PWs provided with		Total PW registered for ANC	PWs provided with	
		IFA tablet	Calcium tablet		IFA tablet	Calcium tablet
2014-15	291	278	NA	169	147	NA
2015-16	252	238	NA	159	129	NA
2016-17	270	238	NA	161	142	NA
2017-18	305	117	234	160	132	138
2018-19	265	540	552	168	168	188
Total	**1383**			**817**		

Source: HMIS data

It can be seen from the above table that:

- Percentage of PW who were given IFA and Calcium tablets ranged from 38 (2017-18) to 204 *per cent* (2018-19) in Singtam DH and 83 (2017-18) to 100 *per cent* (2018-19) in Gyalsing DH during the period from 2014-15 to 2018-19 against the total number of PW registered for ANC.

- During 2017-18, it was seen that IFA tablets were not distributed to 188 PW (62 per cent) which would impact health of new born babies.
- Similarly, percentage of PW who were given Calcium tablets ranged from 77 to 208 *per cent* in DH Singtam DH and 83 to 100 *per cent* in Gyalshing DH as against the total number of PW registered for ANC during the years 2017-18 and 2018-19.
- No data on distribution of Calcium Tablets prior to 2017-18 were available in the HMIS data.

Regarding higher achievement in distribution of IFA and Calcium tablets in 2018-19 by Singtam DH, the hospital authority stated that higher distribution was due to migrant labour and also due to reporting of PW of other health centres in DH as the Singtam DH is located adjacent to border of South District with easy accessibility.

6.3.4 Stillbirth

Stillbirth is the delivery, after the 20th week of pregnancy, of a baby who is born dead. The status of stillbirth cases in the sampled DHs during the period 2014-15 to 2018-19 is given below:

Table 6.7: Incidence of Stillbirth

Year	East District	Singtam DH	West District	Gyalshing DH
2014-15	20	11	22	1
2015-16	20	14	23	11
2016-17	21	14	17	7
2017-18	12	9	21	11
2018-19	13	10	36	16
Total =	**86**	**58 (67%)**	**119**	**46 (39%)**

Source: HIMS data

It was noticed that out of 86 and 119 still births reported in East and West districts respectively, 58 still births (67 *per cent*) occurred in Singtam DH and 46 still births (39 *per cent*) took place in Gyalshing DH during the period covered under audit. Despite high incidence of still birth cases in the DHs, no system of reviewing the still birth cases existed in DHs to minimise the incidence of such cases.

6.4 Intra-partum Care

Intra-partum Care (IPC) includes care of pregnant woman during intra-partum period (the time period spanning between onset of labour and childbirth). Proper care during labour saves not only mothers and their newborn babies, but also prevents stillbirths, neonatal deaths and other complications. The quality of IPC is largely affected by availability of essential resources and clinical efficiency of the medical and paramedical staff.

A summarised position of availability/non-availability of some of the basic facilities in the District Hospitals is given below:

Table 6.8: Availability of *Intra-partum* Care

Basic facilities	District Hospital		Remarks
	Singtam	Gyalshing	
Intensive Care Unit	Not available	Not available	*Only blood storage facility available. Blood Banks operationalised only in August 2019 and October 2019 in these health facilities respectively.
Blood Bank/ Blood Storage Unit	Available*	Available*	
Eclampsia Room	Not available	Available	
Septic room	Available	Available	
Antenatal Care Ward/Post Natal Care Ward	Available	Available	
Triage room	Not available	Not available	
Drinking Water facility	Available	Available	

Source: Physical verification of the District Hospitals

The essential facilities like Intensive Care Units and Triage Rooms were not available in both the DHs, which affected the quality of health services provided by the hospitals. Blood Banks were operationalised in Singtam DH (August 2019) and Gyalshing DH (October 2019), prior to which blood was being procured from STNM Hospital (27 Kms from Singtam DH) and Namchi DH (60 Kms from Gyalshing DH) for treatment of patients.

6.4.1 Caesarean Section (C-Section) Deliveries

The status of C Section deliveries in the two DHs during 2014-19 was as under :

Table 6.9: Proportion of C-Section in District Hospitals

Sl. No	District Hospitals	Year	Institutional deliveries	C-section deliveries	Percentage of C-section delivery out of total institutional deliveries
1	*Singtam*	2014-15 to 18-19	2,539	409	16
2	Gyalshing	2014-15 to 18-19	1,732	49	3

Source: HMIS data

Against the total institutional deliveries of 2,539 and 1,732 babies in Singtam DH and Gyalsing DH respectively, the proportion of C-section deliveries was 16 *per cent* (409) and three *per cent* (49) respectively as compared to total institutional deliveries during the period 2014-19.

Percentage of C-section deliveries in Gyalshing DH was much less than norm (upto 15 *per cent*) of Maternal and Newborn Health (MNH) Toolkit. Low percentage of C-section delivery at Gyalshing DH was due to non-availability/ shortfall in medical personnel in the cadre of surgeon, gynaecologist, anaesthetist, etc.

6.4.2 Referral to Higher Facility

In terms of the IPHS, referral services to higher centres indicate that facilities for treatments are not available in the hospitals concerned. The status of referral of pregnant women during the period 2016-17 to 2018-19 (records prior to 2016-17 were not available) in the DHs is shown in the following Table:

Table 6.10: Referral of Deliveries

Sl. No.	District Hospital	Year	Admission	Referral of PW	Percentage of referral
1	Singtam	2016-17 to 18-19	3,541	976	28
2	Gyalshing	2016-17 to 18-19	3,191	297	9

Source: Information from hospitals

Referral rate relating to pregnant women (delivery cases) was high in Singtam DH representing 28 *per cent* of total admissions of such cases indicating health care facilities were not adequate in the DH. Referral rate of Gyalshing DH was, however, lower at only nine *per cent*. The hospital administration and the DH had not taken effective measures to reduce the high rates of Caesarean section deliveries and to ensure comprehensive services within the DHs concerned for safe deliveries.

6.5 Review of Maternal and Infant Deaths

The Maternal Death Review Guidebook (NHM) stipulates that, at District Hospital, a Committee comprising of Hospital Superintendent, Facility Nodal Officer (FNO) (Obstetrician from the Department), at least two Obstetricians/ MO in Obstetrics and Gynaecology (OBG) department, one Anaesthetist, one Blood Bank MO, nursing representative and one Physician should be formed to review the causes of maternal and child deaths. Maternal and infant death review was being done in both health facilities regularly. In terms of the minutes of meeting of the Maternal and Infant Death Review (MDR) committee of Singtam and Gyalshing DHs, severe anaemia, lack of proper ANC due to hidden pregnancy and delay in referral were the common lapses leading to deaths of four mothers. During the period covered under audit, the status of maternal, infant and still birth cases in Singtam and Gyalshing DHs was as under:

Table 6.11: Maternal and Infant Deaths in District Hospitals

Year	Maternal Death				Infant Death			
	East District	DH Singtam	West District	DH Gyal-shing	East District	DH Singtam	West District	DH Gyal-shing
2014-15	1	0	1	0	5	5	31	9
2015-16	1	1	2	1	7	2	16	4
2016-17	1	0	3	0	3	0	14	1
2017-18	2	2	1	0	7	0	22	5
2018-19	0	0	0	0	13	2	26	5
Total	**5**	**3 (60%)**	**7**	**1 (14%)**	**35**	**9 (26%)**	**109**	**24 (22%)**

Source: HMIS data

As can be seen from table above, the high proportion of infant death in sampled Singtam DH and Gyalshing DH of 26 and 22 *per cent* respectively as compared to total infant death in respective districts, was a matter of concern.

6.5.1 Maternal Death Review

As per the IPHS guideline, all mortality in the hospital should be reviewed on fortnightly basis.

During audit of the two District Hospitals, the following was noticed:

Table 6.12: Status of Maternal Death Review

Sl. No.	Name of the District Hospital	Whether Maternal Death Review Committee formed	Minutes of the Death Review Committee	Total death of PW during the period 2014-15 to 2018-19	Total no. of death review of PW done
1	Singtam	Yes	Yes	3	3
2	Gyalshing	Yes	Yes	1	1

Source: Hospitals records

Audit scrutiny revealed that in Singtam DH and Gyalshing DH, three and one maternal death had occurred respectively during the period 2014-19. As compared to total delivery (Singtam: 2,567 and Gyalshing: 1,739) in these two DHs during the period from 2014-15 to 2018-19, proportion of maternal death was less than one *per cent*. The causes of death were due to severe hypertension, anaemia, bleeding, etc.

6.6 Child and Infant Health Care

Infant Mortality Rate (IMR), which is widely accepted as an indicator of the overall health scenario of a country or a region, is defined as the infant deaths (less than one year) per thousand live births in a given time period and for a given region.

The position of Infant Mortality Rate (IMR) for the country as a whole and Sikkim is given in the table below:

Table 6.13: IMR of Sikkim vis-à-vis India

Year	IMR of India	IMR of Sikkim
2014	40	19
2015	37	18
2016	34	16
2017	33	12

Source: Sample Registration System

As can be seen from the table above, IMR of the State is far less than the national average. The State was able to reduce the IMR from 19 (47 *per cent* lower than national average) to 12 (36 *per cent* lower that national average) over period 2014-15 to 2017-18. Further, the IMR was on a declining trend indicating better health care facilities for infants in the State**.**

6.7 Special Newborn Care Unit Facilities

Special Newborn Care Unit (SNCU) provides care to all sick newborns (except for those requiring assisted ventilation or major surgery). During audit of sampled DHs, it was seen that SNCUs were not available in the DHs. Only Newborn Stabilisation Units

(NBSU) were available in the DHs. The hospital authorities stated that despite non-availability of SNCU in the DHs, most equipment required for SNCU were provided to the DHs. As such all health facilities equivalent to SNCU were being provided to infants.

6.8 Causes of Infant Deaths

The information detailing the causes of deaths of infants in the two DHs is given below:

Table 6.14: Causes of Infant Death

Sl. No.	District Hospital	Birth Asphyxia	Prematurity	Sepsis	Respiratory Distress Syndrome (RDS)	Pneumonia	Low Birth Weight	Others
1	Singtam	0	0	0	0	1	2	6
2	Gyalshing	0	0	0	0	6	1	17

Source: HMIS data

Scrutiny of records revealed that the major causes of infant death were Pneumonia, Low Birth Weight and other reasons. It was seen that out of total 33 deaths in the sample DHs, the reason for death was mentioned as 'Others' in 23 cases (70 *per cent*) in HMIS data. Thus reasons of death in substantial number of cases were not recorded, due to which reviews for remedial action was rendered difficult.

6.9 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.

Scrutiny of records of sampled DHs, it was observed that some of the newborns were not administered zero day vaccination as can be seen from the following table.

Table 6.15: Immunisation of Infants

Sl. No.	District Hospital	New Born (Live birth)	New born given BCG vaccine *(per cent)*	New born given OPV vaccine *(per cent)*	New born given Hepatitis-B vaccine *(per cent)*
1	Singtam	2523	97	97	94
2	Gyalshing	1713	99	99	93

Source: HIMS data

Percentage of immunisation given to newborns ranged from 94 to 97 *per cent* in Singtam DH and 93 to 99 *per cent* in Gyalshing DH during the period 2014-15 to 2018-19. Gyalshing DH had performed better than Singtam DH in administering BCG and OPV vaccines.

6.10 Implementation of Institutional Delivery Promoting Scheme (Coverage under JSY)

Under NHM, a trained female community health worker called Accredited Social Health Activist (ASHA) is to be provided in each village in the ratio of one per 1,000 population (or less, for large isolated habitations). ASHA were to mobilize the community and facilitate people's access to health and health related services available at the village and health centres, such as immunization, ANC, PNC, sanitation and other services.

Janani Suraksha Yojana (JSY) commenced in the country in April 2005, encourages institutional delivery among pregnant women by providing conditional cash assistance. Cash assistance to the mothers in High Performing States (HPS) were ₹ 700 in rural areas and ₹ 600 in urban areas. The cash assistance was to be provided to the mother in one go at the health centre immediately on arrival and registration for delivery. In case of home delivery, disbursement was to be done at the time of delivery or around seven days before the delivery by ANM/ASHA/any other link worker. The state of Sikkim was categorised as HPS where the benefit is admissible to the mothers belonging ST/ SC and BPL population. The DHs had not maintained category-wise information of PWs, therefore it was not possible to ascertain whether benefits were extended to eligible beneficiaries. The number of beneficiaries receiving payment against total number of deliveries in the two DHs is shown below:

Table 6.16: Year-wise JSY Beneficiaries

Year	Singtam DH		Gyalshing DH	
	Total delivery	Number of Beneficiaries (*per cent*)	Total delivery	Number of Beneficiaries (*per cent*)
2014-15	444	120 (27)	354	46(13)
2015-16	544	133(24)	334	35(10)
2016-17	527	96(18)	348	46(13)
2017-18	525	120(23)	335	35(10)
2018-19	499	151(30)	361	64 (18)
Total	**2539**	**620 (24)**	**1732**	**226 (13)**

Source: HMIS data

During the period 2014-15 to 2018-19, only 24 *per cent* and 13 *per cent* mothers in Singtam DHs and Gyalshing DH respectively were given cash assistance under Janani Suraksha Yojana. In this regard, it is significant that as per Census 2011, proportion of combined population of SCs and STs in East District and West district were 33.06 *per cent* and 46.73 *per cent* respectively. Therefore, the scheme coverage needed to be reviewed and implemented more aggressively.

The reasons for low coverage were attributed to mothers not having AADHAR number for bank account or some places having no nationalized bank as the JSY payments were to be made through DBT-AADHAR from January 2013. The Department may take steps to facilitate the implementation as per the conditions mentioned.

6.11 Janani Shishu Suraksha Karyakram (JSSK)

JSSK was launched in November 2011 with an initiative to assure free services to all PWs and sick neonates accessing public health institutions. The scheme envisages free and cashless services to PW including the cases of normal as well as Cesarean Section deliveries and also for the treatment of sick new-born (up to 30 days after birth) in all Government health institutions across the State. The JSSK scheme envisaged referral facilities for the PWs as well as free medicines/drugs to those who have given birth in hospitals. During the period from 2016-17 to 2018-19, the status of JSSK services availed by PW under Singtam and Gyalshing DHs was as under:

Table 6.17: JSSK Beneficiaries in Singtam DH

Year	Free drugs and consumables		Free Diet	Free Diagnostics	Referral vehicles		
	Mother	Child			Home to health institution	To higher health facilities	Drop back home
2016-17	522	225	178	178	88	303	107
2017-18	526	243	111	74	107	302	107
2018-19	607	365	82	45	90	333	84
Total	**1,655**	**833**	**371**	**297**	**285**	**938**	**298**

Source: Information from hospital

Table 6.18: JSSK Beneficiaries in Gyalshing DH

Year	Free drugs and consumables		Free Diet	Free Diagnostics	Referral vehicles		
	Mother	Child			Home to health institution	To higher health facilities	Drop back home
2016-17	955	443	4	0	264	0	0
2017-18	553	218	0	0	206	0	0
2018-19	777	336	0	0	208	0	0
Total	**2,285**	**997**	**4**	**0**	**678**	**0**	**0**

Source: Information from hospital

Thus, in Singtam DH, number of beneficiaries receiving free drugs and consumables, diets and diagnostic services were 1655, 833 and 297 respectively during the period 2016-17 to 2018-19 while 1521 beneficiaries got free referral transport facilities from home to health institution and back. Similarly, in Gyalshing DH, 2,285, 997 and four beneficiaries got free drugs & consumables and free diet while 678 beneficiaries got free transport services under the JSSK during the period. No case of denial of free services under JSSK was found in the two DHs.

Conclusion

State had been able to meet the national as well as Millennium Development Goals of United Nations for MMR and IMR. They were able to reduce the IMR from 19 (47 *per cent* lower than national average) to 12 (36 *per cent* lower that national average) over period 2014-15 to 2017-18, indicating better health care facilities as well as creation of health awareness for mothers and infants in the State**.**

During the period 2014-15 to 2018-19, the District Hospitals conducted three / four ANC of registered PWs. The percentage of ANC carried out ranged between 59 to 92 *per cent* of the registered PW in case of Singtam DH and 73 to 122 *per cent* in case

of Gyalshing DH, which was commendable. Both DHs were able to restrict the home delivery within one and less than one *per cent* during the period from 2014-19. Referral rate relating to pregnant women (delivery cases) was high in Singtam DH (28 *per cent)* while in Gyalshing DH, it was nine *per cent*.

The sampled DHs did not have facilities of ICU and Triage rooms in context of maternal services.

The immunisation given to newborns ranged from 94 to 97 *per cent* in Singtam DH and 93 to 99 *per cent* in Gyalshing DH during the period.

During 2014-15 to 2018-19, only 24 *per cent* and 13 *per cent* mothers in Singtam DH and Gyalshing DH respectively, of the eligible population were given cash assistance under Janani Suraksha Yojana.

Recommendations

- *The Government may ensure that the hospitals are equipped completely with all the essential equipment for child deliveries and new born baby care.*
- *The Hospitals may prepare and maintain category-wise information of PWs, to extend the benefits of the various Schemes to eligible beneficiaries.*
- *The Janani Suraksha Yojana needed to be implemented more aggressively in the State due to the insufficient coverage.*

Chapter VII
Evaluation of Outcome Through Health Indicators

Chapter-VII: Evaluation of Outcome through Health Indicators

This chapter presents an assessment of the IPD services provided during 2014-19 in the test-checked DHs based on certain Outcome Indicators (OIs) prescribed in IPHS guidelines, *viz*., Bed Occupancy Rate (BOR), Leave Against Medical Advice (LAMA) Rate, Absconding Rate and Referral Out Rate (ROR).

Table 7.1 gives the categorisation and methodology of evaluating these OIs:

Table 7.1: Calculation of quality indicators

Type	Quality Indicator	Numerator	Denominator
Productivity of hospital	BOR (in *per cent*)	Total patient bed days x 100	Total no. of functional beds x No. of days in a month
Service quality of hospital	LAMA (Rate/1000)	Total no. of LAMA x 1000	Total no. of admissions
	Absconding (Rate/1000)	Total no. of Absconding cases x 1000	Total no. of admissions
Efficiency	ROR (in *per cent*)	Total no. of cases referred to higher facility	Total no. of admissions

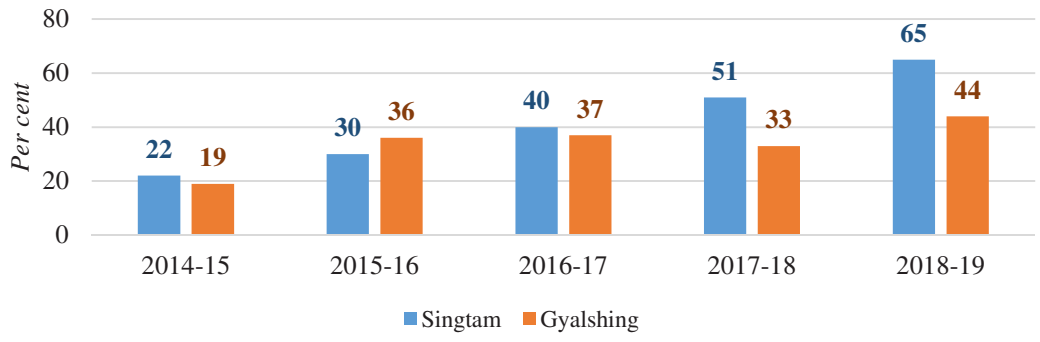
Source: IPHS

7.1 Bed Occupancy Rate (BOR)

The total number of sanctioned beds in Government healthcare facilities in the State was 1700, which works out to 28 beds per 10,000 (2011 Census).

The Bed Occupancy Rate is the average occupancy of hospital beds within a given year. It is an indicator of the productivity of the hospital services and is a measure of verifying whether the available infrastructure and processes are adequate for delivery of health services. As per IPHS, the BOR of hospitals should be at least 80 *per cent*. The BOR of the test-check DHs during 2014-19 is given below:

Chart 7.1: Bed Occupancy Rate (BOR)



It is seen from above Chart that the productivity of Singtam DH in terms of BOR had increased consistently over the period 2014-19. This increase in case of Gyalshing DH, on the other hand, was slow and erratic (decreased in 2017-18) during the period

covered by audit. The productivity of both DHs was below the mark of 80 *per cent* prescribed by IPHS as optimum for a District Hospital. It indicates that the utilisation of beds at these hospitals is low.

7.2 Referral Out Rate (ROR)

As per IPHS norms, referral services to higher centres denote that the facilities for treatments were not available in the hospitals. The information for 2014-15 to 2015-16 was not available with the DHs. The ROR in the two sampled District Hospitals for the remaining period covered in audit is shown in table given below:

Table 7.2: Referral Out Rate

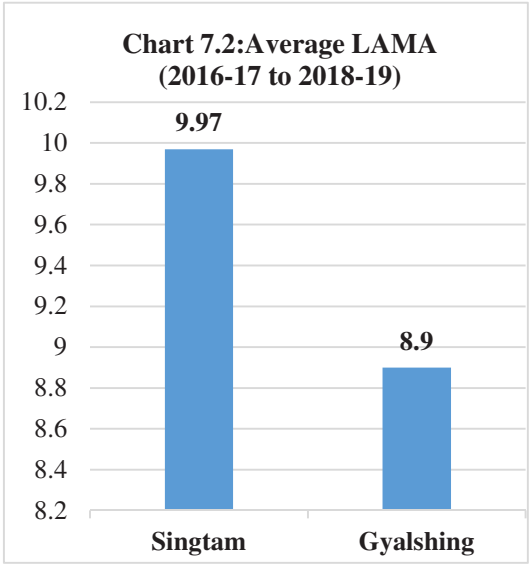
Year	Singtam DH	Gyalshing DH
2016-17	15.19	7.19
2017-18	15.14	8.22
2018-19	13.88	8.76
Average	**14.73**	**8.03**

Source: Information from hospital

It can be seen from above that ROR was higher in DH Singtam as compared to Gyalshing DH indicating that health care facilities were not adequate in the Singtam DH. This has been brought out by audit also in preceding chapters.

7.3 LAMA and Absconding Rate in DHs

To measure service quality of a hospital, Leave Against Medical Advice (LAMA) Rate & Absconding Rates are evaluated. LAMA is a patient who leaves the hospital against the advice of the doctor and Absconding Rate refers to patients who leave the hospital without informing the hospital authorities. The information for 2014-15 to 2015-16 was not available with the DHs. The status of remaining period (2016-17 to 2018-19) is shown in ***Chart -7.2***.



It is seen from the above that the LAMA rate of Singtam DH was higher as compared to Gyalshing DH which indicated deficiency in the services at the DH.

The Gyalshing DH informed that there was no case of absconding patients during 2016-17 to 2018-19. The Singtam DH reported that 17 patients (0.16 *per cent* of total IPD patients) had left the hospital during this period without intimating the hospital authorities.

7.4 Patient Satisfaction Survey

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 and New STNM Hospital during the period 2014-19. As a part of the audit exercise, a patient survey was conducted during the audit and 116 patients were interviewed (in two DHs and New STNM Hospital) by audit.

Table 7.3: Number of Patients Surveyed

Particulars	No. of Indoor patients surveyed	No. of OPD patients surveyed	Total
District Hospitals	44	22	66
New STNM Hospital	50	0	50
Total	**94**	**22**	**116**

Some of the key findings of the survey are given in the following paragraphs

7.4.1 Amenities in the Hospitals

Of the 116 patients interviewed, all (100 *per cent*) patients responded that basic amenities such as drinking water and wash room facilities were available in district and State hospital. During physical verification in the sample district hospitals audit found that drinking water and wash room facilities were available in both DHs and the New STNM.

7.4.2 Seating arrangements in the Hospital

In case of DHs, out of 66 patients interviewed, all (100 *per cent*) responded that adequate seating arrangement was available in the DHs. In case of New STNM Hospital only one (two *per cent*) patient stated that adequate seating arrangement was available in the hospital. During physical inspection, audit observed that the seating area and arrangement in Gyalshing DH was large and sufficient, seating arrangement in Singtam DH, though available, was congested. The seating arrangement in the New STNM Hospital was inadequate where patients had to stand while waiting for their turn.

7.4.3 Behaviour of staff at Reception

Sixty-two (94 *per cent*) patients in the two DHs and 38 (76 *per cent*) patients in the New STNM stated that the staff in the reception were courteous and helpful.

7.4.4 Signage in Hospitals

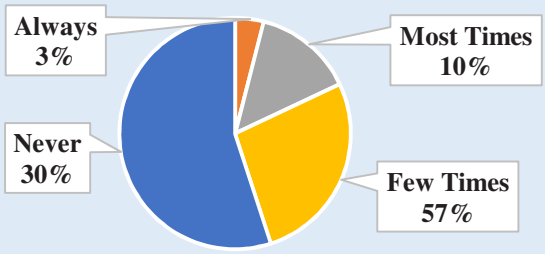
All 116 patients (100 *per cent*) interviewed stated that signages were available in the DHs and the New STNM Hospital for guidance of patients. Audit observed during physical inspection that signages were placed at appropriate places in the hospitals.

During patient survey, all the 116 (100 *per cent*) patients stated that OPD hours of doctors were displayed in the hospitals. Audit also observed that OPD hours of doctors were displayed in the hospitals.

7.4.5 Availability of Medicines in Hospitals

Of the 116 patients interviewed, only four patients (3 *per cent*) said that all medicines prescribed by the doctors of the hospitals were provided from the pharmacies of the hospitals, 66 patients (57 *per cent*) said that prescribed medicines were provided from the pharmacies only on few occasions, while 35 patients (30 *per cent*) responded that prescribed medicines were never available in the hospital pharmacies**.**

Chart 7.3: Satisfaction level about distribution of medicines



7.4.6 Stay arrangements for attendants of Patients

Out of 94 IPD patients interviewed, 100 *per cent* patients of New STNM Hospital stated that the arrangements were available for attendants of the IPD patients to stay in the hospital. Though 95 *per cent* patients of the DHs stated that there were no such arrangements in the DHs. During physical verification of sampled DHs, audit found that no arrangement was available at the DHs for stay of attendants of the patients. The patients' attendants were found sharing the same beds with the patients or using vacant beds nearby.

7.4.7 Security in the Hospitals

Of the 94 IPD patients interviewed, all patients (100 *per cent*) told that in-patient areas/enclosures were secured and well-guarded. During physical verification audit found that inpatient areas/enclosures were well-guarded and secure.

7.4.8 Experience of Patients in the Hospitals

Out of the 116 patients interviewed, 102 (88 *per cent*) patients rated the overall experience at the hospital as 'Good'.

7.5 Outcomes *vis-à-vis* Availability of Resources

Table 7.4 shows the relative performance of the test-checked hospitals on various outcome indicators worked out by audit and the corresponding availability of resources:

Table 7.4: Outcomes *vis-à-vis* availability of resources in District Hospitals

Hospital	Outcome Indicators				Availability of resources		
	BOR (%)	ROR per 1000	LAMA per 1000	Abs. Rate per 1000	Doctors (%)	Nurses (%)	Essential drugs (%)
Singtam DH	65	15	10	Nil	107	82	**23**
Gyalshing DH	44	8	9	0.16	80	80	**28**
***Benchmark*[1]**	***80-100%***	***43***	***26***	***9***	***100%***	***100%***	***100%***

Source: Records of test-checked DHs

[1] *Benchmarks: BOR – as per IPHS, Weighted average for rest of the outcome indicators, 100 per cent (sanctioned strength) for availability of doctors, IPHS norms for nurses and for essential drugs, it was based on stock position (on the date of JPV) against 60 drugs common to both in the SEDL and drugs list of NHM Assessor's Guidebook.*

As seen from the Table above, both DHs had low bed occupancy but the referral out rate was within the benchmark. However, availability of essential drugs in both DHs is a matter of concern.

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.*

(SUSHIL KUMAR)
Principal Accountant General (Audit),
Sikkim

Gangtok
The 11 February 2021

Countersigned

(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India

New Delhi
The 23 February 2021

Appendices

Appendix I (a)

(Reference Paragraph 3.2.1)

Shortfall or Excess Manpower in District Hospitals

Medical / Para-medics						
Sl. No.	**Department/ Cadre**	**Essential norms (IPHS)**	**Gyalshing DH**		**Singtam DH**	
			Available	**Shortfall (-) /Excess (+)**	**Available**	**Shortfall (-) /Excess (+)**
a	***b***	***c***	***d***	***e =c-d***	***f***	***g=c-f***
1	Medicine (Specialist)	2	2	0	3	+1
2	Surgery (-do-)	2	0	-2	0	-2
3	Anaesthesia (-do-)	2	1	-1	1	-1
4	Dental Surgeon	1	5	+4	7	+6
5	Radiology (-do-)	1	0	-1	0	-1
6	MO	11	3	-8	5	-6
7	MO (Ayush)	1	1	0	3	+2
8	Staff Nurse	45	36	-9	37	-8
9	Lab Tech.	6	5	-1	9	+3
10	Pharmacist	5	3	-2	2	-3
11	Storekeeper	1	1	0	0	-1
12	Radiographer	2	2	0	6	+4
13	Dietician	1	1	0	0	-1
14	CSSD Assistant	1	0	-1	0	-1
15	Social Worker	2	2	0	1	-1
16	Darkroom Assistant	2	1	-1	0	-2
17	Rehabilitation Therapist	1	0	-1	0	-1
18	Biomedical Engineer	1	1	0	0	-1

Appendix I (b)

(Reference Paragraph 3.2.2)

Shortfall or Excess Manpower in New STNM Hospital

Sl.	Particulars	IPHS norm for 500 BDH	Essential for 1000 BH (STNM) (pro rata)	Availability at STNM	Shortfall (-) Excess (+)
a	*b*	*c*	*d = 2xc*	*e*	*f*
I	**Specialist Services**				
1.	General Medicine	5	10	6	-4
2.	Gynaecology & Obstetric	6	12	6	-6
3.	Paediatrician	5	10	5	-5
4.	Orthopaedics	2	4	3	-1
5.	Surgeon	4	8	3	-5
6.	Anaesthesia	4	8	5	-3
7.	Psychiatrist	1	2	5	+3
8.	Pathology	4	8	8	0
9.	Radiology/Radiotherapy	2	4	4	0
10.	Forensic Specialist	1	2	0	-2
11.	Ophthalmology	2	4	3	-1
12.	Dermatology	1	2	4	+2
13.	Dental	3	6	18	+12
14	ENT	2	4	5	+1
15.	Microbiology	1	2	5	+3
II	**Medical Officers**				
1.	MOs	23	46	72	+26
2.	MOs (Ayush)	02	04	03	-1
III	**Paramedics**				
1	Staff Nurse	225	450	305	-145
2	Lab Tech.	18	36	7	-29
3	Pharmacist	12	24	0	-24
4	Radiographer	9	18	2	-16
5	ECG Tech/Eco	5	10	4	-6
6	Audiometrician	1	2	1	-1
7	Optha Asst	1	2	5	+3
8	Physiotherapist	3	6	5	-1
9	Dietician	1	2	1	-1
10	OT Technician	14	28	2	-26
11	CSSD Assistant	3	6	0	-6
12	Social Worker	6	12	0	-12
13	Counsellor	2	4	0	-4
14	Dermatologist Technician	1	2	0	-2
15	Cyto-technician	1	2	0	-2
16	PFT Technician	2	2	0	-2
17	Dental Technician	3	6	0	-6
18	Darkroom Assistant	9	18	0	-18
19	Rehabilitation Therapist	3	6	1	-5

Source: Information provided by hospital

Appendix II (a)

Availability of Equipment in District Hospital (100 Bedded), Singtam

(Reference: Para 3.4.1)

(Equipment with asterisk marks are desirable Equipment)

Name of equipment	Norm	Actual	Shortfall
1. Imaging Equipment			
500 M.A. x-ray machine*	---	-	**-**
300 M.A. x-ray machine	1	-	**1**
100 M.A. x-ray machine	1	1	**-**
60 M.A. x-ray machine (Mobile)	---	--	
Dental x-ray machine	1	-	**1**
Colour Doppler Ultrasound machine with 4 probes: Abdomen, Paediatric, Soft Parts and Intra-cavitory Ultra Sonogram (Obs & Gyne. department should be having a separate ultra-sound machine of its own)	1 + 1	-	**2**
Mammography Unit*	----		
Total =	**5**	**1**	**4**
2. X-ray Room Accessories			
X-ray developing tank	1	1	**-**
Safe light x-ray dark room	2	1	**1**
Cassettes x-ray	12	6	**6**
X-ray lobby single	6	-	**6**
X-ray lobby Multiple	1	-	**1**
Lead Apron	2	2	**-**
Intensifying screen x-ray	1	1	**-**
Dossimeter*	--	--	**-**
Total	**25**	**11**	14
3. Cardiopulmonary Equipment			
ECG machine computerized	1	-	**1**
ECG machine ordinary	1	1	**-**
12 Channel stress ECG test equipment Tread Mill*	----	-	**-**
Echocardiography Machine	----	-	**-**
Cardiac Monitor	4	-	**4**
Cardiac Monitor with defibrillator	2	-	**2**
Ventilators (Adult)	2	--	**2**
Ventilators (Paediatrics)	1	-	**1**
Pulse oximeter	3	-	**3**
Pulse Oximeter with NIB.P*	1	-	**1**
Infusion pump	2	-	**2**
B.P.apparatus table model	15	1	**14**
B.P.apparatus stand model	15	1	**14**
Stethoscope	20	1	**19**
Nebuliser	1	1	**-**
Peak Expiratory Flow Rate (PEFR) Meter (Desirable)	1	-	**1**
Total	**69**	**5**	64
4. Labour Ward, Neo-natal Equipment			
Baby Incubators	1	-	**1**
Phototherapy Unit	2	-	**2**
Emergency Resuscitation Kit-Baby	2	1	**1**
Standard weighing scale (each for the labour room & OT)	1	1	**-**
Newborn Care equipment (1 set each for labour room & OT)	1	1	**-**
Double–outlet Oxygen Concentrator (each for the labour room & OT)	1	-	**1**
Radiant Warmer	2	1	**1**
Room Warmer	2	-	**2**
Foetal Doppler	2	-	**2**
Cardio Toco Graphy Monitor	2	-	**2**
Delivery Kit	10	4	**6**
Episiotomy kit	2	2	**-**
Forceps Delivery Kit	2	1	**1**

Name of equipment	Norm	Actual	Shortfall
Crainotomy	1	-	**1**
Vacuum extractor metal	2	1	**1**
Silastic vacuum extractor	2	1	**1**
Pulse Oxymeter baby & adult	1 each	1	**-**
Cardiac monitor baby & adult	1	-	**1**
Nebulizer baby	2	1	**1**
Weighing machine adult	3	1	**2**
Weighing machine infant	3	0	**3**
CPAP Machine	-	-	**-**
Head box for oxygen	4	-	**4**
Haemoglobinometer	1	-	**1**
Glucometer	1	-	**1**
Public Address System	1	-	**1**
Wall Clock	1	1	**-**
BP Apparatus & Stethoscope	2+2	1	**3**
Total	**57**	**18**	39
Equipment for Eclampsia Room (required only for 300-500 bedded Hospitals)			
ICU Beds	2	**Not applicable for 100 bedded hospital**	
Emergency Resuscitation Tray (Adult) including intubation equipment	3		
BP Apparatus	3		
Cardiac Monitor	2		
Pulse oximeter	2		
Airway (Female)	2		
Nebuliser	1		
Oxygen Supply (Central)	2		
Suction Apparatus (Electrical)	2		
Suction Apparatus (Foot)	1		
Wall Clock	1		
Torch	1		
Emergency Call Bell	2		
Stethoscope	2		
5. Equipment for Special Newborn Care Unit (SNCU)			
General			
Electronic weighing scale	5	1	**4**
Infantometer	5	1	**4**
Emergency drugs trolley	5	1	**4**
Procedure trolley	5	1	**4**
Wall clock with seconds hand (for each room)	1	1	**-**
Refrigerator (for the unit)	1	-	**1**
Spot lamp	5	1	**4**
Portable x-ray machine (for the unit)	1	-	**1**
Basic surgical instruments e.g. fine scissors, scalpel with blades, fine artery forceps, suture material & needles, towel, clips etc. (set per bed)	1	-	**1**
Nebuliser (for the unit)	1	1	**-**
Room Thermometer	4	1	**3**
Total	**34**	**8**	26
Equipment for disinfection of SNCU			
Electric heater/boiler	2	1	**1**
Washing machine with dryer (separate)	1	-	**1**
Electronic Fumigator	2	-	**2**
Vacuum Cleaner	1	-	**1**
Gowns for doctors, nurses, neonatal aides, Group D staff & mothers (adequate number for each size)			
Washable slippers (adequate number for each size)	Essen-tial		
Vertical Autoclave	1	-	**1**
Autoclave drums (large & medium & small sizes) (of each size)	6	6	**-**
Disinfectant Sprayer	1	-	**1**
Container for liquid disinfectant	2	-	**2**
Formalin Vaporizer	1	-	**1**
Total	**17**	**7**	10

Name of equipment	Norm	Actual	Shortfall
Equipment for individual patient care in SNCU			
Servo-controlled Radiant Warmer (1 for each bed plus 2 extra)	1	1	-
Low-Reading Digital Thermometer (centigrade scale) (1 for each bed)	1	-	**1**
Neonatal Stethoscope (1 for each bed plus 2 extra)	1	1	-
Neonatal Resuscitation Kit (Laerdal type, Silicone, Autoclavable 240 ml, 450 ml resuscitation bag with valves-including pressure release valve), oxygen reservoir & silicone round cushion masks – sizes 0 & 00), Neonatal laryngoscope with straight blade and spare bulbs) (1 set for each bed plus 2 extra)	1	1	-
Suction Machine (for each bed, 80% electronically operated and 20% foot operated)	1	1	-
Oxygen Hood (unbreakable-neonatal/ infant size) (for each bed plus 20% extra)	1	1	-
Non stretchable measuring tape (mm scale) (for each bed)	1	-	**1**
Infusion pump or syringe pump (for every 2 beds)	1	1	-
Pulse Oxymeter (for every 2 beds)	1	1	-
Double Outlet Oxygen Concentrator (for every 3 beds)	1	1	
Double Sided Blue Light Phototherapy (for every 3 beds)	1	1	-
CENTRAL AC (8 air exchange per hour)		-	
Generator (15 KVA)	1	-	**1**
CFL Phototherapy (for every 3 beds)	1	1	
Horizontal Laminar Flow	1	-	**1**
Total	**14**	**10**	4
6. Immunisation Equipment			
ILR & DF with Stabilizer	2 each for RI plus one for LR	2	-
Spare ice pack box (for each equipment)	1	1	-
Room Heater/Cooler for immunization clinic with electrical fittings	As per need	No	-
Waste disposal twin bucket, hypochlorite solution/bleach (per ILR, bimonthly)	2	2 set	-
Freeze Tag	Need Based	-	-
Thermometers Alcohol (stem)	2	2	-
Almirah for Vaccine logistics	2	-	**2**
Almirah for vaccine logistics	1	-	**1**
Immunization table	5	1	**4**
Chair for new staff proposed	3	3	-
Stools for immunization room	2	2	-
Bench for waiting area	1	1	-
Dustbin with lid (for each equipment)	1	1	-
Water container	1	1	-
Hub cutters	2	2	-
5 KVA Generator with POL for immunization purpose (If hospital has other Generator for general purpose this is not needed.)	1	1	-
Total	**26**	**19**	7
7. Ear, Nose, Throat Equipment			
Audiometer	1	-	**1**
Impedance Audiometer	-	-	-
Operating Microscope (ENT)	2	-	**2**
Head light (ordinary) (Boyle Davis)	1	-	**1**
ENT Operation set including headlight, Tonsils	1	-	**1**
Ear Surgery Instruments set	1	1	-
Mastoid set	1	-	**1**
Micro Ear Set myringoplasty	1	1	-
Stapedotomy Set	1	-	**1**
Micro drill System set		-	-
ENT Nasal Set (SMR, Septoplasty, Nasal Endoscopic Set (o &	1	1	-

Name of equipment	Norm	Actual	Shortfall
30 degree) Polypetcomy, DNS, Rhinoplasty)			
Laryngoscope fibreoptic ENT	2	-	**2**
Laryngoscope direct	1	-	**1**
Otoscope	1	-	**1**
Oesophagoscope Adult (Desirable)	1	-	**1**
Oesophagoscope Child (Desirable)	1	-	**1**
Head Light (cold light)	1	-	**1**
Tracheostomy Set	1	-	**1**
Tuning fork	1	-	**1**
Examination instruments set (speculums, tongue dipressors, mirrors, Bull's lamp)	1	1	**-**
Total	**20**	**4**	16
8. Eye Equipment			
Cryo Surgery Unit with retina probe	1	-	**1**
Opthalmoscope – Direct + Indirect	1 + 1	1+1	**-**
Slit Lamp	1	1	**-**
Retino scope	1	1	**-**
Perimeter	1	-	**1**
Binomags	1	-	**1**
Distant Vision Charts	1	1	**-**
Near Vision Chart	1	-	**1**
Colour Vision Chart	1	-	**1**
Foreign Body spud and needle	1	1	**-**
Lacrimal cannula and probes	1	1	**-**
Lid retractors (Desmarres)	1	1	**-**
Punctum Dilator	1	1	**-**
Rotating Visual acuity drum	1	1	**-**
Torch	1	1	**-**
Trial Frame Adult/Children	1	1	**-**
Trial lens set	1	1	**-**
IOL Operation set	2	1	**1**
YAG Laser	1	-	**1**
Operating Microscope	1	1	**-**
A-Scan Biometer	1	1	**-**
Keratometer	1	1	**-**
Auto Refractometer	1	1	**-**
Flash Autoclave	1	1	**-**
Phacomachine	---	-	**-**
Total =	**26**	**19**	7
9. Operation Theatre Equipment			
Auto Clave HP Horizontal	1 In CSSD	1	**-**
Auto Clave HP Vertical (2 bin)	2 In CSSD	-	**2**
Operation Table Ordinary Paediatric*			
Operation Table Hydraulic Major	2	1	**1**
Operation table Hydraulic Minor	2	-	**2**
Operating table non-hydraulic field type	1	-	**1**
Operating table Orthopedic*			
Autoclave with Burners 2 bin*			
Autoclave vertical single bin	1	-	**1**
Shadowless lamp ceiling type major*	1	1	**-**
Shadowless lamp ceiling type minor*	1	-	**1**
Shadowless Lamp stand model	1	-	**1**
Focus lamp Ordinary	2	-	**2**
Sterilizer (Big instruments)	2	-	**2**
Sterilizer (Medium instruments)	3	-	**3**
Sterilizer (Small instruments)	3	-	**3**
Bowl Sterilizer Big	2	-	**2**
Bowl Sterilizer Medium	1	-	**1**
Diathermy Machine (Electric Cautery)	1	1	**-**
Suction Apparatus - Electrical	4	3	**1**
Suction Apparatus - Foot operated	3	-	**3**
Dehumidifier*	1	-	**1**

Name of equipment	Norm	Actual	Shortfall
Ultra violet lamp philips model 4 feet	4	-	**4**
Ethylene Oxide Sterilizer*	---	-	**-**
Microwave Sterilizer*	1	-	**1**
Intense Pulse Light Machine	-	-	-
Total =	**39**	**7**	32
10. Laboratory Equipment			
Binocular Microscope	6	2	**4**
Chemical Balances	2	-	**2**
Simple balances	2	-	**2**
Electric Calorimeter	2	-	**2**
Fully Automated Auto-analyser	-	-	
Semi auto analyser	1	1	**-**
Micro pipettes of different volumes	10	5	**5**
Water bath	2	1	**1**
Hot Air oven	3	1	**2**
Lab Incubator	3	1	**2**
Distilled water Plant	2	1	**1**
Electricentrifuge, table top	3	1	**2**
Cell Counter electronic	1	1	**-**
Hot plates	3	-	**3**
Rotor/Shaker	3	1	**2**
Counting chamber	3	1	**2**
PH meter	2	-	**2**
Paediatric Glucometer/ Bilirubinometer		-	
Glucometer	1+1	-	**2**
Haemoglobinometer	2	1	**1**
TCDC count apparatus	1	-	**1**
ESR stand with tubes	4	4	**-**
Test Tube Stands	6	6	**-**
Test Tube Rack	6	5	**1**
Test Tube Holders	6	5	**1**
Spirit Lamp	8	1	**7**
Rotatry Microtome	1	-	**1**
Wax Embel Bath	-	-	**-**
Auto Embedic Station	-	-	**-**
Timer stop watch	2	1	**1**
Alarm clock	1	-	**1**
Elisa Reader cum washer	1	-	**1**
Blood gas analyser	1	-	**1**
Electrolyte Analyser	1	1	**-**
Glycosylated Haemoglobinometer	1	-	**1**
Blood Bank Refrigerator	3	-	**3**
Haematology Analyser with 22 parameters	1	-	**1**
Blood Collection Monitor	1	-	**1**
Laboratory Autoclaves	3	-	**3**
Blood Bank Refrigerator	4	-	**4**
Ordinary Refrigerator	3	2	**1**
Floatation Bath	1	-	**1**
Emergency Drug Trolley with auto cylinder	1	-	**1**
Dialected tube scaler			
Class – I Bio Safety Cabinet	1	-	**1**
Knife Sharpner	1	-	**1**
Air Conditioner with Stabilizer	1	1	**-**
Cyto Spin	1	-	**1**
Ro Plant	1	-	**1**
Computer with UPS and Printer	1	1	**-**
Automatic Blood Gas Analyzer	1	-	**1**
Fine Needle Aspiration Cytology	1	-	**1**
Histopathology Equipment	1	-	**1**
Pipette – 1 ml & 5 ml Burette 10 ml Conical Flask Biker/ Glass bottles Glass or plastic funnel Glass stirring rod Small stainless steel bowl		-	

Name of equipment	Norm	Actual	Shortfall
Electronic weighing scale Measuring cylinder Gas Burner Laboratory balance Stop watch, Cyclomixer Micro pipette 10-100 ml :10-200 ml Micro tips Centrifuge, Oven Bath Serological Digital calorie meter Stirrer with stainless steel stirring rod Digital electronic temperature controller			
i. Ion – meter Table Top (specific for fluoride estimation in biological fluid) ii. Table Top Centrifuge without refrigeration iii. Digital PH Meter iv. Metaler Balance v. Mixer vi. Incubator vii. Pipettes/Micropipettes			
CO Analyser	1	1	**-**
Whole Blood Finger Prick HIV Rapid Test and STI Screening Test each	1	-	**1**
Blood Component Separator	---		
Platelet Agitator	---		
Platelet Thawing Machine	---		
Laminar Flow	---		
Total	**119**	**45**	74
11. Surgical Equipment Set			
P.S. set	2	-	**2**
MTP Set (Including Suction Cannula size 6-12)	2	-	**2**
Biopsy Cervical Set*	1	-	**1**
EB Set	2	-	**2**
Microscope (Gynae for wet smear and PCT)	-	-	**-**
D&C Set	2	-	**2**
I.U.C.D. Kit	2	-	**2**
LSCS set	2	2	**-**
MVA kit	2	-	**2**
Vaginal Hysterectomy	2	-	**2**
Proctoscopy Set*	2	-	**2**
P.V. Tray*	2	-	**2**
Abdominal Hysterectomy set	2	1	**1**
Laparotomy Set	2	-	**2**
Formaline dispenser	3	-	**3**
Kick Bucket	8	-	**8**
General Surgical Instrument Set Piles, Fistula, Fissure*	2	-	**2**
Knee hammer	5	-	**5**
Hernia, Hydrocele*	2	-	**2**
Varicose vein etc.*	1	-	**1**
Gynaec Electric Cautery	1	1	**-**
Vaginal Examination set*	8	-	**8**
Suturing set*	5	-	**5**
MTP suction apparatus	1	-	**1**
Thoracotomy set		-	
Neuro Surgery Craniotomy Set		-	
I M nailing kit	1	-	**1**
SP Nailing	1	-	**1**
Compression Plating Kit*	1	-	**1**
AM Prosthesis*		-	
Dislocation Hip Screw Fixation*		-	
Fixation Fracture Hip	1	-	**1**
Spinal Column Back Operation Set		-	
Thomas Splint	7	-	**7**
Paediatric Surgery Set	1	-	**1**
Mini Surgery Set*	2	-	**2**

Name of equipment	Norm	Actual	Shortfall
Urology Kit	1	-	**1**
Surgical Package for Cholecystectomy*	---	-	
Surgical package for Thyroid	---	-	
GI Operation Set*	2	-	**2**
Appendicectomy set*	2	-	**2**
L. P. Tray*	5	-	**5**
Uretheral Dilator Set	4	-	**4**
TURP Resectoscope*	1	-	**1**
Haemodialysis Machine*	---	-	
Amputation set	1	-	**1**
Universal Bone Drill	---	-	
Crammer wire splints	8	-	**8**
Minilap sets-3	3	-	**3**
NSV sets-3	3	-	**3**
Colposcope	1	-	**1**
Cryoprobe	1	-	**1**
Skin Biopsy Sets	1	-	**1**
Total	**108**	**4**	104
12. PMR Equipment			
Skeleton Traction Set	3	1	**2**
Interferential Therapy Unit	2	-	**2**
Short Wave Diathermy	1	1	**-**
Hot packs & Hydro collator*		-	
Exercise Table*			
Static Cycle*			
Medicine ball*			
Quadriceps exerciser*		-	
Coordination Board*		-	
Hand grip strength measurement Board*		-	
Kit for Neuro-development assessment*		-	
CBR Manual*		-	
ADL Kit & hand exerciser*		-	
Multi Gym Exerciser*			
Self Help devices*		-	
Wheel chair*		-	
Crutches/Mobility device sets*		-	
Hot air oven	2	-	**2**
Hot air gun	2	-	**2**
Grinder	2	-	**2**
Sander	2	-	**2**
Router*		-	
Power Drill*		-	
Band saw*		-	
Vacuum Forming Apparatus*		-	
Lathe*		-	
Welding machine*		-	
Buffing & polishing machine*		-	
Work Table	2	2	**-**
Tools and raw material*		-	
Total	**16**	**4**	12
13. Endoscopy Equipment			
Endoscope fibre Optic (OGD)*	---	-	
Arthroscope	---	-	
Operating Laproscope complete for laproscopic surgery	---	-	
Laparoscope diagnostic and for sterilisation*	1	-	**1**
Colonoscope and Sigmoidoscope*	---	-	
Hysteroscope*	1	-	**1**
Colposcope*	1	-	**1**
Total	**3**	**0**	3
14. Anaesthesia Equipment			
Anesthetic – laryngoscope magills with four blades	3	3	**-**

Name of equipment	Norm	Actual	Shortfall
Endo Tracheal Tubes Sets	2	1	**1**
Magills Forceps (two sizes)	6	2	**4**
Connector set of six for ETT	6	1	**5**
Tubes connecting for ETT	6	1	**5**
Air way female*	10	2	**8**
Air way male*	20	2	**18**
Mouth prop*	8	-	**8**
Tongue Depressors*	10	1	**9**
O_2 cylinder for Boyles	10	5	**5**
N_2O Cylinder for Boyles	10	5	**5**
CO_2 cylinder for laparoscope*		-	
PFT machine	1	-	**1**
Anaesthesia machine with ventilator (desirable)/ Boyles Apparatus with Fluotec and circle absorber	2	1	**1**
Multi-parameter monitor	2	2	**-**
Pipe line supply of Oxygen, Nitrous Oxide, Compressed Air and suction (desirable)		-	
Defibrillators	1	-	**1**
Infusion pumps*		-	
Regional anaesthesia devices*		-	
O_2 therapy devices*		-	
Exchange Transfusion Sets*		-	
Recovery Area		-	
O2 Therapy Devices*		-	
Pipe line supply of Oxygen and Suction (desirable)*		-	
Monitor*		-	
Patient Trolley*		-	
Total =	**97**	**26**	71
15. Post Mortem Equipment			
Mortuary table (Stainless steel)*	2	-	**2**
P.M.equipment (list)	4	-	**4**
Weighing machines (Organs)	2	-	**2**
Measuring glasses (liquids)	3	-	**3**
Aprons*	10	2	**8**
PM gloves (Pairs)*	10	-	**10**
Rubber sheets*		-	
Lens	2	-	**2**
Spot lights	2	-	**2**
Total	**35**	**2**	33
Grand Total =	**710**	**190**	**520**

Appendix II (b)

Availability of Equipment in District Hospital (100 Bedded) Gyalshing

(Reference: Para- 3.4.1)

(Equipment with asterisk marks are desirable Equipment)

Name of equipment	Norm	Actual	Shortfall
1. Imaging Equipment			
500 M.A. x-ray machine*	---	-	**-**
300 M.A. x-ray machine	1	-	**1**
100 M.A. x-ray machine	1	-	**1**
60 M.A. x-ray machine (Mobile)	--	--	
Dental x-ray machine	1	1	
Colour Doppler Ultrasound machine with 4 probes: Abdomen, Paediatric, Soft Parts and Intra-cavitory Ultra Sonogram (Obs & Gyne. department should be having a separate ultra-sound machine of its own)	1 + 1	2	**-**
Mammography Unit*	----		
Total =	**5**	**3**	**2**
2. X-ray Room Accessories			
X-ray developing tank	1	1	**-**
Safe light x-ray dark room	2	2	**-**
Cassettes x-ray	12	12	**-**
X-ray lobby single	6	6	**-**
X-ray lobby Multiple	1	1	**-**
Lead Apron	2	2	**-**
Intensifying screen x-ray	1	1	**-**
Dossimeter*		--	**-**
Total	**25**	**25**	**0**
3. Cardiopulmonary Equipment			
ECG machine computerized	1	-	**1**
ECG machine ordinary	1	1	**-**
12 Channel stress ECG test equipment Tread Mill*	----	-	**-**
Echocardiography Machine	----	-	**-**
Cardiac Monitor	4	2	**2**
Cardiac Monitor with defibrillator	2	-	**2**
Ventilators (Adult)	2	--	**2**
Ventilators (Paediatrics)	1	-	**1**
Pulse oximeter	3	3	**-**
Pulse Oximeter with NIB.P*	1	-	**1**
Infusion pump	2	2	**-**
B.P. apparatus table model	15	15	**-**
B.P. apparatus stand model	15	--	**15**
Stethoscope	20	20	**-**
Nebuliser	1	-	**1**
Peak Expiratory Flow Rate (PEFR) Meter (Desirable)	1	-	**1**
Total	**69**	**43**	26
4. Labour Ward, Neo-natal Equipment			
Baby Incubators	1	-	**1**
Phototherapy Unit	2	2	**-**
Emergency Resuscitation Kit-Baby	2	2	**-**
Standard weighing scale (each for the labour room & OT)	1	1	**-**
Newborn Care equipment (1 set each for labour room & OT)	1	1	**-**
Double–outlet Oxygen Concentrator (each for the labour room & OT)	1	1	**-**
Radiant Warmer	2	2	**-**
Room Warmer	2	2	**-**
Foetal Doppler	2	-	**2**
Cardio Toco Graphy Monitor	2	-	**2**
Delivery Kit	10	10	**-**
Episiotomy kit	2	2	**-**
Forceps Delivery Kit	2	2	**-**

Name of equipment	Norm	Actual	Shortfall
Crainotomy	1	1	**-**
Vacuum extractor metal	2	2	**-**
Silastic vacuum extractor	2	2	**-**
Pulse Oxymeter baby & adult	1 each	1	**-**
Cardiac monitor baby & adult	1	-	**1**
Nebuliser baby	2	2	**-**
Weighing machine adult	3	3	**-**
Weighing machine infant	3	3	**-**
CPAP Machine	-	-	**-**
Head box for oxygen	4	4	**-**
Haemoglobinometer	1	1	**-**
Glucometer	1	1	**-**
Public Address System	1	1	**-**
Wall Clock	1	1	**-**
BP Apparatus & Stethoscope	2+2	4	**-**
Total	**57**	**51**	**6**
Equipment for Eclampsia Room (required only for 300-500 bedded Hospitals)			
ICU Beds	2	**Not applicable for 100 bedded hospital**	
Emergency Resuscitation Tray (Adult) including intubation equipment	3		
BP Apparatus	3		
Cardiac Monitor	2		
Pulse oximeter	2		
Airway (Female)	2		
Nebuliser	1		
Oxygen Supply (Central)	2		
Suction Apparatus (Electrical)	2		
Suction Apparatus (Foot)	1		
Wall Clock	1		
Torch	1		
Emergency Call Bell	2		
Stethoscope	2		
5. Equipment for Special Newborn Care Unit (SNCU)			
General			
Electronic weighing scale	5	-	**5**
Infantometer	5	-	**5**
Emergency drugs trolley	5	1	**4**
Procedure trolley	5	-	**5**
Wall clock with seconds hand (for each room)	1	-	**1**
Refrigerator (for the unit)	1	1	**-**
Spot lamp	5	-	**5**
Portable x-ray machine (for the unit)	1	-	**1**
Basic surgical instruments e.g. fine scissors, scalpel with blades, fine artery forceps, suture material & needles, towel, clips etc. (set per bed)	1	-	**1**
Nebuliser (for the unit)	1	1	**-**
Room Thermometer	4	1	**3**
Total	**34**	**4**	30
Equipment for disinfection of SNCU			
Electric heater/boiler	2	2	**0**
Washing machine with dryer (separate)	1	-	**1**
Electronic Fumigator	2	-	**2**
Vacuum Cleaner	1	-	**1**
Gowns for doctors, nurses, neonatal aides, Group D staff & mothers (adequate number for each size)			
Washable slippers (adequate number for each size)	-		
Vertical Autoclave	1	-	**1**
Autoclave drums (large & medium & small sizes) (of each size)	6	-	**6**
Disinfectant Sprayer	1	-	**1**
Container for liquid disinfectant	2	-	**2**
Formalin Vaporizer	1	-	**1**

Name of equipment	Norm	Actual	Shortfall
Total	**17**	**2**	15
Equipment for individual patient care in SNCU			
Servo-controlled Radiant Warmer (1 for each bed plus 2 extra)	1	1	**-**
Low-Reading Digital Thermometer (centigrade scale) (1 for each bed)	1	1	**-**
Neonatal Stethoscope (1 for each bed plus 2 extra)	1	1	**-**
Neonatal Resuscitation Kit (Laerdal type, Silicone, Autoclavable 240 ml, 450 ml resuscitation bag with valves-including pressure release valve), oxygen reservoir & silicone round cushion masks – sizes 0 & 00), Neonatal laryngoscope with straight blade and spare bulbs) (1 set for each bed plus 2 extra)	1	1	**-**
Suction Machine (for each bed, 80% electronically operated and 20% foot operated)	1	1	**-**
Oxygen Hood (unbreakable-neonatal/ infant size) (for each bed plus 20% extra)	1	1	**-**
Non stretchable measuring tape (mm scale) (for each bed)	1	1	**-**
Infusion pump or syringe pump (for every 2 beds)	1	1	**-**
Pulse Oxymeter (for every 2 beds)	1	1	**-**
Double Outlet Oxygen Concentrator (for every 3 beds)	1	1	
Double Sided Blue Light Phototherapy (for every 3 beds)	1	1	**-**
CENTRAL AC (8 air exchange per hour)		-	
Generator (15 KVA)	1	-	**1**
CFL Phototherapy (for every 3 beds)	1	1	
Horizontal Laminar Flow	1	-	**1**
Total	**14**	**12**	2
6. Immunisation Equipment			
ILR & DF with Stabilizer	2 each for RI plus one for LR	1	**1**
Spare ice pack box (for each equipment)	1	1	**-**
Room Heater/Cooler for immunization clinic with electrical fittings	As per need	No	**-**
Waste disposal twin bucket, hypochlorite solution/bleach (per ILR, bimonthly)	2	2	**-**
Freeze Tag	Need Based	-	**-**
Thermometers Alcohol (stem)	2	2	**-**
Almirah for Vaccine logistics	2	2	**-**
Almirah for vaccine logistics	1	1	**-**
Immunization table	5	5	**-**
Chair for new staff proposed	3	3	**-**
Stools for immunization room	2	2	**-**
Bench for waiting area	1	1	**-**
Dustbin with lid (for each equipment)	1	1	**-**
Water container	1	-	**1**
Hub cutters	2	2	**-**
5 KVA Generator with POL for immunization purpose (If hospital has other Generator for general purpose this is not needed.)	1	1	**-**
Total	**26**	**24**	2
7. Ear, Nose, Throat Equipment			
Audiometer	1	-	**1**
Impedance Audiometer	-	-	**-**
Operating Microscope (ENT)	2	-	**2**
Head light (ordinary) (Boyle Davis)	1	-	**1**
ENT Operation set including headlight, Tonsils	1	1	**-**
Ear Surgery Instruments set	1	-	**1**
Mastoid set	1	-	**1**
Micro Ear Set myringoplasty	1	-	**1**
Stapedotomy Set	1	-	**1**
Micro drill System set		-	**-**
ENT Nasal Set (SMR, Septoplasty, Nasal Endoscopic Set (o & 30 degree) Polypetcomy, DNS, Rhinoplasty)	1	-	**1**

Name of equipment	Norm	Actual	Shortfall
Laryngoscope fibreoptic ENT	2	-	**2**
Laryngoscope direct	1	1	**-**
Otoscope	1	1	**-**
Oesophagoscope Adult	1	-	**1**
Oesophagoscope Child	1	-	**1**
Head Light (cold light)	1	-	**1**
Tracheostomy Set	1	-	**1**
Tuning fork	1	1	**-**
Examination instruments set (speculums, tongue dipressors, mirrors, Bull's lamp)	1	1	**-**
Total	**20**	**5**	**15**
8. Eye Equipment			
Cryo Surgery Unit with retina probe	1	-	**1**
Opthalmoscope – Direct + Indirect	1 + 1	1+1	**-**
Slit Lamp	1	1	**-**
Retino scope	1	1	**-**
Perimeter	1	-	**1**
Binomags	1	-	**1**
Distant Vision Charts	1	1	**-**
Near Vision Chart	1	1	**-**
Colour Vision Chart	1	1	**-**
Foreign Body spud and needle	1	1	**-**
Lacrimal cannula and probes	1	1	**-**
Lid retractors (Desmarres)	1	1	**-**
Punctum Dilator	1	1	**-**
Rotating Visual acuity drum	1	1	**-**
Torch	1	1	**-**
Trial Frame Adult/Children	1	1	**-**
Trial lens set	1	1	**-**
IOL Operation set	2	1	**1**
YAG Laser	1	-	**1**
Operating Microscope	1	1	**-**
A-Scan Biometer	1	1	**-**
Keratometer	1	-	**1**
Auto Refractometer	1	1	**-**
Flash Autoclave	1	1	**-**
Phacomachine	---	-	**-**
Total =	**26**	**20**	6
9. Operation Theatre Equipment			
Auto Clave HP Horizontal	1 In CSSD	1	**-**
Auto Clave HP Vertical (2 bin)	2 In CSSD	2	**-**
Operation Table Ordinary Paediatric*			
Operation Table Hydraulic Major	2	2	**-**
Operation table Hydraulic Minor	2	2	**-**
Operating table non-hydraulic field type	1	-	**1**
Operating table Orthopedic*			
Autoclave with Burners 2 bin*			
Autoclave vertical single bin	1	1	**-**
Shadowless lamp ceiling type major*	1	1	**-**
Shadowless lamp ceiling type minor*	1	1	**-**
Shadowless Lamp stand model	1	1	**-**
Focus lamp Ordinary	2	2	**-**
Sterilizer (Big instruments)	2	-	**2**
Sterilizer (Medium instruments)	3	3	**-**
Sterilizer (Small instruments)	3	3	**-**
Bowl Sterilizer Big	2	-	**2**
Bowl Sterilizer Medium	1	-	**1**
Diathermy Machine (Electric Cautery)	1	1	**-**
Suction Apparatus - Electrical	4	4	**-**
Suction Apparatus - Foot operated	3	3	**-**
Dehumidifier*	1	-	**1**
Ultra violet lamp philips model 4 feet	4	-	**4**

Name of equipment	Norm	Actual	Shortfall
Ethylene Oxide Sterilizer*	---	-	**-**
Microwave Sterilizer*	1	-	**1**
Intense Pulse Light Machine	-	-	**-**
Total =	**39**	**27**	12
10. Laboratory Equipment			
Binocular Microscope	6	5	**1**
Chemical Balances	2	1	**1**
Simple balances	2	1	**1**
Electric Calorimeter	2	1	**1**
Fully Automated Auto-analyser	-	-	
Semi auto analyser	1	1	**-**
Micro pipettes of different volumes	10	10	**-**
Water bath	2	1	**1**
Hot Air oven	3	3	**-**
Lab Incubator	3	3	**-**
Distilled water Plant	2	1	**1**
Electricentrifuge, table top	3	3	**-**
Cell Counter electronic	1	-	**1**
Hot plates	3	1	**2**
Rotor/Shaker	3	2	**1**
Counting chamber	3	3	**-**
PH meter	2	-	**2**
Paediatric Glucometer/ Bilirubinometer		-	
Glucometer	1+1	2	**-**
Haemoglobinometer	2	1	**1**
TCDC count apparatus	1	-	**1**
ESR stand with tubes	4	4	**-**
Test Tube Stands	6	6	**-**
Test Tube Rack	6	6	**-**
Test Tube Holders	6	-	**6**
Spirit Lamp	8	-	**8**
Rotatry Microtome	1	-	**1**
Wax Embel Bath	-	-	**-**
Auto Embedic Station	-	-	**-**
Timer stop watch	2	2	**-**
Alarm clock	1	1	**-**
Elisa Reader cum washer	1	1	**-**
Blood gas analyser	1	-	**1**
Electrolyte Analyser	1	1	**-**
Glycosylated Haemoglobinometer	1	1	**-**
Blood Bank Refrigerator	3	3	**-**
Haematology Analyser with 22 parameters	1	1	**-**
Blood Collection Monitor	1	1	**-**
Laboratory Autoclaves	3	3	**-**
Blood Bank Refrigerator	4	-	**4**
Ordinary Refrigerator	3	3	**-**
Floatation Bath	1	-	**1**
Emergency Drug Trolley with auto cylinder	1	1	**-**
Dialected tube scaler			
Class – I Bio Safety Cabinet	1	-	**1**
Knife Sharpner	1	-	**1**
Air Conditioner with Stabilizer	1	1	**-**
Cyto Spin	1	-	**1**
Ro Plant	1	-	**1**
Computer with UPS and Printer	1	1	**-**
Automatic Blood Gas Analyzer	1	-	**1**
Fine Needle Aspiration Cytology	1	-	**1**
Histopathology Equipment	1	-	**1**
Pipette – 1 ml & 5 ml Burette 10 ml Conical Flask Biker/ Glass bottles Glass or plastic funnel Glass stirring rod Small stainless steel bowl Electronic weighing scale		-	

Name of equipment	Norm	Actual	Shortfall
Measuring cylinder Gas Burner Laboratory balance Stop watch, Cyclomixer Micro pipette 10-100 ml :10-200 ml Micro tips Centrifuge, Oven Bath Serological Digital calorie meter Stirrer with stainless steel stirring rod Digital electronic temperature controller			
viii. Ion – meter Table Top (specific for fluoride estimation in biological fluid) ix. Table Top Centrifuge without refrigeration x. Digital PH Meter xi. Metaler Balance xii. Mixer xiii. Incubator xiv. Pipettes/Micropipettes			
CO Analyser	1	-	**1**
Whole Blood Finger Prick HIV Rapid Test and STI Screening Test each (4000 count as 1)	1	1	**-**
Blood Component Separator	---		
Platelet Agitator	---		
Platelet Thawing Machine	---		
Laminar Flow	---		
Total	**119**	**76**	43
11. Surgical Equipment Set			
P.S. set	2	2	**-**
MTP Set (Including Suction Cannula size 6-12)	2	2	**-**
Biopsy Cervical Set*	1	1	**-**
EB Set	2	2	**-**
Microscope (Gynae for wet smear and PCT)	-	-	**-**
D&C Set	2	2	**-**
I.U.C.D. Kit	2	2	**-**
LSCS set	2	2	**-**
MVA kit	2	2	**-**
Vaginal Hysterectomy	2	-	**2**
Proctoscopy Set*	2	-	**2**
P.V. Tray*	2	2	**-**
Abdominal Hysterectomy set	2	2	**-**
Laparotomy Set	2	-	**2**
Formaline dispenser	3	-	**3**
Kick Bucket	8	-	**8**
General Surgical Instrument Set Piles, Fistula, Fissure*	2	-	**2**
Knee hammer	5	-	**5**
Hernia, Hydrocele*	2	-	**2**
Varicose vein etc.*	1	-	**1**
Gynaec Electric Cautery	1	-	**1**
Vaginal Examination set*	8	8	**-**
Suturing set*	5	-	**5**
MTP suction apparatus	1	1	**-**
Thoracotomy set		-	
Neuro Surgery Craniotomy Set		-	
I M nailing kit	1	-	**1**
SP Nailing	1	-	**1**
Compression Plating Kit*	1	-	**1**
AM Prosthesis*		-	
Dislocation Hip Screw Fixation*		-	
Fixation Fracture Hip	1	-	**1**
Spinal Column Back Operation Set		-	
Thomas Splint	7	-	**7**
Paediatric Surgery Set	1	-	**1**
Mini Surgery Set*	2	-	**2**
Urology Kit	1	-	**1**

Name of equipment	Norm	Actual	Shortfall
Surgical Package for Cholecystectomy*	---	-	
Surgical package for Thyroid	---	-	
GI Operation Set*	2	-	**2**
Appendicectomy set*	2	-	**2**
L. P. Tray*	5	-	**5**
Uretheral Dilator Set	4	-	**4**
TURP Resectoscope*	1	-	**1**
Haemodialysis Machine*	---	-	
Amputation set	1	-	**1**
Universal Bone Drill	---	-	
Crammer wire splints	8	-	**8**
Minilap sets-3	3	3	**-**
NSV sets-3	3	-	**3**
Colposcope	1	1	**-**
Cryoprobe	1	-	**1**
Skin Biopsy Sets	1	-	**1**
Total	**108**	**32**	76
12. PMR Equipment			
Skeleton Traction Set	3	-	**3**
Interferential Therapy Unit	2	-	**2**
Short Wave Diathermy	1	-	**1**
Hot packs & Hydro collator*		-	
Exercise Table*			
Static Cycle*			
Medicine ball*			
Quadriceps exerciser*		-	
Coordination Board*		-	
Hand grip strength measurement Board*		-	
Kit for Neuro-development assessment*		-	
CBR Manual*		-	
ADL Kit & hand exerciser*		-	
Multi Gym Exerciser*			
Self Help devices*		-	
Wheel chair*		-	
Crutches/Mobility device sets*		-	
Hot air oven	2	-	**2**
Hot air gun	2	-	**2**
Grinder	2	-	**2**
Sander	2	-	**2**
Router*		-	
Power Drill*		-	
Band saw*		-	
Vacuum Forming Apparatus*		-	
Lathe*		-	
Welding machine*		-	
Buffing & polishing machine*		-	
Work Table	2	-	**2**
Tools and raw material*		-	
Total	**16**	**0**	16
13. Endoscopy Equipment			
Endoscope fibre Optic (OGD)*	---	-	
Arthroscope	---	-	
Operating Laproscope complete for laproscopic surgery	---	-	
Laparoscope diagnostic and for sterilisation*	1	-	**1**
Colonoscope and Sigmoidoscope*	---	-	
Hysteroscope*	1	-	**1**
Colposcope*	1	-	**1**
Total	**3**	**0**	3
14. Anaesthesia Equipment			
Anesthetic - laryngoscope magills with four blades	3	3	**-**
Endo Tracheal Tubes Sets	2	2	**-**

Name of equipment	Norm	Actual	Shortfall
Magills Forceps (two sizes)	6	6	-
Connector set of six for ETT	6	6	-
Tubes connecting for ETT	6	6	-
Air way female*	10	10	-
Air way male*	20	20	-
Mouth prop*	8	8	-
Tongue Depressors*	10	10	-
O_2 cylinder for Boyles	10	10	-
N_2O Cylinder for Boyles	10	10	-
CO_2 cylinder for laparoscope*		-	
PFT machine	1	1	-
Anaesthesia machine with ventilator (desirable)/ Boyles Apparatus with Fluotec and circle absorber	2	1	**1**
Multi-parameter monitor	2	2	-
Pipe line supply of Oxygen, Nitrous Oxide, Compressed Air and suction (desirable)		-	
Defibrillators	1	-	**1**
Infusion pumps*		-	
Regional anaesthesia devices*		-	
O_2 therapy devices*		-	
Exchange Transfusion Sets*		-	
Recovery Area		-	
O2 Therapy Devices*		-	
Pipe line supply of Oxygen and Suction (desirable)*		-	
Monitor*		-	
Patient Trolley*		-	
Total =	**97**	**95**	2
15. Post Mortem Equipment			
Mortuary table (Stainless steel)*	2	2	-
P.M. equipment (list)	4	4	-
Weighing machines (Organs)	2	-	**2**
Measuring glasses (liquids)	3	-	**3**
Aprons*	10	0	**10**
PM gloves (Pairs)*	10	10	-
Rubber sheets*		-	
Lens	2	-	**2**
Spot lights	2	2	**0**
Total	**35**	**18**	17
Grand Total =	**710**	**437**	**273**

2021

www.saiindia.gov.in

agskm.cag.gov.in