



**Performance Audit Report of the  
Comptroller and Auditor General of India  
on District Hospital Outcomes  
for the year ended 31 March 2019**



लोकहितार्थ सत्यनिष्ठा  
Dedicated to Truth in Public Interest



उत्तराखण्ड शासन

**Government of Uttarakhand**  
*Report No. 1 of the year 2021*



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## **Preface**

This Report of the Comptroller and Auditor General of India for the year ended 31 March 2019 has been prepared for submission to the Governor of the State of Uttarakhand under Article 151(2) of the Constitution of India.

The Report contains the results of the Performance Audit on 'District Hospital Outcomes', covering the period 2014-19.

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

Audit wishes to acknowledge the co-operation received from Government of Uttarakhand at each stage of the audit process.



# **Executive Summary**





## Executive Summary

### About this Report

As per the NITI Aayog's report (HEALTHY STATES, PROGRESSIVE INDIA; June 2019), the State of Uttarakhand ranks 17<sup>th</sup> among 21 larger States in Health Index with only Madhya Pradesh, Odisha, Bihar and Uttar Pradesh behind. As such, there is a vast scope for improvement and the situation demands for better healthcare services at all levels in order to build the psychological confidence of patients as well as enhance their faith in the services rendered by the government hospitals.

It is in this backdrop that the Performance Audit of District Hospital Outcomes in Uttarakhand has been carried out during 2019-20, covering the period 2014-19. An attempt has been made in this Report to assess the outcome based quality of medical services and patient care provided in the District Hospitals.

### Why have we prepared this Report now?

The National Health Policy, 2017 advocates delivery of better health outcomes in terms of access, quality and affordability of healthcare system. The policy also recognizes the pivotal importance of Sustainable Development Goals to ensure healthy lives and promote well-being for all at all ages. Keeping in view the primary aim of the National Health Policy along with the expected outcomes of Sustainable Development Goal No. 3 at global level, evaluating the outcome has become vital for timely and systemic corrections. Healthcare outcomes are a true measure of quality and measuring outcomes fosters improvement and adoption of best practices.

In this context, we have tried to evaluate the outcome, status and standards of delivery of healthcare services to the population. This report aims to inform, clarify, strengthen and prioritize the role of the Government in shaping health systems in Uttarakhand.

### What has been covered in this audit?

Ministry of Health and Family Welfare, Government of India, has issued a set of uniform standards called the Indian Public Health Standards (IPHS) to improve the quality of healthcare delivery in the country and serve as the benchmark for assessing performance of healthcare delivery system. The IPHS for District Hospitals prescribe standards for the services, manpower, equipment, drug, building and other facilities. These include the standards to bring the District Hospitals to a minimum acceptable functional grade (indicated as Essential) with scope for further improvement (indicated as Desired). The Essential Services include General Medicine, General Surgery, Obstetrics & Gynaecology Services, Psychiatry, Orthopaedics, Radiology including Imaging, Emergency (Accident & other emergency) and Critical care/Intensive Care Unit (ICU) under General Specialities; Diagnostic Services; and Ancillary and Support Services.

In addition to IPHS, various standards and guidelines on healthcare services issued by Government of India such as the Maternal and Newborn Health toolkit; Assessor's Guidebook for Quality Assurance in District Hospitals; National Quality Assurance Standards for Public Health Facilities; Kayakalp guidelines; Bio-Medical Waste Management Rules; and Drugs and Cosmetic Rules were used to evaluate the healthcare facilities in district hospitals. The Essential Drug List prescribed by the Government of Uttarakhand was also used to assess the availability of essential drugs in the district hospitals.

We have focused on various services available in district hospitals like Out-Patient Services; Diagnostic Services; In-Patient Services; Maternity Services; Infection Control; Drug Management; and Infrastructure and other issues.

### **What have we found and what do we recommend?**

We found that there is tremendous scope for improvement in several areas of the healthcare needs of the people as highlighted below:

#### ***Policy framework for healthcare services***

The Department did not prescribe standards/norms in respect of services to be offered by the district hospitals; and for sanction of resources to the hospitals. The State Government neither adopted the Indian Public Health Standards (IPHS) nor had uniform criteria or norms for provision of Out-Patient Department (OPD) and In-Patient Department (IPD) services. The Department did not undertake any exercise to re-work the number of sanctioned posts in the public hospitals in the State based on current levels of patient load and according to Government order issued in March 2011 wherein the Department was required to provide services and manpower as per IPHS. No gap analysis for manpower, equipment, infrastructure, services, *etc.* was carried out during 2014-19.

In the test checked hospitals, the sanctioned strength of doctors and nurses varied significantly and it had little correlation with the number of beds in the respective hospitals. The Equipment Procurement Policy (EPP) of January 2015 which stipulated procedures for procurement of equipment did not standardise the types of equipment required for the district-level hospitals. Further, there was no forethought in the EPP in respect of maintenance of equipment.

#### ***Out-Patient Services***

The increase or decrease in out-patient load was not accompanied by a proportional increase or decrease in the number of doctors available, resulting in much higher OPD cases per doctor in some hospitals as compared to others.

A comparative analysis of the availability of specialist doctors in hilly region hospitals and plain region hospitals disclosed that ENT (Ear, Nose, Throat) doctors were not posted in hospitals in the hill regions despite sanctioned posts while deployment was as

per sanctioned strength in plain region hospitals; the deployment of Orthopaedic specialists in hospitals in the hill region was 50 *per cent* of the sanctioned strength whereas deployment was in full as per the sanctioned strength in hospitals in the plain regions. Further, in hospitals in the plain regions, the General Surgeons deployed were more than the sanctioned strength.

The OPD cases per doctor in the Gynaecology and Medicine department were much higher than the overall average OPD cases per doctor in some hospitals. 47 *per cent* patients in Gynaecology Department and 75 *per cent* patients in Medicine Department of test checked hospitals could avail on an average less than five minutes of consultation time in the test checked months during 2014-19. The core objective to provide drugs free of cost could not be achieved as 59 *per cent* of the OPD patients had to purchase drugs from their own pocket. Though, the online registration and e-hospital project (Phase-1) were established, these were not fully operational in the test checked hospitals. It was seen that no funds were released for procurement of computers; furniture; networking and hiring manpower for running the facility even after the demands were raised with Director General, Medical Health & Family Welfare.

### ***Diagnostics Services***

We noticed that the full range of prescribed radiology services was not available in the test checked hospitals. The absence of full range of radiology services, therefore, impacted the efficiency and appropriateness of the level of care to be offered in district hospitals as per IPHS. None of the test checked hospitals, where X-ray services were provided, had obtained requisite license during the period 2014-19 from the Atomic Energy Regulatory Board. The pathology services in the test checked hospitals were provided through in-house laboratories. However, full range of desired pathological investigations was not available in any of the test checked hospitals.

Against requirement of 60 essential pathology equipment for the district hospitals as per IPHS, all the essential pathology equipment were not available in the test checked hospitals and the shortage ranged from 48 to 78 *per cent*.

Pathology service was not available in District Female Hospital (DFH) Almora. In the remaining test checked hospitals, the pathology services were available. However, the post of pathologist was not sanctioned in DFH Haridwar and in three other hospitals, the pathologist post was kept vacant for a period ranging between one and three years. The availability of manpower in the test checked hospitals was not in consonance with IPHS. Even the existing vacancies of Laboratory Technicians against the sanctioned strength were not filled in Joint Hospital (JH) Udham Singh Nagar and JH Chamoli where there was a shortfall of 40 *per cent* and 80 *per cent* respectively. Further, none of the test checked hospitals carried out the validation of pathological tests performed by them during 2014-19 by External Quality Agency. The hospitals, therefore, failed to ensure quality assurance of the pathological services provided by them.

### ***In-Patient Services***

There were considerable gaps related to the availability of in-patient services as all the test checked district hospitals failed to provide Accident & Trauma; and Psychiatry services during 2014-19. Dialysis service was not available in any of the test checked District Hospitals (DHs)/Joint Hospitals (JHs) except JH Udham Singh Nagar whereas Burn ward was available only in JH Chamoli and JH Udham Singh Nagar during 2014-19. DH Almora could provide General Surgery partially and ENT services were not functional since 20 November 2014 onwards.

In-patient services in the test checked hospitals varied in terms of the availability of resources.

- The shortage of doctors got compounded owing to deputation of specialist doctors and Medical Officers to other hospitals/temporary attachment for special services and because of study leave/long leave availed by doctors without any alternative arrangements being put in to run the services. Emergency Medical Officers were not available fulltime in any of the test checked DHs/JHs during the period 2014-19. There was a shortage of Pharmacists in all test checked DHs/JHs and the shortage ranged between 10 *per cent* and 43 *per cent*. The post of OT (Operation Theatre) Technician was not sanctioned in the test checked DHs/JHs except in JH Udham Singh Nagar. Similarly, post of ECG (Electrocardiogram) Technician was not sanctioned in DH Almora and JH Chamoli.
- Essential drugs in IPD such as Activated Charcoal and Vitamin-K (except JH Chamoli) were not available in any of the test checked DHs/JHs during the sampled months. Digoxin was available in only DH Almora in one out of five sampled months. Besides, three to four types of drugs remained out of stock for 18 days to 120 days while the essential drugs such as Adrenaline, Aminophylline, Diclofenac Sodium, Salbutamol were out of stock in test checked DHs/JHs during five to 50 *per cent* of sampled period. Further, essential drugs for emergency services were out of stock in test checked DHs/JHs during 25 to 85 *per cent* of sampled period. Six (26 *per cent*) to 17 (74 *per cent*) essential drugs for OT were not available on the sampled days in the test checked DHs/JHs.
- Out of 14 types of essential equipment for emergency services, 29 to 64 *per cent* of equipment were not available in test checked DHs/JHs. Similarly, 41 *per cent* to 69 *per cent* of 29 types of essential equipment for OT were not available in test checked DHs/JHs.

OT for emergency surgeries was not available in any of the test checked DHs/JHs. As a result, all the test checked hospitals could not provide the emergency surgery facility to needy patients during the period 2014-19.

Intensive Care Unit (ICU) facility had been set up only in JH Chamoli and JH Udham Singh Nagar. However, the ICU units were non-functional due to lack of essential equipment and specialised manpower. The Trauma Centre for strengthening and boosting the emergency services at JH Chamoli was inaugurated by Hon'ble Chief Minister of Uttarakhand in February 2009 but remained non-functional (20 March 2020) due to lack of specialist manpower, supporting staff and essential equipment to run the facility.

None of the test checked hospitals had three running ambulances with well-equipped Basic Life Support. No ambulance with Advanced Life Support was available in any of the test checked hospitals. The ambulances lacked drugs and equipment that are required to be necessarily available in each ambulance.

All patients were given similar diets thereby ignoring the distinctive dietary requirements of different categories of patients in the test checked hospitals while none of the test checked hospitals had adopted system of diet counselling to the patients; formulation of caloric requirement and accordingly setting of diet for the patients.

The IPD services in test checked DHs/JH were compared against each other using outcome indicators and the resources available with them.

- The average Bed Occupancy Rate (BOR) in all the test checked hospitals remained very low against the norm of 80 *per cent* for the test checked months.
- The efficiency of the hospital as indicated by Bed Turnover Rate (BTR) was on lower side in DH Almora and JH Chamoli in test checked months during the period 2014-19 whereas, the lowest Discharge Rate (DR) was in DH Haridwar. Further, DH Almora also did not perform well in terms of the DR. Besides, the Referral Out Rate (ROR) in JH Chamoli, DH Haridwar and DH Almora was on a higher side indicating that health care facilities were not adequate in these hospitals.
- The Average Length of Stay (ALoS) in JH Udham Singh Nagar and JH Chamoli remained too low which indicates that clinical capability of these hospitals was not adequate in test checked months during the period 2014-19. Further, the average Leave Against Medical Advice Rate (LAMA) in DH Haridwar and DH Almora was too high in test checked months during the period 2014-19 indicating that the service quality in these hospitals was well below the desired level. The average Absconding Rate (AR) in DH Haridwar was extremely high in test checked months during the period 2014-19 indicating poor service quality and lack of security arrangements.

### ***Maternity Services***

Significant deficiencies were noticed in maternity services in the test checked hospitals.

- Against availability of prescribed 21 types of essential drugs in the maternity wing of selected hospitals, one to six essential drugs were not available during the

sampled period. Besides, four to 13 types of essential drugs remained out of stock for up to four months during the sampled period. Out of prescribed 16 types of essential drugs for performing C-section, four to six types of drugs in DFH Haridwar and three to five types of drugs in JH Chamoli were not available during the period 2014-19. Out of available drugs, three to seven and four to seven drugs were out of stock in DFH Haridwar and JH Chamoli and stock out ranged from 13 to 343 days and 19 to 344 days respectively.

- Essential consumables such as baby wrapping sheets were not available in any of test checked DFHs/JHs except JH Udham Singh Nagar. Disposable nasogastric tubes were available only in JH Chamoli and in JH Udham Singh Nagar. Cetrimide solution and thread for suture were not available in any of test checked DFHs/JHs. Sanitary pads and gown for labouring woman were not available in DFH Haridwar and JH Chamoli.
- Sanctioned human resource was also not in consonance with the provisions of Maternal and Newborn Health Toolkit in any of test checked DFHs/JHs. DFH Almora which had delivery load of less than 100 per month had more sanctioned posts of Gynaecologist than DFH Haridwar and JH Udham Singh Nagar where the delivery load per month was substantially higher. No Gynaecologist was posted in JH Chamoli and JH Udham Singh Nagar during 2014-19 against the sanctioned post whereas a Gynaecologist was posted as Principal Medical Superintendent in DH Haridwar during the period from 25 June 2016 to 13 December 2018 despite this service being not offered by the hospital. No Anaesthetist was deployed between 28 June 2017 and 22 December 2017 in DFH Haridwar whereas 246 C-Section deliveries were conducted during the aforesaid period in the hospital.
- In DFH Almora, JH Chamoli and JH Udham Singh Nagar, nurses were not available as per sanctioned strength. The nurse to bed ratio in Shift-2 and Shift-3 was much higher than the Medical Council of India norm in DFH Haridwar and JH Udham Singh Nagar in sampled months during the period 2014-19.
- Non-availability of essential equipment such as Craniotomy instrument, Silastic vacuum extractor, Cardiotocography instrument and Hemoglobinometer was noticed in test checked DFHs/JHs.
- In JH Udham Singh Nagar, partograph, used for identifying and managing the complication of labour promptly, was not prepared in any of the sampled months during audit. In DFH Haridwar, no partograph was prepared in any of the sampled months during 2014-15 and 2016-17 to 2018-19 and during 2015-16, partographs were prepared in only three cases against 82 deliveries in the sampled period. In DFH Almora, no partograph was prepared in the sampled months during 2014-15 to 2016-17 and partographs were prepared in only 18 cases against 43 deliveries in the

sampled period during 2017-18 and 2018-19. In JH Chamoli, no partograph was prepared in the sampled months during 2014-15 to 2016-17 and during 2017-18 and 2018-19, only 13 partographs were prepared against 30 deliveries.

- Labour room records pertaining to five sampled months during 2014-19 disclosed that 253 out of 4,105 deliveries were recorded as preterm deliveries based on the gestation period and thus the women were to be administered Corticosteroid injection for safe delivery. The required injection was not administered to 204 women before deliveries despite availability of the required drug in three out of four DFHs/JHs indicating that preterm deliveries were inadequately managed.
- Referral out rate of neonates from New Born Stabilisation Unit (NBSU) in JH Chamoli and JH Udham Singh Nagar was extremely high as compared to DFH Almora and DFH Haridwar during 2014-19. These hospitals with the exception of DFH Haridwar did not have Special Newborn Care Unit (SNCU) facility. The LAMA rate of neonates in JH Chamoli and DFH Haridwar remained comparatively high during the period 2014-19 indicating that service quality of these hospitals was well below the desired level. Besides, neonatal death rate in JH Chamoli was too high as compared to other test checked DFHs and JH during the period 2014-19. Further, neonatal death reviews were not conducted in any hospitals though there were 143 neonatal deaths during 2014-19. In DFH Almora and JH Chamoli, no maternal death review was conducted during the period 2014-19.
- No separate records were maintained for vaccination to newborns of DFHs/JHs. However, in DFH Almora, mother child protection card was attached with Janani Suraksha Yojana payment vouchers. Audit examined 60 such cases and it was found that only 27 newborns (45 *per cent*) were administered the three vaccines timely. Due to non-availability of records/mother child protection card in other test checked DFHs/JHs, audit could not ascertain whether all newborns of DFHs/JHs were fully immunised timely.
- Under Janani Suraksha Yojana (JSY), cash incentive is given to the mother for antenatal care during the pregnancy period, institutional care during delivery and immediate post-partum period in a health centre. In JH Chamoli and in DFH Haridwar, percentage of cash assistance not provided was comparatively very high during the years 2017-18 and 2018-19 respectively.
- In JH Chamoli and DH Haridwar, from where DFH Haridwar was availing the services, adequate stock of the seven prescribed kits for diagnosis of Sexually Transmitted Infection/Reproductive Tract Infection (STI/RTI) was not maintained. Further, out of prescribed 14 types of essential drugs, six to ten types of drugs in DH Haridwar and 9 to 14 types of drugs in JH Chamoli were not available during

the period 2014-19 while, out of the available drugs, one to three and two to three types of drugs were out of stock in DH Haridwar and JH Chamoli and stock out ranged between 99 and 218 days and 30 and 181 days respectively.

- Full range of 16 essential comprehensive abortion care drugs was not available in DFH Haridwar and JH Chamoli. Besides, stock out of essential drugs was also noticed in these hospitals which ranged between nine and 355 days; and 11 and 348 days respectively.
- Patient Satisfaction Survey conducted by audit revealed that the patients were extremely dissatisfied with non-availability of specific diets, clean linen and clean house coat/pyjama.

The maternity services in test checked DFHs/JHs were compared against each other using outcome indicators and the resources available with them.

- All the DFHs/JHs underperformed with regard to productivity outcome as average BOR remained well below the benchmark. JH Chamoli and DFH Almora underperformed even when compared to the other two hospitals.
- The efficiency outcome of DFH Almora, JH Chamoli and JH Udham Singh Nagar was not satisfactory as discharge rate was low while ROR was high in JH Chamoli and DFH Almora against the weighted average in test checked months during 2014-19.
- The clinical care outcome of JH Udham Singh Nagar was not satisfactory as average ALOS was low as compared to other three DFHs/JHs as well as weighted average of all the test checked hospitals in test checked months during 2014-19.
- Service quality of DFH Almora and JH Udham Singh Nagar was also not satisfactory as both hospitals had a very high LAMA rate as compared to DFH Haridwar and JH Chamoli during test checked period and JH Chamoli and JH Udham Singh Nagar underperformed with regard to C-section rate as compared to other two selected DFHs due to inadequacy of human resource in test checked months during the period 2014-19.
- The availability of drugs in DFH Haridwar and JH Chamoli was also inadequate as compared to JH Udham Singh Nagar and DFH Almora in test checked months during the period 2014-19.

### ***Infection Control***

Infection control practices were not sufficiently integrated in the functioning of test checked hospitals.

- DH Haridwar and DFH Almora could not qualify for external assessments during 2018-19 as they were not able to meet 70 *per cent* bench mark in peer review which



indicates that these DHs were unable to promote cleanliness, hygiene and infection control practices as desired in Kayakalp guidelines.

- There was shortage of different types of linen and the shortage ranged between seven (29 *per cent*) and 13 (54 *per cent*) against the requirement of 24 different types of linen during 2018-19. Further, seven (29 *per cent*) to 12 (50 *per cent*) types of linen were not at all available in the test checked hospitals during 2018-19.
- None of the test checked hospitals except JH Chamoli and Udham Singh Nagar used High Level Disinfection method and autoclaving was, therefore, the chief method of sterilisation.
- Only DFH Haridwar had conducted (July 2016) air sampling in OTs. However, three out of four test checked hospitals had done microbiology surface swab tests in few wings of the hospital. The results were adverse for Pathology laboratory and Orthopaedic OT in JH Udham Singh Nagar; Labour room, Minor OT, General OT and NBSU in JH Chamoli; and Labour room, General OT, Neonatal Intensive Care Unit and Pathology laboratory in DFH Haridwar.
- None of the hospitals had valid authorisation for Bio-Medical Waste Management from the State Environment Protection and Pollution Control Board as on 31 March 2019. The test checked hospitals also did not establish an Effluent Treatment Plant for pre-treatment of Bio-Medical waste, resulting in its drainage directly in the sewerage system, which was not only hazardous to the public health but also violated the BMW Rules. Besides, protective gears/equipment were not provided and used by the bio-medical waste handlers during work while immunisation of health care workers and others involved in handling of bio-medical waste was not ensured by test checked hospitals.

### **Drug Management**

The drugs provided by the Director General of Medical and Health Services to the hospitals could not meet the requirements.

- There was stock out of drugs ranging between 18 and 61 *per cent* in the test checked hospitals. It was also noticed that the hospitals did not prepare formulary on the basis of disease patterns and inflow of patients in the hospitals to support the procurement of drugs.
- Only 76 *per cent* of indented type of drugs were supplied to the test checked hospitals while DFH Almora was supplied only 45 *per cent* of indented type of drugs. Further, only 21 *per cent* of indented drugs were provided in full indented quantities to the test checked hospitals while only three (two *per cent*) out of 164 types of indented drugs were provided in full to JH Udham Singh Nagar. DFH

Almora was provided only nine *per cent* of indented drugs in full indented quantities.

Testing of medicines was observed to be minimal. Out of the test checked hospitals, only DH Haridwar, DFH Haridwar and JH Chamoli carried out quality checks. The quality checks were conducted by DH Haridwar and DFH Haridwar only in 2017-18 and in respect of only 15 and five types of drugs respectively. The quality checks were carried by JH Chamoli only two times during 2014-19.

### ***Infrastructure and other issues***

Significant deficiencies were noticed in health infrastructure and other issues.

- During joint physical inspection, audit observed that the hospital buildings of DH Haridwar were poorly maintained and residential quarters of doctors and kitchen were in a dilapidated condition. Further, the wards had seepages/moisture causing peeling of paint and damaging the roof while due to inadequate space in the building, the DFH Haridwar had to create labour ward with temporary structure at the exit lobby/circulation area on the second floor of the building to meet the demand of existing load.
- All test checked hospitals had generator installed but were being operated manually. This implied that uninterrupted power backup necessary for smooth functioning of OT; air conditioning in the wards; refrigerators; lifts; and blood banks could not be ensured due to manual operation of the generator.
- No concrete measures were taken by DFH Haridwar, JH Chamoli and DH Haridwar to augment the availability of water to meet the requirement as per norms.
- Centralised Oxygen supply system to ensure uninterrupted oxygen supply was not installed in test checked hospitals except JH Udham Singh Nagar while adequate arrangements for oxygen cylinder were not available in test checked hospitals and the buffer stock was also not identified in DFH and DH Haridwar.

### ***Recommendations***

In order to improve the functioning of the district hospitals, the State Government may consider the following recommendations on priority:

- The State Government should draw up an action plan to prioritise the provisioning of the most essential healthcare services first. It should adopt and implement IPHS fully for provisioning of essential OPD, IPD and Emergency services along with ensuring availability of essential drugs, equipment and human resources so that patients do not face shortages of medical resources and access to quality medical care is improved in the district hospitals.

- The State Government should ensure the availability of round the clock accident and trauma services along with fully functional ICU facilities in district hospitals, as per IPHS, for critically ill patients requiring highly skilled lifesaving medical aid and nursing care.
- The State Government should ensure the availability of fully equipped Special New Born Care Unit as required under MNH Toolkit and IPHS to treat critically ill newborns in a district hospital.
- Essential radiology services and pathology investigations as per IPHS must be available in the district hospitals particularly in view of the increasing reliance on diagnostics for treatment of patients in district hospitals.
- The availability of ambulances with well-equipped Basic Life Support along with serviceability and availability of equipment and drugs in ambulances must be ensured.
- Availability of uninterrupted power backup, adequacy of water supply and medical gas (centralised oxygen supply) should be prioritised to deliver quality health services.
- There should be strict adherence with laid down standards on clean and disinfectant patient care areas to prevent healthcare associated infections.

The State Government may also consider the following recommendations:

**(i) Out-Patient Services**

- Consultation time per patient in district hospitals should be peer reviewed at the State level by the Director General of Medical and Health Services, so that corrective steps may be taken to address the very short per patient consultation period.
- The State Government may take steps to fulfil the core objective of providing free drugs to the patients in district hospitals.
- Measures like Online Registration System to capture the registration electronically and better appointment system may be taken to reduce the patient's 'Registration to Drug Time'.
- Patient satisfaction survey of outdoor patients on a monthly basis as per NHM Assessor's Guidebook may be ensured.

**(ii) Diagnostic Services**

- Pathological tests performed by the district hospitals should be validated by External Quality Agency on a regular basis.

- Immediate steps may be taken for getting the required certification from the Atomic Energy Regulatory Board as regards the established X-ray units in the district hospitals so as to not compromise with the safety of patients and staff in the Radiology departments of these hospitals.
- Monitoring equipment such as Thermoluminescent dosimeters may be provided to all the technicians of the X-ray room and dose records shall be maintained.

**(iii) *In-Patient Services***

- The monitoring mechanism, a significant lever for facilitating the responsibility and accountability of the hospital, should be revamped by including measurement of outcome indicators pertaining to productivity, efficiency, service quality and clinical care capability of the district hospitals.
- Nutritional care of in-patients, in order to reduce complications and facilitate speedy recovery; and distinctive dietary requirements of different categories of patients should be ensured in the district hospitals.
- Each district hospital should have a dedicated disaster management plan in line with state disaster management plan to address issues relating to prevention, mitigation and response to ensure as minimal damages as possible in event of a disaster.
- To ascertain safety procedures vital records related to OTs such as surgical safety checklist, pre-surgery evaluation records and post-operative evaluation records should be prepared for each case as required under NHM Assessor's Guidebook.

**(iv) *Maternity Services***

Concerted efforts to reduce the Neonatal, Infant and Maternal mortality rates should focus on:

- Proper record maintenance and operationalisation of mother child track system along with availability of essential human resources, drugs and pathological investigation facilities to enhance the ability of the district hospitals to monitor the health of mothers and newborns;
- Providing well-equipped facilities for abortion care; management of Sexually Transmitted Infection/Reproductive Tract Infection; handling C-section deliveries; and intra-partum care through augmentation of essential resources as well as providing a clinically safe environment in district hospitals;
- Monitoring of the delivery of prescribed postpartum care towards minimising adverse pregnancy outcomes so that women and newborns reach their full potential for health; and

- Providing financial assistance timely to the beneficiaries in order to ensure them a good diet and care and encourage institutional deliveries.

**(v) Infection Control**

A culture of infection control management should be embedded in the district hospitals through

- Effective implementation as well as documentation of pest/rodent control and sterilisation procedures;
- Adequate availability of clean linen to thwart the spread of hospital acquired infections;
- Active microbiological surveillance to monitor air/surface infections; and
- Observance of Bio-Medical Waste Rules 2016 for reducing the spread of infectious diseases.

**(vi) Drug Management**

- It should be ensured that a formulary of drugs is prepared by each hospital on the basis of disease patterns and inflow of patients; the Essential Drug List is updated accordingly; and the eventuality of stock-out of required drugs forestalled.
- Norms prescribed for testing of procured drugs should be scrupulously observed. Besides, quality of drugs should also be checked through sampling by the Drug Inspectors.

**(vii) Infrastructure and other issues**

- Efforts should be made for proper upkeep of hospital buildings through periodic maintenance to utilise the created infrastructure optimally and to ensure availability of a safe, clean and conducive environment for the public and hospital staff.
- The district hospitals shall comply with all statutory requirements as prescribed under IPHS.

**What has been the response of the Government?**

Government agreed with the recommendations made by audit and assured to take necessary corrective measures to improve the functioning of secondary level healthcare facilities.



# **Chapter-1**

## **Introduction**





# 1 Introduction

## *National Health Policy*

The primary objective of National Health Policy, 2017 is to improve health status through concerted policy action in all sectors and expand preventive, promotive, curative, palliative and rehabilitative services provided through the public sector. The policy also recognizes the pivotal importance of Sustainable Development Goals to ensure healthy lives and promote well-being for all at all ages.

## *Health Indicators of Uttarakhand*

The health indicators of Uttarakhand are shown in the **Table-1** below:

**Table-1: Health indicators of Uttarakhand**

Health Indicators	Uttarakhand Goals 2020 <sup>1</sup>	Uttarakhand*	Uttarakhand's Ranking among 21 bigger States
Sex ratio at birth (2014-16) (per 1,000 males)	950	850	19
Neonatal Mortality Rate (2016) (per 1,000 live births)	NA	30	13
Maternal Mortality Ratio (2014-16) (per lakh live births)	100	201	16
Infant Mortality Ratio (2016) (per 1,000 live births)	25	38	10
Institutional deliveries (per cent)	90 and above	67.02	19

Source: \*Niti Aayog, 'Healthy States, Progressive India' June 2019.

As per the Niti Aayog's report, the State of Uttarakhand ranks 17<sup>th</sup> among 21 larger States in Health Index with only Madhya Pradesh, Odisha, Bihar and Uttar Pradesh behind. Its position as regards Health Index in the reference year (2017-18) in fact deteriorated from the base year (2015-16). As such, there is a vast scope for improvement and the situation demands for better healthcare services at all levels in order to build the confidence in the psychology of patients as well as enhance their faith in the services rendered by the Government hospitals.

### *1.1 Public health facilities in the State*

Availability, accessibility and usability of sound healthcare system are essential requirements to meet the challenges in the field of Health. The public healthcare facilities in the State are divided into three levels for providing primary care, secondary care and tertiary care under administrative control of Department of Medical Health and Family Welfare.

<sup>1</sup> Annual Report (2018-19) issued by Medical Health and Family Welfare Department, Uttarakhand.

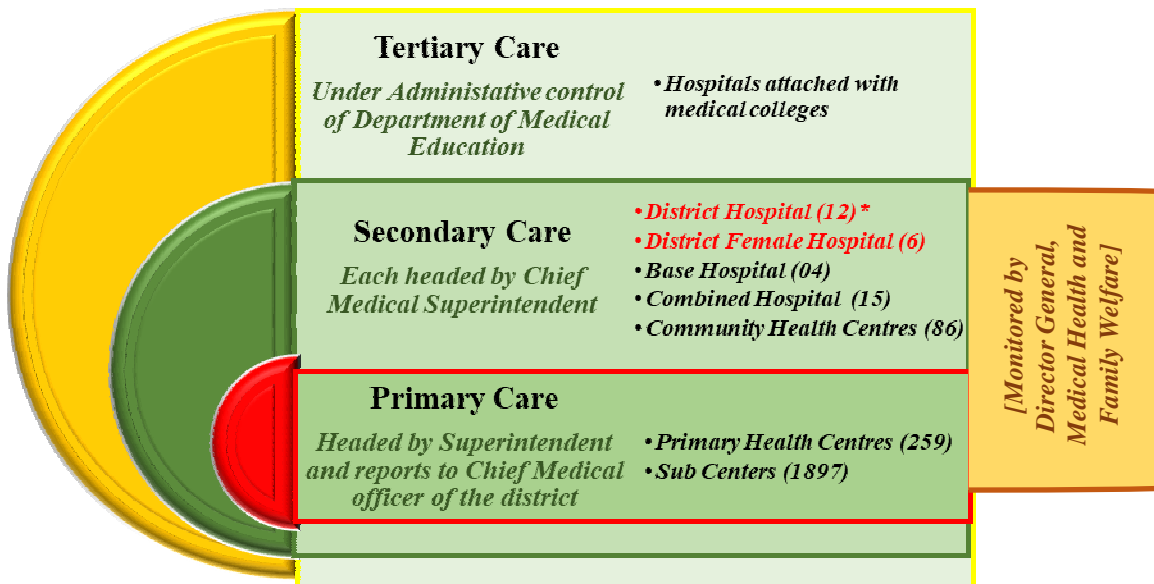
District Health System is the fundamental basis for implementing various health policies, delivery of healthcare and management of health services for defined geographic area. District hospital is an essential component of the district health system and functions as a secondary level of health care which provides curative, preventive and promotive healthcare services to the people in the district. Every district is expected to have a district hospital linked with the public hospitals/health centres down below the district such as Sub-district/Sub-divisional hospitals, Community Health Centres (CHCs), Primary Health Centres (PHCs) and Sub-Centres. In the State, against the requirement of 418 PHCs and 105 CHCs as per applicable population norms, 259 PHCs and 86 CHCs had been established as of March 2019.

The district hospitals cater to the people living in urban (district headquarters town and adjoining areas) and the rural population of the district. District hospital system is required to work not only as a curative centre but at the same time should be able to build interface with the institutions external to it including those controlled by non-government and private voluntary health organizations.

The current functioning of most of the district hospitals in the public sector are not up to the expectation especially in relation to availability, accessibility and quality. The staff strength, beds strength, equipment supply, service availability and population coverage are not uniform among all the district hospitals.

The availability of health care facilities in the State as on 31 March 2019 is shown in **Chart-1** given below:

**Chart-1: Availability of health care facilities in the State**



*Hospitals highlighted in red are included in sampling for audit scope*

*\*Six District Hospitals (DHs) where all services other than maternity are provided and 6 Joint Hospitals (JH) where all services are provided.*

## 1.2 Planning and Execution of Performance Audit

### 1.2.1 Audit Objectives

**The broad objectives of the performance audit were to assess whether:**

- Policy framework was robust enough to improve the quality of healthcare.
- Adequate provisions for line services such as out-patient services, in-patient services, emergency services, maternity services, *etc.* were made and these services were delivered in an efficient and effective manner.
- Efficient support services with regards to diagnostic services, maintenance of equipment, storage of drugs, dietary services, laundry services, *etc.* were present in hospitals.
- Hospitals had adequate resources *viz.*, human, drugs, consumables, equipment, *etc.* as per prescribed norms and these resources were utilised efficiently and effectively.
- Norms and practices for hygiene, infection control, employee and patient safety were followed within the premises of hospitals.

### 1.2.2 Audit Criteria

To evaluate the subject matter in pursuit of the above mentioned Audit Objectives, the criteria were sourced from various guidelines on health care services issued by Government of India and Government of Uttarakhand. The sources of audit criteria were Indian Public Health Standards (IPHS) for District Hospitals; Maternal and Newborn Health (MNH) toolkit; National Quality Assurance Standards for Public Health Facilities 2017 issued by Government of India;

#### ***The Indian Public Health Standards***

*The Indian Public Health Standards (IPHS) issued by the Ministry of Health and Family Welfare, Government of India, are a set of uniform standards envisaged to improve the quality of healthcare delivery in the country and serve as the benchmark for assessing performance of healthcare delivery systems.*

*The IPHS for District Hospitals prescribe standards for the building, manpower, equipment, drug and other facilities. These include the standards to bring the District Hospitals to a minimum acceptable functional grade (indicated as Essential) with scope for further improvement (indicated as Desired). The Essential Services include General Specialities; Diagnostic services; and Ancillary and Support services.*

Assessor's Guidebook for Quality Assurance in District Hospitals (Vol I & II) 2013; Framework for Implementation of National Health Mission (NHM) 2012-17; Drugs and Cosmetic Rules, 1954; LaQshya guidelines; Kayakalp guidelines issued by Ministry of Health and Family Welfare, Government of India; Bio-Medical Waste (Management and Handling) Rules, 1998; Bio-Medical Waste Management Rules, 2016; National Disaster Management Guidelines 2014; National Disaster Management Guidelines for Hospital

Safety 2016; Financial Rules (FHB Vol. V and VI); Uttarakhand Procurement Rules; and Departmental policies, rules and orders issued by the Government of Uttarakhand.

### **1.2.3 Audit scope and methodology**

The performance audit commenced with an Entry Conference (15 October 2019) with the Secretary-In-Charge, Department of Medical Health and Family Welfare, Government of Uttarakhand wherein the audit objectives, scope and audit criteria were discussed and the inputs of the Department were obtained. Six<sup>2</sup> out of 18 District Hospitals of four (out of 13) Districts were selected by adopting Simple Random Sampling without Replacement Method for detailed audit scrutiny and to evaluate the outcome, status and standards of delivery of healthcare services to the population of the district for the period 2014-19.

To ensure the variations/coverage in the data recorded on monthly basis, different months of the five-year audit period were covered. For this, each year was divided into four quarters and the middle month of each quarter was selected<sup>3</sup> for capturing the data for indicators reported at monthly frequency. Following this, to capture weekly frequency, the first week was picked up for the selected months to maintain consistency.

The methodology included scrutiny of documents; issue of questionnaires and audit observations; physical inspection of various facilities of the test checked hospitals; and conducting surveys like the patient satisfaction survey. The findings and recommendations of the performance audit were discussed with the Secretary-In-Charge, Department of Medical Health and Family Welfare in an Exit Conference on 15 June 2020 and the views of the Government have been suitably included in the report.

### **1.2.4 Performance Indicators**

The Performance Audit includes assessment of efficiency and outcome<sup>4</sup> of delivery of healthcare services by District Hospitals {District Hospital (DH) where all services except maternity services are provided; District Female Hospital (DFH) where only maternity services are provided and Joint Hospital (JH) where all services are provided} with the help of various performance indicators *viz.*

- **BOR:** The Bed Occupancy Rate (BOR) 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.
- **ALOS:** Average Length of Stay indicates the time the patient is retained in the hospital.

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<sup>2</sup> DH Almora, DH Haridwar, DFH Almora, DFH Haridwar, JH Udham Singh Nagar and JH Chamoli.

<sup>3</sup> Sampled months -May 2014 (2014-15); August 2015 (2015-16); November 2016 (2016-17); February 2018 (2017-18) and May 2018 (2018-19).

<sup>4</sup> The ultimate implication of any service is to deliver the desired result in the shape of finished product or service.

- **LAMA Rate:** Leave Against Medical Advice (LAMA) is an act whereby a patient takes his/her discharge contrary to the recommendation or will of the attending physician.
- **Referral out Rate:** Referral to higher centres denotes that the facilities for treatments were not available in the hospitals.
- **Absconding Rate:** Absconding rate refers to the percentage of patients leaving hospital without informing staff; it can be a serious challenge for staff, patients and the hospital system.
- **Discharge Rate:** Discharge Rate (DR) measures the number of patients leaving a hospital after receiving due health care. High DR denotes that the hospital is providing health care facilities to the patients efficiently.
- **Bed Turn Over Rate:** The Bed Turnover Rate (BTR) is a measure of the utilization of the available bed capacity and serves as an indicator of the efficiency of the hospital.

### ***1.2.5 Acknowledgement***

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

### ***1.2.6 Structure of the Report***

The Performance Audit Report has been structured on the basis of various services and resources available in hospitals and consists of seven themes: Out-Patient Services; Diagnostic Services; In-Patient Services; Maternity Services; Infection Control; Drug Management; and Infrastructure and other issues.

## ***1.3 Policy framework for healthcare services***

Delivery of quality and efficient healthcare services in public health facilities plays a significant role in improving the health indicators of the public at large. It is, therefore, incumbent upon the Department of Medical Health and Family Welfare, which is responsible for providing and managing the healthcare facilities in Uttarakhand, to do a comprehensive and outcome based planning for providing essential resources to the public hospitals and also to ensure its optimum utilisation.

### ***1.3.1 Standards/norms for various inputs***

For ensuring efficient operation of public sector hospitals, it is essential to prescribe standard/norms for providing various resources in the hospitals. On the basis of these standards/norms, the requirement of resources should be assessed and provisions made accordingly.

The Department did not prescribe standards/norms in respect of services to be offered by the district hospitals; and for sanction of resources to the hospitals as discussed in the **Table-2** given below and detailed in respective paragraphs:

**Table-2: Status of standards and norms for various inputs**

Intervention/ inputs	State Government norms for DHs	Other norms/ standards	Remarks
OPD/IPD	No uniform norms	IPHS	The State Government did not adopt the standards of various OPD and IPD services prescribed in the IPHS.
Human Resources	No uniform norms	IPHS	No standards/norms were available for sanctioning manpower to district hospitals based on their size and demand.
Drugs and consumables	Essential Drugs List	IPHS; MNH Toolkit; NHM guidelines	The Department had an Essential Drug List which was revised in July 2015 and December 2019.
Equipment	No uniform norms	IPHS	The State Government had not adopted any standards/norms for supply of equipment to district hospitals.
Hospital Beds	No criteria	IPHS and NHM	The State Government did not adopt the IPHS.

- The State Government neither adopted the IPHS nor had uniform criteria or norms for provision of OPD and IPD services.
- The Department did not undertake any exercise to re-work the number of sanctioned posts in the public hospitals in the State based on current levels of patient load and according to Government order issued in March 2011 wherein the Department was required to provide services and manpower as per IPHS.
- No gap analysis for manpower, equipment, infrastructure, services, *etc.* was carried out during 2014-19.
- In the test checked hospitals, Audit also noticed that the sanctioned strength of doctors and nurses varied significantly and it had little correlation with the number of beds in the respective hospitals.
- The Equipment Procurement Policy (EPP) of January 2015 which stipulated procedures for procurement of equipment did not standardise the types of equipment required for the district-level hospitals. Further, there was no forethought in the EPP in respect of maintenance of equipment.

#### **1.4 Funding for Hospitals**

The State Government makes budgetary provisions under the Annual Budget for the functioning of Primary, Secondary and Tertiary level healthcare facilities. Apart from the State budget, financial assistance under the National Health Mission (NHM) is also received from the Government of India with corresponding share of the State Government, as determined from time to time.

##### **1.4.1 State budget**

Year-wise allotment and expenditure of funds during 2014-19 pertaining to Department of Medical Health and Family Welfare<sup>5</sup> was as shown in the **Table-3** given below:

<sup>5</sup> Relates to allotment and expenditure of Primary and Secondary Level Healthcare facilities only.

**Table-3: Budget provisions and expenditure during 2014-19***(₹ in crore)*

Year	Estimated by Directorate	Released by State Government	Expenditure
2014-15	1,257.46	1,136.63	997.73
2015-16	1,386.00	1,252.98	1,016.24
2016-17	1,468.44	1,239.49	1,036.99
2017-18	1,558.52	1,161.13	1,070.07
2018-19	1,811.48	1,531.42	1,385.06
<b>Total</b>	<b>7,481.90</b>	<b>6,321.65</b>	<b>5,506.09</b>

Source: Directorate, Medical Health and Family Welfare.

The expenditure incurred on the Primary and Secondary level of health care by the Medical Health and Family Welfare Department increased by 39 per cent in 2018-19 when compared to 2014-15. However, the Department was unable to utilise 13 per cent of the released funds during 2014-19.

#### 1.4.2 Release and utilisation of funds by the test checked hospitals

Year-wise release and expenditure of funds during 2014-19 pertaining to test checked hospitals under State Budget was as shown in the **Table-4** given below:

**Table-4: Receipt and expenditure under State Budget***(₹ in crore)*

Year	Opening Balance	Receipt during the year		Interest	Total funds Available	Expenditure	Closing balance (per cent)
		Grant	Other receipts including User charges				
2014-15	1.85	5.75	2.23	0.07	9.90	6.35	3.55 (36)
2015-16	3.55	5.64	2.69	0.12	12.00	7.28	4.72 (39)
2016-17	4.72	4.28	2.32	0.14	11.46	5.39	6.07 (53)
2017-18	6.07	3.75	3.10	0.15	13.07	7.27	5.80 (44)
2018-19	5.80	2.27	5.10	0.18	13.35	8.89	4.46 (33)

Source: Test checked DHs/JHs/DFHs.

It can be seen from above that the test checked hospitals were unable to utilise 33 per cent to 53 per cent of the total available funds during 2014-19.

#### 1.4.3 Funds under NHM

The fund received under NHM by the Department was as shown in the **Table-5** given below:

**Table-5: Receipt and expenditure under NHM***(₹ in crore)*

Year	Opening Balance	Interest	Receipt during the year	Total funds Available	Expenditure	Closing balance (per cent)
2016-17	121.19	6.03	235.76	362.98	245.68	117.30 (32)
2017-18	117.30	3.79	172.41	293.50	229.77	63.73 (22)
2018-19	63.73	5.02	364.55	433.30	332.24	101.06 (23)

Source: Information provided by Directorate, Medical Health and Family Welfare.

The above table indicates that expenditure incurred from NHM funds increased by 35 per cent in 2018-19 as compared to 2016-17. However, 22 to 32 per cent funds remained unspent at the end of each year during the said period.

#### **1.4.4 Release and utilisation of funds by the test checked hospitals**

The fund received under NHM by the test checked hospitals was as shown in the **Table-6** given below:

**Table-6: Receipt and expenditure of test checked hospitals**

(₹ in crore)

Year	Opening balance	Receipt during the year	Interest	Total available funds	Expenditure	Closing balance (per cent)
2014-15	0.80	4.79	0.02	5.61	3.96	1.65 (29)
2015-16	1.65	5.05	0.05	6.75	4.98	1.77 (26)
2016-17	1.77	4.98	0.05	6.80	5.13	1.67 (25)
2017-18	1.67	5.50	0.05	7.22	5.26	1.96 (27)
2018-19	1.96	6.43	0.11	8.50	6.63	1.87 (22)

*Source: Test checked DHs/JHs/DFHs.*

The above table indicates that 22 to 29 per cent of funds remained unspent at the end of each year during the period 2014-19.

In Exit Conference, the Government stated that the above issues had now been addressed by adoption (October 2019) and implementation of IPHS. The reply of the Government as regards implementation of IPHS is not acceptable as the norms specified in IPHS had not yet (March 2020) been implemented in the test checked hospitals.

The deficiencies and gaps noticed in the test checked hospitals have been discussed in detail in the respective paragraphs.

*To sum up, the policy framework for healthcare services in district hospitals had significant limitations. The Department, neither prescribed, for most aspects its own norms nor adopted the norms/standards suggested by the Government of India in respect of the services to be provided by district hospitals and resources to be sanctioned to the district hospitals. This was exacerbated by the absence of gap analysis for manpower, equipment, infrastructure and services in district hospitals which could help the Department in its planning process. As a result, there was an adverse impact on the availability of resources and services as discussed in the subsequent paragraphs.*



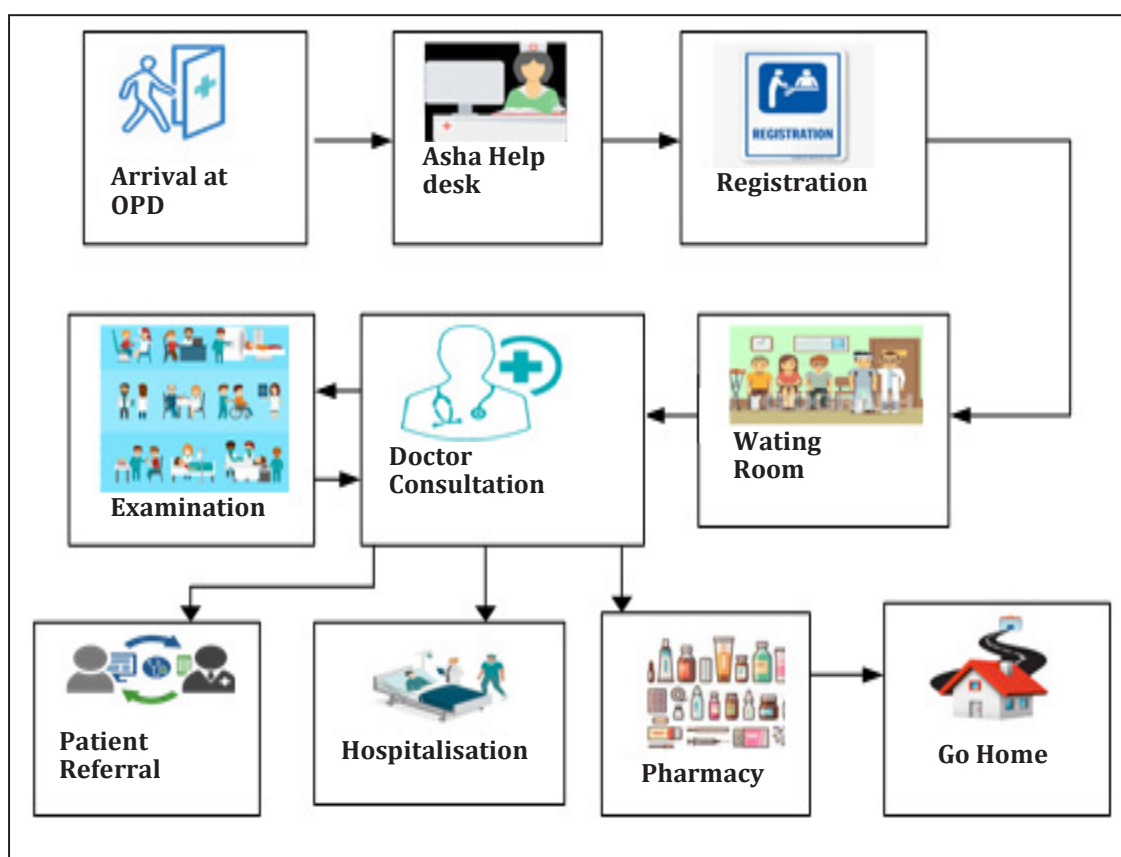
**Chapter-2**  
**Out-Patient Services**



## 2 Out-Patient Services

To avail Outdoor Patient Services in the hospitals, out-patients first register at the Out-patient Department (OPD). After registration, the concerned doctors examine the patients for diagnosing ailments and prescribing either diagnostic tests for evidence based diagnosis or medicines as per the diagnosis done as part of the consultation process.

Figure-1: Flow of out-patient services



The audit findings pertaining to Diagnostic Services, In-Patient Department (IPD), and Drug Management are discussed in *Chapter-3 (Diagnostic Services)*, *Chapter-4 (In-Patient Services)* and *Chapter-7 (Drug Management)*. This *Chapter-2* discusses availability of OPD services, patient load in OPD, registration and other facilities in OPD, grievance redressal, etc.

### 2.1 Patient load in OPD

The number of the out-patients attended to in the test checked hospitals is depicted in the **Table-7** given below:

**Table-7: Number of out-patients in test checked hospitals**

(in numbers)

Year	DHs		JHs		DFHs	
	Almora	Haridwar	Chamoli	Udham Singh Nagar	Almora	Haridwar
2014-15	1,07,900	98,744	70,188	2,42,663	22,796	54,058
2015-16	1,06,212	1,00,744	66,683	2,37,240	21,975	73,153
2016-17	1,05,595	1,13,404	70,778	2,47,816	25,516	68,315
2017-18	1,12,939	1,04,393	75,493	2,76,849	25,728	66,803
2018-19	1,26,787	1,03,172	63,576	2,90,995	25,093	68,883
Percentage increase during 2018-19 as compared to 2014-15	17	4	(-) 9	20	10	27

Source: Information collected from the test checked hospitals.

The number of average doctors available for OPD services in test checked hospitals is shown in the **Table-8** given below:

**Table-8: Average number of available doctors<sup>1</sup> in test checked hospitals**

Year	DHs		JHs		DFHs	
	Almora	Haridwar	Chamoli	Udham Singh Nagar	Almora	Haridwar
2014-15	6	8	14	15	6	6
2015-16	5	11	13	14	6	4
2016-17	5	10	11	14	8	4
2017-18	6	10	9	13	5	5
2018-19	9	12	7	16	6	5

Source: Information collected from the test checked hospitals.

During 2018-19, as compared to 2014-15, it can be seen that:

- In DFH Haridwar, while the number of outpatients increased by 27 per cent; the number of doctors came down from six to five.
- In JH Udham Singh Nagar, the number of outpatients increased by 20 per cent. However, the number of doctors increased by only one.
- In JH Chamoli, the available number of doctors decreased by 50 per cent although there was a decrease of only nine per cent out-patients. It was further found that Pathologists and Anaesthetists were taking OPD and providing consultation to the visiting patients in addition to their normal duties.

The increase or decrease in out-patient load, therefore, was not accompanied by a proportional increase or decrease in the number of doctors available, resulting in much higher OPD cases per doctor in some hospitals as compared to others as discussed in **paragraph 2.6.1** and less consultation time per patient as discussed in **paragraph 2.6.2**.

In Exit Conference, the Government stated that the issue of shortage of doctors had been addressed with the appointment of 476 doctors recently and the recruitment process for appointment of 570 doctors was under process.

<sup>1</sup> Excludes Anesthetist, Emergency Medical Officer, Pathologist and Radiologist available in the hospitals.

## 2.2 Availability of OPD Services

(a) To ascertain the availability of all categories of OPD services in test checked hospitals, audit scrutinised the records related to availability of specialised doctors and noticed that following OPD services were not available during the periods detailed in the **Table-9** given below:

**Table-9: Period on non-availability of OPD services in test checked hospitals**

Name of OPD Services	Name of hospitals	Period of non-availability of OPD Services	Reasons
ENT	DH Almora	21.11.2014 to date of Audit (7 July 2019)	Service was provided twice a week by the doctor of Base hospital.
	DH Haridwar	01.04.2014 to 24.04.2018	Non-availability of ENT specialist.
	JH Chamoli	01.01.2019 to date of audit (20 March 2020)	
General Medicine	DH Almora	11.09.2015 to 26.06.2017	Non-availability of Physician. However, service was provided by Medical Officer.
	DH Haridwar	01.04.2014 to 26.06.2017	
	JH Chamoli	01.04.2014 to 09.12.2014 and 18.12.2016 to 05.10.2017	
Eye	JH Chamoli	01.08.2017 to date of audit (20 March 2020)	Non-availability of eye specialist <sup>2</sup> . Also, there were two eye-specialists against one sanctioned post in DH Haridwar <sup>3</sup> and in JH Udham Singh Nagar <sup>4</sup> .
	JH Udham Singh Nagar	13.11.2014 to 26.09.2015	
Paediatric	JH Chamoli	28.09.2018 to 23.09.2019	Non-availability of child specialist (the service was provided by Medical Officer.)

*Source: Information collected from test checked hospitals.*

## (b) Deployment of specialists

A comparative analysis of the availability of specialist doctors in hilly region hospitals<sup>5</sup> and plain region hospitals<sup>6</sup> was carried out to see whether there was any skewed distribution of specialist doctors. It was found that ENT doctors were not posted in hospitals in the hill regions despite sanctioned posts while deployment was as per sanctioned strength in plain region hospitals; the deployment of Orthopaedic specialists in hospitals in the hill region was 50 *per cent* of the sanctioned strength whereas deployment was in full as per the sanctioned strength in hospitals in the plain regions. Further, in hospitals in the plain regions, the General Surgeons deployed were more than the sanctioned strength, whereas in hilly regions, the deployment was less than the sanctioned strength.

## 2.3 Registration facility for OPD

Registration counter is the first point of contact with the hospital for a patient and is an important component of the hospital experience for patients and their attendants. Audit

<sup>2</sup> The specialist of JH Chamoli was attached to CHC, Premnagar, Dehradun though his salary was drawn from JH Chamoli.

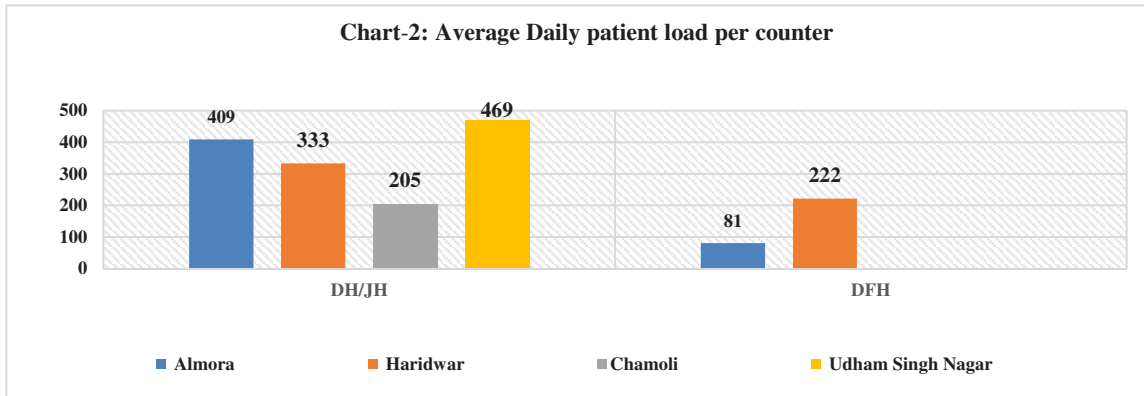
<sup>3</sup> From 08-07-2018 to February 2020.

<sup>4</sup> From 02-10-2017 to November 2019.

<sup>5</sup> DH Almora and JH Chamoli.

<sup>6</sup> DH Haridwar and JH Udham Singh Nagar.

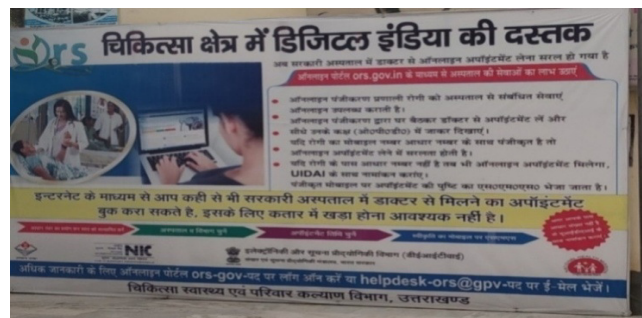
observed that in 2018-19 in the test checked hospitals, the average daily patient load<sup>7</sup> per registration counter was as shown in the **Chart-2** given below:



During 2018-19, the average daily patient load on a registration counter was significantly higher in DH Almora and JH Udham Singh Nagar than the average (354) for the four test checked DHs/JHs. Similarly, the load was significantly higher in DFH Haridwar when compared to DFH Almora.

To digitalise the registration; doctor's appointment; and overcome the heavy load<sup>8</sup> at registration counters, Online Registration System (ORS) was to be established in all district hospitals by May 2017. Six hospitals which included three test checked hospitals, in addition to ORS, had to implement e-hospital project<sup>9</sup> by July 2017.

Records of test checked hospitals revealed that the online registration and e-hospital project (Phase-1) were established. However, these were not fully operational as no funds were released for procurement of computers; furniture;



**Positive feature**

**Audit observed that there was a separate registration counter available for physically challenged patients in JH Udham Singh Nagar.**

<sup>7</sup> Calculation of 310 days=365 days-52 Sundays-3 National Holidays.

<sup>8</sup> OPD offers a very wide variety of services such as clinical examination, investigations, diagnosis, dispensing, minor surgical procedure, interventional procedures, counselling and rehabilitation services. Efficient and effective functioning of OPD promotes relief to patients, reduces burden on the indoor services. On an average, number of patients visiting and utilising outpatients' services is about 13 times approximately that of indoor admissions.

<sup>9</sup> Phase-1 (Mandatory)-Patient registration, Emergency registration, Clinics, Billing and Accounts, IPD (Admission Discharge-Transfer) Advance Module Phase-2 (on completion of phase one)-Path Lab, Radiology/image (RIS), PACS interface, OT management, Pharmacy Management, Care provisions, Electronic Medical records (EMR), Auxiliary Module (Optional)-Dietary Services, Laundry Services, Birth and Death Registration and e-Blood Bank Management (independent)-Online Registration System (ORS).

networking and hiring manpower for running the facility even after the demands were raised with DGMH & FW.

In Exit Conference, it was assured by the Government that efforts would be made to ensure full operation of the e-hospital project.

#### 2.4 Other basic facilities in OPD

Proper signage system is needed in each hospital so that patients and their attendants can move around in the hospital premises from one section to another in a trouble-free manner. Further, IPHS provide that the hospitals should have proper patient amenities like potable drinking water; functional and clean toilets with running water and flush; fans; and proper seating arrangement.

##### *Positive feature*

***Audit observed that proper signage systems and enquiry window/Asha Help Desk were available in all the test checked hospitals. Further, drinking water facility and separate toilet for male and female were also available in all test checked hospitals.***

Inadequate provisioning of following basic facilities was noticed during physical inspection of the test checked hospitals as shown in **Table-10** below:

**Table-10: Non-availability of basic facilities at registration counter**

Facilities	Hospitals with non-availability of the facility
Fan	DH Almora, DFH Almora, DH Haridwar
Seating facility	DFH Almora, DH Haridwar

*Source: Test checked hospitals.*

#### 2.5 Patient rights and grievance redressal

As per IPHS, Citizen's Charter should be displayed at a proper place in the hospitals so that the patients are aware of their rights. For effective redressal of grievances of patients, there shall be provision of complaints/suggestion box in the hospital and a grievance redressal committee for monitoring the grievances and as a quality assurance mechanism.

##### *Positive feature*

***Audit found that Citizen Charter was available in all test checked hospitals<sup>10</sup>.***

Audit noticed that complaint registers/complaint boxes were kept by all test checked hospitals except DH Haridwar. It was further noticed that in DFH Almora and Haridwar, no schedule was fixed for opening these boxes. In addition, the grievance redressal committee was not formed in three<sup>11</sup> out of six test checked hospitals. The mechanism to monitor the grievances and to provide quality assurance, therefore, was not operational in these hospitals.

<sup>10</sup> Except DH Haridwar.

<sup>11</sup> DH Almora, JH Chamoli and DH Haridwar.

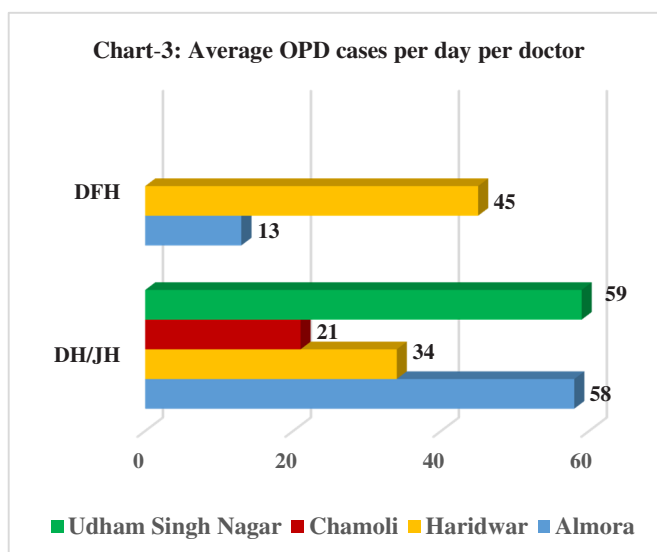
## 2.6 Evaluation of out-patient services through outcome indicators

NHM Assessor's Guidebook for Quality Assurance provides for evaluation of the services provided in an OPD through certain outcome indicators. Audit ascertained the quality of out-patient services in the test checked hospitals using the following outcome indicators:

### 2.6.1 OPD cases per doctor

OPD cases per doctor are an indicator for measuring efficiency of OPD services in a hospital. As discussed in *paragraph 2.1*, it was observed that there was an increase or decrease in out-patient load over the last five years which was not accompanied by a proportional rationalisation in the number of doctors available.

The OPD cases per doctor per day are shown in the **Chart-3** given above. The average OPD cases per



day per doctor in 2014-19 were 13 to 59 in the test checked hospitals. While the average OPD cases per day per doctor in DFH Almora and JH Chamoli were 13 and 21 respectively, the average OPD cases per day per doctor were significantly higher in JH Udham Singh Nagar (59), DH Almora (58) and DFH Haridwar (45).

Audit also examined the OPD patients load in different months of different years for Gynaecology and Medicine department and found that the OPD cases per doctor in these two departments were much higher than the overall average OPD cases per doctor in some hospitals as shown in the **Table-11** given below:

**Table-11: Out-patient load**

Test checked hospitals	DH Haridwar	DFH Haridwar	JH Chamoli	JH Udham Singh Nagar
Overall average OPD cases per day	34	45	21	59
Average OPD cases in Gynaecology department	Service not available	54	23	92
Average OPD cases in Medicine department	111	Service not available	58	89

This also resulted in less consultation time per patient in OPD, which is an indicator for measuring clinical care in OPD. This is further discussed below in *paragraph 2.6.2*.



### 2.6.2 Consultation time per patient

The average consultation time per patient in Gynaecology and Medicine department was calculated in four out of six test checked hospitals by examining the available records of different months in different years<sup>12</sup>. The analysis is depicted in the **Table-12** given below:

**Table-12: Consultation time taken per case in OPD\***

Name of Hospital	Gynaecology				Medicine			
	Number of patients given consultation time (in per cent)							
	Total OPD patients in test checked months	less than 3 minutes	3 to 5 minutes	Above 5 minutes	Total OPD patients in test checked months	less than 3 minutes	3 to 5 minutes	Above 5 minutes
DH Haridwar	-	-	-	-	9,259	5,118 (55)	3,496 (38)	645 (7)
JH Chamoli	2,127	-	-	2,127 (100)	5,455	-	2,237 (41)	3,218 (59)
JH Udham Singh Nagar	3,433	579 (17)	2,061 (60)	793 (23)	5,439	2,219 (41)	1,978 (36)	1,242 (23)
DFH Haridwar	10,892	1,197 (11)	3,913 (36)	5,782 (53)	-	-	-	-
<b>Total (per cent)</b>	<b>16,452</b>	<b>1,776 (11)</b>	<b>5,974 (36)</b>	<b>8,702 (53)</b>	<b>20,153</b>	<b>7,337 (37)</b>	<b>7,711 (38)</b>	<b>5,105 (25)</b>

Source: Information collected from the test checked DHs/JHs/DFHs.

\*Assuming that a doctor in OPD worked full time, i.e. six hours continuously.

It is noticed that 47 per cent patients in Gynaecology Department and 75 per cent patients in Medicine Department of test checked hospitals could avail on an average less than five minutes of consultation time in the test checked months during 2014-19.

### 2.6.3 Patient satisfaction survey of out-patients

NHM Assessor's Guidebook requires hospitals to conduct patient satisfaction surveys of outdoor patients on a monthly basis.

Audit observed that patient satisfaction surveys for out-patients were not conducted during 2014-19 by four<sup>13</sup> out of six test checked hospitals while DFH Haridwar and JH Udham Singh Nagar had conducted patient satisfaction survey only in 2018-19. The test checked hospitals, therefore, failed to comply with the NHM norms and did not avail the opportunity of eliciting the views of patients regarding the out-patient services.

In the Exit Conference, the Government assured that instructions would be issued to the district hospitals for conducting patient satisfaction survey.

### 2.6.4 Provision of Drugs to OPD Patients

Good dispensing practices ensure that an effective form of the correct medicines is delivered to the right patient, in the correct dosage and quantity, with clear instructions, and in a package that maintains the potency of the medicines. To assess whether OPD patients were being provided the required drugs, Audit visited the drug dispensing counter and compared the prescription slips issued to 130-150 patients with drugs issued to these patients and found that only 41 per cent patients were provided prescribed drugs in full as detailed in the **Table-13** given below:

<sup>12</sup> Based on availability of records.

<sup>13</sup> DH Almora, DH Haridwar, JH Chamoli and DFH Almora.

**Table-13: Details of dispensation of drugs to the OPD patients**

Name of test checked hospitals	Number of patients' test checked	Number of OPD patients who got full range of prescribed medicines (in per cent)
DH Haridwar	150	68 (45)
DFH Haridwar	150	112 (75)
JH Chamoli	150	25 (17)
JH Udham Singh Nagar	130	33 (25)

Thus, the core objective to provide drugs free of cost could not be achieved as 59 per cent of the OPD patients had to purchase drugs from their own pocket.

In Exit Conference, the Government stated that in the Drug Procurement Policy 2019, the turnover capacity of firms had been reduced which would enable more firms to participate and provide the drugs as required. It was further stated that the hospitals were also authorized to purchase drugs as per their requirements and necessary instructions would be issued to all district hospitals to provide all prescribed drugs to the patients.

### **2.6.5 Completeness of prescription slip**

As per World Health Organisation, writing a prescription is very important and inaccuracy in writing, illegible handwriting or incomplete writing of a prescription can lead to misinterpretation, thus leading to errors in dispensing and administration of medicine. NHM Assessor's Guidebook also mandates doctors to write medication orders legibly and adequately.

In four hospitals, where completeness of prescription slips was test checked, it was found that most of the prescriptions lacked details of ailment, proper dosages of medicine and period for which it was to be taken by the patients as detailed in the **Table-14** given below:

**Table-14: Deficiencies noticed in prescription slips**

Name of test checked hospitals	DH Haridwar	JH Chamoli	JH Udham Singh Nagar	DFH Haridwar
<b>Total prescription slips test checked</b>	100	100	100	100
Ailment not mentioned	47	40	71	17
Proper dosage not mentioned	92	68	76	61
Duration for which medicine was to be taken by the patient not recorded	62	55	82	88

In the Exit Conference, the Government assured that the deficiencies relating to prescription slips (lack of details of ailment, proper dosages of medicines and period for which the medication has to be taken) would be sorted out through computerisation.

### **2.6.6 Registration to Drug Time**

To find out the Registration to Drug time audit carried out physical observation of 80 cases in two Departments (General Medicine and Gynaecology) in three out of the six hospitals test checked.

The Registration to Drug time was then extrapolated for all the patients visiting the General Medicine and Gynaecology Departments. The estimates of percentage of

patients<sup>14</sup> for Registration to Drug time with 95 per cent Confidence Interval are shown in the **Table-15** given below:

**Table-15: Estimates of Percentages of Patients for Registration to Drug Time with 95 per cent Confidence Interval**

Percentage of Patients for whom the Registration to Drug Time was	JH Chamoli Gynaecology	JH Chamoli Medicine	DFH Haridwar Gynaecology	DH Haridwar Medicine
60 minutes or more	37- 55	49- 71	77- 93	67- 86
90 minutes or more	7- 20	23- 44	22- 43	6- 21

- The Registration to Drug time for 22 to 43 per cent OPD patients in Gynaecology Department in DFH Haridwar was 90 minutes or more. The time for 77 to 93 per cent OPD patients in the Department was an hour or more.
- In DH Haridwar, the Registration to Drug time for 67 to 86 per cent OPD patients in General Medicine Department was an hour or more.
- In JH Chamoli, the Registration to Drug time for 49 to 71 per cent OPD patients in General Medicine Department was an hour or more and for 37 to 55 per cent patients in Gynaecology Department, the time was an hour or more.

As discussed in *paragraph 2.6.2*, 47 per cent patients in Gynaecology Department and 75 per cent patients in Medicine Department of test checked hospitals got less than five minutes' consultation time. In this context, the high Registration to Drug time (excluding the time taken for registration) indicates that the patients had to spend substantial time waiting for doctors to consult and for getting the medicines issued from the pharmacy.

*To sum up, the increase or decrease in out-patient load was not matched by proportional increase or decrease in the strength of doctors resulting in much higher OPD cases per doctor in some hospitals as compared to others. Due to non-availability of specialised doctors, many OPD services like ENT, Eye, etc. were not available for substantial period during 2014-19. The prescribed medicines were not made fully available to 59 per cent of the OPD patients. Details of ailment, proper dosages of medicine and period for which these were to be taken by the patients were not properly mentioned in most of the cases.*

<sup>14</sup> Rounded to nearest whole number.



# **Chapter-3**

## **Diagnostics Services**



## 3 Diagnostics Services

Laboratory diagnostic service is required to provide effective diagnosis of the disease suffered by the patient; measure the quantum of medicines to be provided; quantify the extent of cure effected; identify the medical sensitivities of the patient to avoid wrong medication resulting in adverse effects; and to extend the research and development capabilities of the medical process. The IPHS envisage that each district hospital laboratory should be able to perform all tests required to diagnose epidemics or important diseases from the viewpoint of public health.

The audit findings relating to diagnostic services are discussed in the succeeding paragraphs:

### 3.1 Radiology services

Adequate availability of functional radiology equipment, skilled human resources and consumables are the key requirements for the delivery of quality radiology services.

#### 3.1.1. Availability of radiology services

IPHS 2012 prescribe radiology services for the district hospitals (X-ray, Ultrasonography and CT scan, etc.). Audit observed that the full range of prescribed radiology services was not available in the test checked hospitals. The details of availability of radiology services in the test checked hospitals are given in the **Table-16** given below:

**Table-16: Availability of Radiology Services in test checked hospitals**

Imaging Services		Availability of Radiology Services					
		DH		JH		DFH	
		Almora	Haridwar	Udham Singh Nagar	Chamoli	Almora	Haridwar
X-ray	500 MA <sup>1</sup>	No	No	No	No <sup>2</sup>	No	No
	300 MA	No	No	Yes	Yes	No	No
	100 MA	Yes	Yes	No	No	No	No
	60 MA	No	No	No	No <sup>3</sup>	No	No
Dental X-ray		Yes	Yes	Yes	No <sup>4</sup>	No	No
Ultrasonography		Yes	Yes	Yes	Yes	No <sup>5</sup>	No
CT scan		No	No	No	No	No	No
Mammography		No	No	No <sup>6</sup>	No	No	No

*Source: Information provided by test checked hospitals.*

It can be seen that CT scan and Mammography services were not available in any of the test checked hospitals. Absence of radiology services in the above-mentioned hospitals

<sup>1</sup> Provided as per need.

<sup>2</sup> Machine (500 MA) not functional since 2015.

<sup>3</sup> Machine (60 MA) not functional since 2015.

<sup>4</sup> Non-functional since June 2013.

<sup>5</sup> A Radiologist from DH Almora visited once a week.

<sup>6</sup> Mammography machine was non-functional since April 2014.

was mainly due to non-availability of required radiology equipment and/or due to want of full time skilled human resources as detailed in the **Table-17** given below:

**Table-17: Reasons for non-availability of radiology services**

Name of radiology service	Category of hospital where service was not available	No. of hospitals	For want of Equipment	Post not sanctioned
X-ray	DFH	02	02	00
Ultrasonography	DFH	02	01	01
CT Scan	DH/JH	04	04	00
	DFH	02	02	00
Mammography	DH/JH	04	04	00
	DFH	02	02	00

*Source: Information collected from test checked hospital.*

For running Ultrasound Sonography machine in DFH Almora, a Radiologist from DH Almora was attached for operating this facility, once in a week. Details of Ultrasonography done in last five years in DFH, Almora are given in the **Table-18** below:

**Table-18: Ultrasonography done in last five years in DFH Almora**

Year	2014-15	2015-16	2016-17	2017-18	2018-19	Average Ultrasonography done per visit (day) <sup>7</sup>
Ultrasound done	1,618	1,796	1,293	1,976	1,642	32

*Source: Holistic Report, PNDT report and register maintained for weekly ultrasound at workplace.*

Keeping in view the huge patient turnout for ultrasound, as detailed in the table above, no concrete initiative was taken by the DFH to get a radiologist post sanctioned and to provide regular facility, for which the patients had to be referred to DH Almora. Besides, Ultrasonography service was not available in DH Haridwar since March 2019 due to the machine becoming non-functional. It was also noticed that Annual Maintenance Contracts of the available radiology equipment were not done by any of the test checked hospitals<sup>8</sup>.

Further, IPHS prescribed three types of X-ray machines of varying penetration and radiation levels for different radiological investigations. It was observed that all the required X-ray machines for varying penetration and radiation levels were not installed in any of the test checked hospitals. Apart from DH Almora, the requirement was not even forwarded by other test checked hospitals to Director General, Medical Health and Family Welfare (DGMH & FW) despite instruction issued by the DGMH & FW (April 2018) to all hospitals to work out their requirements, as per IPHS, and forward the demand accordingly.

The absence of full range of radiology services, therefore, impacted the efficiency and appropriateness of the level of care to be offered in district hospitals as per IPHS.

In the Exit Conference, the Government assured that the district hospitals would be provided with radiology services as per IPHS.

<sup>7</sup> Total ultrasound/ {52 (weeks) x 5 (years)}.

<sup>8</sup> Except DH Almora.



### **3.1.2 Operation of X-ray machines without license**

As per Section (3) of Atomic Energy (Radiation Protection) Rules 2004, license from Atomic Energy Regulatory Board (AERB) is necessary for establishing X-ray and CT Scan units.

Audit observed that none of the test checked hospitals, where X-ray services were provided, had obtained requisite license during the period 2014-19 from the AERB. No initiative was taken by the district hospitals to obtain AERB certificate. It was only after the instructions issued (June 2018) by the DGMH & FW that the district hospitals applied for obtaining the AERB certificate. The registration was awarded after March 2019 to three<sup>9</sup> out of four hospitals where this service was available. In the absence of AERB certificate, the test checked hospitals not only violated the prescribed regulatory requirements but also compromised the safety of patients and staff in the Radiology departments of these hospitals.

### **3.1.3 Thermoluminescent dosimeters (TLD) for Radiation Protection**

TLD badges<sup>10</sup> are used to detect radiation at levels that can be harmful to humans. All the staff working in the X-ray room have to wear monitoring equipment such as TLD badges and pocket dosimeters. As per Atomic Energy (Radiation Protection) Rules, 2004 and AERB Safety Codes, monitoring equipment shall be provided to radiation workers and dose records shall be maintained. In case of any institution violating the prescribed regulatory requirements, AERB is empowered to suspend/modify/withdraw the licence/registration issued to the X-ray installation or seal the X-ray installation(s) in accordance with Rule 10 and 31 of the Atomic Energy (Radiation Protection) Rules, 2004 respectively.

It was observed that the monitoring equipment were not provided to the technicians of the X-ray room during the period 2014-19 in three<sup>11</sup> out of four test checked hospitals where X-ray services were available. The safety of these technicians was therefore, compromised.

In the Exit Conference, the Government stated that instructions would be issued to all district hospitals to provide TLD monitoring equipment to the technicians.

## **3.2 Pathology services**

Pathology services are the backbone of any hospital for extending evidence based health care to the public. As in the case of radiology services, availability of essential equipment, reagents and human resources are the main drivers for the delivery of quality

<sup>9</sup> DH Almora, DH Haridwar and JH Udham Singh Nagar.

<sup>10</sup> Thermoluminescent dosimeters or TLDs are made from materials that measure cumulative exposure to ionizing radiation. They are worn for periods of approximately three months and are then processed to determine the dosage of radiation detected. TLD badges are logged to maintain cumulative records of an individual's exposure to radiation over an extended period of time. TLD badges include several types of Thermoluminescent dosimeters, devices that can measure doses as low as millirem.

<sup>11</sup> DH Haridwar, JH Chamoli and JH Udham Singh Nagar.

pathology services through in-house laboratories. The audit observations related to these services have been discussed in the succeeding paragraphs:

### **3.2.1 Availability of pathology services**

IPHS prescribe 70 types of pathological investigations in the categories of clinical, microbiology, serology and biochemistry to be carried out in the district hospitals.

Audit observed that the pathology services in the test checked hospitals were provided through in-house laboratories. However, full range of desired pathological investigations was not available in any of the test checked hospitals. The summarised position in terms of percentage of services provided under each category of pathology services is given in the **Table-19** below:

**Table-19: Pathology services offered by test checked hospitals (in per cent)**

Types of pathology services (no. of tests prescribed)	Hospitals with per cent shortfall				
	1 to 25 per cent	26 to 50 per cent	51 to 75 per cent	76 to 99 per cent	100 per cent
	<b>DH/JH</b>				
<b>Clinical pathology (29)</b>	02	02	00	00	00
<b>Pathology (08)</b>	00	00	00	02	02
<b>Microbiology (07)</b>	01	00	00	00	03
<b>Serology (07)</b>	00	03	01	00	00
<b>Biochemistry (19)</b>	00	02	02	00	00
	<b>DFH</b>				
<b>Clinical pathology (29)</b>	00	00	00	01	01
<b>Pathology (08)</b>	00	00	00	00	02
<b>Microbiology (07)</b>	00	00	00	00	02
<b>Serology (07)</b>	00	00	01	00	01
<b>Biochemistry (19)</b>	00	00	00	00	02

*Source: Information provided by test checked hospital.*

None of the desired investigations under the categories microbiology and pathology was carried out in five<sup>12</sup> and four<sup>13</sup> test checked hospitals respectively.

Various important pathology and clinical pathology investigations were not available in test checked hospitals such as Cytology to examine the behaviour of cells under microscope; Bone marrow aspiration to check the levels of White Blood Cell/Red Blood Cell (WBC/RBC) platelets; Immuno haematology to detect antigen in blood; Coagulation disorders to check the blood clotting disorders; Thalassemia to check the inherited blood disorders; Leptospirosis to detect zoonosis, Brucellosis to detect the Brucellosis bacteria in blood; and ELISA test for HB to measure Hemoglobin/Hepatitis C Virus (HB/HCV) infection in blood. Besides, investigations in the categories of serology and biochemistry were also partially carried out by all test checked hospitals. Various important tests under Biochemistry which were not carried out by test checked hospitals were serum phosphorous to know the level of phosphorous in blood; serum magnesium to know the level of magnesium in blood; and Thyroid to check the working of Thyroid gland, *etc.* As such, the provision of evidence-based treatment remained largely unachieved.

<sup>12</sup> DH Haridwar, JH Udham Singh Nagar, JH Chamoli, DFH Almora and DFH Haridwar.

<sup>13</sup> DH Almora, JH Chamoli, DFH Almora and DFH Haridwar.

In the Exit Conference, the Government assured that availability of full range of desired pathological investigations would be taken care of, as per IPHS, in due course of time.

### 3.2.2 *Essential resources*

**Equipment:** IPHS prescribe 60 essential pathology equipment for the district hospitals depending upon their bed capacity.

Audit observed that all the essential equipment was not available in the test checked hospitals and the shortage ranged from 48 to 78 *per cent*. Various critical equipment such as Chemical balance; Glycosylated Haemoglobin meter; Hot plates; Paediatric Glucometer/Bilirubino meter; Blood gas analyser; Floatation bath; and Cyto spin were not available in any of the test checked hospitals.

**Human resources:** Pathologist and Laboratory Technicians (LTs) are the key personnel for in-house laboratories and are responsible for taking samples and carrying out all prescribed pathological investigations and validation of test reports. As per IPHS, district hospitals should have one to four Pathologists and six to 18 LTs depending upon their bed capacity.

Audit observed that pathology service was not available in DFH Almora. In other five test checked hospitals limited pathology services were available. However, the post of pathologist was not sanctioned in DFH Haridwar and in three<sup>14</sup> other hospitals, the pathologist post was kept vacant for a period ranging between one and three years. It was also observed that the availability of manpower in the test checked hospitals was not in consonance with IPHS. Even the existing vacancies of LTs against the sanctioned strength were not filled in JH Udham Singh Nagar and JH Chamoli where there was a shortfall of 40 *per cent* and 80 *per cent* respectively.

The Department, therefore, failed to augment the strength as required in accordance with the IPHS. It did not even fill the existing vacancies against the sanctioned strength.

In the Exit Conference, the Government assured that shortage of equipment and manpower in the pathology laboratory would be taken care of, as per IPHS.

### 3.2.3 *Quality Assurance of pathology services*

IPHS provide that pathological tests performed by hospitals shall be validated by External Quality Agency on a regular basis.

It was noticed that none of the test checked hospitals carried out the validation of pathological tests performed by them during 2014-19. The hospitals, therefore, failed to ensure quality assurance of the pathological services provided by them.

In the Exit Conference, the Government assured that validation of pathology test from External Quality Agency would be taken care of, as per IPHS.

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<sup>14</sup> DH Almora, DH Haridwar and JH Chamoli.

### **3.2.4    *Waiting Time and Turn-around Time***

Time taken in receiving samples from the patients for investigations *i.e.* Waiting Time (WT) and time taken in getting the investigation done and reporting the results to the patients *i.e.* Turn-around Time (TAT), reflects the overall efficiency of the diagnostic services, in terms of patient satisfaction.

Audit observed that the doctors prescribed the tests/investigations over the patients' prescription slip. The patients were registered in the pathology departments for the procedures, based on the recommendations given by the doctors.

Scrutiny of the records of the pathology department revealed that none of the test checked hospitals maintained the records related to number of pathological investigations suggested by the doctor to the patient. Besides, in the registration registers, the date of recommendation by the doctors was not mentioned. In the absence of this vital information, the time lag (WT) between the date of recommendation for investigations by the doctors and actual registration in the radiology and pathology departments was not ascertainable. Further, in the absence of the test indent forms in pathology department of the test checked hospitals, it was also not ascertainable whether all tests/investigations were performed by the hospitals. Besides, no records were maintained in any of the test checked hospitals regarding the TAT in respect of pathological investigations performed during 2014-19.

*To sum up, the provisioning of diagnostic services in the test checked hospitals was sub-optimal, marred by inadequacy of prescribed equipment and shortage of human resources, thus depriving patients of evidence-based treatment procedures.*

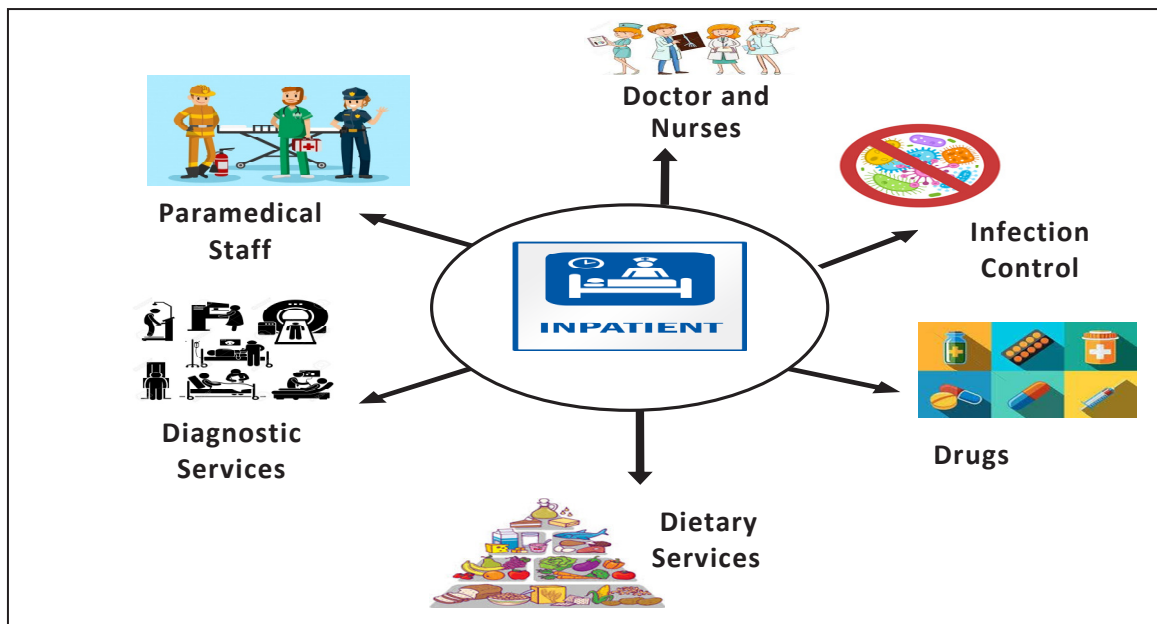
**Chapter-4**  
**In-Patient Services**



## 4 In-Patient Services

In-Patient 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 Out-Patient Departments, Emergency Services and Ambulatory Care due to their medical condition. In-patients require a higher level of care through nursing services, availability of drugs/diagnostic facilities, observation by doctors, *etc.*

Figure-2: IPD Services in a hospital



While availability of doctors, nurses, essential drugs/equipment and dietary services along with performance evaluation is included in this *Chapter-4*, diagnostic services and drug management are discussed in separate *Chapter-3 and 7* respectively. The results of audit scrutiny of indoor environment are discussed in *Chapter-6 'Infection Control'*. Also, IPD services in DFHs have been commented upon in the *Chapter-5 'Maternity Services'*.

### 4.1 Availability of in-patient services

As per IPHS, a DH should provide specialist in-patient services pertaining to General Medicine, General Surgery, Paediatrics, Ophthalmology, Orthopaedics, *etc.* In the test checked DHs/JHs, the required services available are given in the **Table-20** below:

**Table-20: In-patient services\* in test checked DHs/JHs**

Hospital	GM	GS	Pdt	Orth	Oph	ENT	Psy	Act	Phy	Bur	Dia
DH Almora	Yes	Yes#	Yes	Yes	Yes	No	No	No	Yes	No	No
DH Haridwar	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No
JH Chamoli	Yes	Yes	Yes	Yes	Yes <sup>\$</sup>	Yes <sup>@</sup>	No	No <sup>**</sup>	Yes	Yes	No
JH Udham Singh Nagar	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes

\*GM: General medicine, GS: General surgery, Pdt: Pediatrics, Orth: Orthopedics, Oph: Ophthalmology, ENT: Ear Nose & Throat, Psy: Psychiatry, Act: Accident and trauma ward, Phy: Physiotherapy, Bur: Burn ward and Dia: Dialysis.  
 #No General Surgeon was available during the period April 2014 to September 2018.  
 \$Eye specialist was not available from 01.08.2017 to date of audit (March 2020).  
 @ ENT specialist was not available from 01-01-2019 to date of audit (March 2020).  
 \*\*Trauma center was not functional since inception.

Source: Information collected from the test checked DHs/JHs.

Audit Observed that:

- All the above DHs/JHs failed to provide Accident & Trauma; and Psychiatry services during 2014-19.
- Dialysis service was not available in any of the test checked DHs/JHs except JH Udham Singh Nagar whereas Burn ward was available only in JH Chamoli and JH Udham Singh Nagar during 2014-19.
- DH Almora could provide General Surgery partially and ENT services were not functional since 20 November 2014 onwards.

The patients, therefore, had no option but to go to other health care facilities for receiving such services.

## 4.2 Availability of Human Resources

### 4.2.1 Doctors and nurses

IPHS envisage that doctors and nurses should be available round the clock in IPD to provide due medical care. Audit observed shortage of doctors and staff nurses against the sanctioned strength in test checked DHs/JHs as shown in the **Table-21** below:

**Table-21: Details of availability of doctors and nurses as on date of audit**

Name of Hospitals	Post	Sanctioned post	Men in position	Excess/ Shortage	Percentage Shortage
DH-Almora	Doctor	20	18	(-) 02	10
	Nurses	12	10	(-) 02	17
DH Haridwar	Doctor	24	18	(-) 06	25
	Nurses	15	11	(-) 04	27
JH Chamoli	Doctor	36	22	(-) 14	39
	Nurses	28	17	(-) 11	39
JH Udham Singh Nagar	Doctor	32	21	(-) 11	34
	Nurses	24	16	(-) 08	33

Source: Information collected from test checked DHs/JHs.

It was also noticed that the shortage of doctors got compounded owing to deputation of specialist doctors and Medical Officers to other hospitals/temporary attachment for



special services and because of study leave/long leave availed by doctors without any alternative arrangements being put in to run the services.

It was also observed that:

- General surgeon was not deployed during 2014-18 in DH Almora whereas two General surgeons were posted in DH Haridwar during April 2014 to January 2017 against one sanctioned post. Besides, General Physician was not available in DH Almora during 11.09.2015 to 26.06.2017 and in DH Haridwar during 2014-17 whereas two Physicians were deployed in JH Udham Singh Nagar from 01.04.2014 to 12.11.2014 and from 27.08.2016 to 31.01.2017 against one sanctioned post.
- ENT service was not available in DH Almora after 20.11.2014 and in DH Haridwar during 2014-18 due to non-deployment of ENT specialist.
- Emergency Medical Officers were not posted in any of test checked DHs/JHs against sanctioned strength. Resultantly, the hospital authorities were compelled to deploy the specialist doctors to the emergency wing of the hospital.

In the Exit Conference, Government stated that the matter would be looked into. It was further added that shortage of doctors was partially overcome with the recent appointment of 476 doctors and further appointment of doctors was under process.

#### 4.2.2 Rosters for doctors and nurses

A general duty doctor should be available round the clock in IPD of hospital as per IPHS. The roster for duty of doctors for providing various indoor health care services in IPD was not available in any of the test checked DHs/JHs except DH Almora. The test checked DHs/JHs, however, maintained the roster of duty for nurses. The details of bed to nurse ratio in IPD of test checked DHs/JHs in sampled months are given in the **Table-22** below:

**Table-22: Shift<sup>1</sup> wise availability of nurses in IPD of test checked DHs/JHs**

Sampled Period	DH Almora			DH Haridwar			JH Chamoli			JH Udham Singh Nagar		
	Bed/Nurse			Bed/Nurse			Bed/Nurse			Bed/Nurse		
	Shift-1	Shift-2	Shift-3	Shift-1	Shift-2	Shift-3	Shift-1	Shift-2	Shift-3	Shift-1	Shift-2	Shift-3
May 2014	2	10	10	7	21	21	8	9	9	13	20	20
August 2015	3	15	15	7	25	25	7	8	8	8	19	19
November 2016	1	2	2	9	21	21	5	6	6	5	10	10
February 2018	5	24	24	6	16	16	5	6	6	6	10	12
May 2018	4	22	22	6	21	21	6	7	7	8	17	17

*Source: Information provided by the test checked DHs/JHs.*

The Nursing Council of India recommends the deployment of one nurse per six beds in the general ward of a district hospital. It was observed in Audit that the bed to nurse ratio

<sup>1</sup> Shift-1: from 8 AM to 2 PM, Shift-2: from 2 PM to 8 PM, Shift-3: from 8 PM to 8 AM.

was inordinately higher in Shift-2 and Shift-3 in three of the four hospitals as compared to Shift-1 which was against the norm for providing adequate care to the patients.

#### **4.2.3 Para-medical staff**

The paramedical staff is responsible for implementation and management of the prescribed treatment plan and to deal with the patients in emergent medical situations. Audit observed that:

- In JH Chamoli and JH Udham Singh Nagar, only one and three Laboratory Technicians were posted respectively against the sanctioned strength of five. Further, in JH Chamoli, only one X-ray Technician was posted against the sanctioned strength of two.
- There was a shortage of Pharmacists in all test checked DHs/JHs; the shortage ranged between 10 *per cent* and 43 *per cent*.
- The post of OT (Operation Theatre) Technician was not sanctioned in the test checked DHs/JHs except in JH Udham Singh Nagar.
- Similarly, post of ECG (Electrocardiogram) Technician was not sanctioned in DH Almora and JH Chamoli and the ECG test was being carried out by an alternative arrangement.

In the Exit Conference, the Government stated that the Chief Medical Officer and District Magistrate of the respective districts had been delegated with powers to recruit the paramedical staff on contractual basis as per requirement.

#### **4.3 Availability of essential drugs**

To ascertain the availability of essential drugs in the IPD, Audit examined availability of 14 types of essential drugs<sup>2</sup> during the sampled months in test checked DHs/JHs. The details of availability of essential drugs are given in the **Table-23** below:

**Table-23: Availability of essential drugs in test checked DHs/JHs**

Name of the hospital	Number of drugs available out of the 14 test checked drugs				
	May-2014	Aug-2015	Nov-2016	Feb-2018	May-2018
DH Almora	12	11	8	8	11
DH Haridwar	9	8	7	9	9
JH Chamoli	10	9	11	10	10
JH Udham Singh Nagar	7	8	7	6	9

*Source: information collected from test checked DHs/JHs.*

<sup>2</sup> Activated Charcoal, Adrenaline, Aminophylline, Antiserum Polyvalent Snake Venom, Atropine sulphate, Dextrose, Dextrose with normal saline, Diclofenac Sodium, Digoxin, Metoclopramide, Ringer lactate, Salbutamol, Sodium Chloride and Vitamin K (w).

Audit scrutiny revealed that Activated Charcoal (used to treat oral poisoning, hangovers, upset stomach, *etc.*) and Vitamin-K (except JH Chamoli) were not available in any of the test checked DHs/JHs during the sampled months. Digoxin (used to treat Cardiac arrest and superficial bleeding) was available in only DH Almora in one out of five sampled months. Besides, three to four types of drugs remained out of stock for 18 days to 120 days.

Even the essential drugs as shown in box alongside were out of stock in test checked DHs/JHs during five to 50 *per cent* of sampled period which indicated that either the quality of treatment was compromised due to non-availability or the patients were compelled to buy these drugs from outside, leading to additional expenditure by the patient.

#### *Uses of medicines:*

**Adrenaline:** Used in emergencies to treat serious allergic reactions to improve breathing, stimulate the heart, raise the dropping blood pressure, *etc.*

**Aminophylline:** Used to relieve symptoms of reversible airway obstruction due to asthma and other chronic lung diseases.

**Diclofenac Sodium:** Used to relieve pain, inflammation and joint stiffness caused by arthritis.

**Salbutamol:** Used to treat asthma, chronic bronchitis, and to prevent exercise-related asthma.

#### **4.4 Availability of medical equipment**

According to NHM Assessor's Guidebook, district hospitals are required to ensure the availability of required equipment and instruments for examination and monitoring of patients.

Audit scrutiny revealed that out of the sampled 11 essential equipment<sup>3</sup>, DH Almora, DH Haridwar and JH Chamoli had six, seven and eight types of equipment respectively. It was further observed that:

- Laryngoscope (used for endoscopy of the larynx, a part of the throat) was not available in DH Almora and DH Haridwar whereas Crash-cart (used for transportation and dispensing of emergency patients on site) was available only in JH Udham Singh Nagar.
- Weighing scale for baby was available only in JH Udham Singh Nagar.
- Glucometer (used for estimation of blood sugar) and Endotracheal Tube (used when a patient is unable to breathe on his own) were not available in DH Almora.

#### *Positive feature*

**JH Udham Singh Nagar had all sampled equipment for examination and monitoring of patients.**

<sup>3</sup> Adult Bag and Mask, BP Apparatus, Crash-cart, dressing trolley, ET Tubes, Glucometer, Laryngoscope, Suction machine, Thermometer, weighing scale for adult and Weighing scale for baby.

#### 4.5 Operation Theatre Services

Operation theatre (OT) is an essential service that is to be provided to the patients. IPHS prescribe OT for elective major surgery; emergency services; and ophthalmology/ENT for district hospitals.

Audit found that OT for emergency surgeries was not available in any of the test checked DHs/JHs. As a result, all the test checked hospitals could not provide the emergency surgery facility to needy patients during the period 2014-19.

As per NHM Assessor's Guidebook, surgery performed per surgeon is an indicator to measure efficiency of the hospitals. Analysis of the records of surgeries done in test checked DHs/JHs in the sampled months revealed substantial variation in the number of major and minor surgeries per surgeon per month as shown in the **Table-24** given below:

**Table-24: Average major and minor surgeries per surgeon**

DHs	No. of Major Surgeries performed per surgeon			No. of Minor Surgeries performed per surgeon			EYE Surgeries performed per surgeon
	General	Ortho	ENT	General	Ortho	ENT	
DH Almora	-	10.5	0	-	19	12	4.8
DH Haridwar	12.8	5.1	0	12.3	1.4	2	5.7
JH Chamoli	3.2	0.2	0	12	4	1.8	3
JH Udham Singh Nagar	11.7	6	1	14.8	4.3	7	18.6

- General surgeon was not available in DH, Almora during the test checked months, while nominal General surgeries<sup>4</sup> (major and minor) were conducted by the Orthopaedic surgeons during the period.
- Major ENT surgeries were not conducted in DH Almora and DH Haridwar due to non-availability of ENT surgeon in four out of five sampled months and in JH Chamoli despite availability of ENT surgeon during sampled months.
- In JH Chamoli, the average number of General and Orthopaedic major surgery was very low as compared to other three DHs/JHs.
- Average number of Eye surgeries per surgeon was low in all the DHs/JHs except JH, Udham Singh Nagar in the test checked months during the period 2014-19.

In the Exit Conference, the Government assured that OT for emergency surgeries would be established as required under IPHS.

##### 4.5.1 Availability of drugs for OTs

To ascertain the availability of essential drugs for OTs, Audit examined availability of 23 types of drugs<sup>5</sup> as prescribed in NHM Assessors Guidebook during the sampled days in test checked hospitals.

<sup>4</sup> Nine major and 52 minor General surgeries conducted during test checked months.

<sup>5</sup> Injection Oxytocin, Injection Ampicillin, Injection Metronidazole, Gentamycin, Injection Diclofenac Sodium, IV fluids, Ringer lactate, Plasma expander, Normal saline, Injection Magsulf, Injection Calcium gluconate, Injection Dexamethasone, Injection Hydrocortisone Succinate, Diazepam, Pheniramine maleate, Injection Carboprost, Fortwin, Injection Phenergen, Betamethasone, Injection Hydralazine, Methyldopa, Nifedipine and Ceftriaxone.

In the test checked DHs/JHs, on the sampled days, details of non-availability of essential drugs are shown in the **Table-25** given below:

**Table-25: Non-availability of essential drugs in test checked DHs/JHs**

Name of the hospital	Number of drugs not available out of the 23 test checked drugs				
	1-7 May 2014	1-7 Aug 2015	1-7 Nov 2016	1-7 Feb 2018	1-7 May 2018
DH Almora	13	11	15	15	10
DH Haridwar	10	12	17	16	13
JH Chamoli	7	8	6	9	7
JH Udham Singh Nagar	8	8	9	9	8

*Source: information collected from test checked DHs/JHs.*

Audit examinations revealed that six (26 per cent) to 17 (74 per cent) essential drugs were not available on the sampled days in the test checked DHs/JHs. Essential drugs such as Plasma Expander (used to treat patients who have suffered haemorrhage or shock), Nifedipine (used to prevent certain types of chest pain like angina) and Methyldopa (used to treat high blood pressure) were not available in any of the test checked hospitals on the sampled days. Further, Calcium Gluconate (used to treat conditions caused by low calcium levels such as bone loss or weak bones), Phenergan (used to treat allergy symptoms such as itching, runny nose, sneezing, watery eyes and itchy skin rashes), Ampicillin (used to treat many different types of infections such as bladder infections, infections of the stomach or intestines) were not available in 20 per cent to 66 per cent of the days sampled.

#### **4.5.2 Availability of equipment for OTs**

As per IPHS, 29 types<sup>6</sup> of essential equipment should be available in OT of a district hospital.

Essential equipment such as Dehumidifier (used for protection from excessive moisture/humidity), Ultra violet lamp (used for disinfecting patient and operating rooms), Ethylene Oxide sterilizer (used to sterilize<sup>7</sup> medical device), Ultrasonic cutting and coagulation device<sup>8</sup> and Ultrasonic cleaner were not available in any of test checked DHs/JHs. Audit further noticed that 41 per cent to 69 per cent of 29 types of equipment were not available in test checked DHs/JHs. The resources available for OTs in the test

<sup>6</sup> Autoclave HP Horizontal, Autoclave HP Vertical, Operation Table Ordinary Paediatric, Operation Table Hydraulic Major, Operation Table Hydraulic Minor, Operating Table non-hydraulic field type, Operating Table Orthopedic, Autoclave with Burners 2 bin, Autoclave vertical single bin, Shadowless lamp ceiling type major, Shadowless lamp ceiling type minor, Shadowless lamp stand model, Focus lamp Ordinary, Sterilizer (Big instruments), Sterilizer (Medium instruments), Sterilizer (Small instruments), Bowl Sterilizer Big, Bowl Sterilizer Medium, Diathermy Machine (Electric Cautery), Suction Apparatus–Electrical, Suction Apparatus–Foot operated, Dehumidifier, Ultra violet lamp Philips model 4 feet, Ethylene Oxide sterilizer, Microwave sterilizer, Intense Pulse Light Machine, Ultrasonic cutting and coagulation device, Plasma Sterilizer and ultrasonic cleaner.

<sup>7</sup> Sterilization with ethylene oxide is the only method that effectively sterilizes and does not damage the device during the sterilization process.

<sup>8</sup> The ultrasonic cutting and coagulation device is a more effective surgical device compared to conventional techniques in thyroidectomy. Its use offers several clinical advantages, including reduced operating time, intra-operative blood loss, drainage volume, and post-operative pain and length of hospital stay which can ultimately benefit the surgeon, patient and hospital.

checked DHs/JHs, therefore, were not as desired thereby impacting the quality of surgical treatments in these test checked DHs/JHs.

#### **4.5.3 Availability of OT Technician**

As per IPHS, four to 14 OT technicians should be available in a district hospital depending upon its bed capacity.

Audit observed that no post of OT technician was sanctioned in any of the test checked DHs/JHs except in JH Udham Singh Nagar where only one post was sanctioned. Thus, hospital authorities had to rely upon alternative arrangements.

#### **4.5.4 Documentation related to OTs**

NHM Assessor's Guidebook prescribes that surgical safety checklist, pre-surgery evaluation records and post-operative evaluation records for OTs should be prepared for each case.

During audit, it was noticed that these vital records were not maintained in any of the test checked DHs/JHs. In the absence of these records for OTs, it was not ascertainable whether safety procedures in OTs were adhered to in the test checked DHs/JHs.

### **4.6 Intensive Care Unit Services**

Intensive Care Unit (ICU) is essential for critically ill patients requiring highly skilled life-saving medical aid and nursing care. These include major surgical and medical cases such as head injuries, severe haemorrhage, poisoning, *etc.*

#### **4.6.1 Availability of ICU services**

As per IPHS, ICU services in a district hospital are essential for providing minimum assured services.

However, ICU facility had been set up only in JH Chamoli and JH Udham Singh Nagar. Audit also observed that the units were non-functional due to lack of essential equipment and specialised manpower. It was noticed that three ICU beds and three Step Down beds were available in JH Chamoli since 2005-06. An estimate (₹ 2.02 lakh) for increasing the bed capacity in ICU along with a proposal for providing essential equipment<sup>9</sup>/furniture and required manpower<sup>10</sup> was submitted (August 2019) by the hospital to DGMH &FW. Neither the required funds nor the required manpower was made available to JH Chamoli (20 March 2020). In JH Udham Singh Nagar, the facility was also non-functional due to non-availability of essential equipment and required manpower.

In view of the fact that the Department was unable to utilise 13 *per cent* of released funds during the last five years (2014-19), non-provision of equipment and resources to set up ICU and make it functional in all the district hospitals is inexcusable.

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<sup>9</sup> ICU Bed with all accessories, ICU Bed step down with all accessories, Cardiac Table, Central Oxygen Port, ABG Machine, ECG Machine, Bed side Monitor, Central Cardiac Monitor, Infusion Pump, *etc.*

<sup>10</sup> 09 specialist doctors, 30 paramedical staff and 11 administrative and class IV staff.

In the absence of ICU facility, the patients approaching district hospitals despite being in an emergent condition were likely to be referred and/or passed on to higher public or private hospitals wasting precious time. The referral cases and patients taken to higher medical facility on their own risk due to hospitals being unable to provide ICU services have also been discussed in *paragraph 4.11.2.3*.

In the Exit Conference, the Government stated that ICU infrastructure was not created in all hospitals due to non-availability of dedicated staff. However, in response to the Covid-19 pandemic, the Government had created ICU infrastructure in the hospitals. It was further stated that the standardisation of resources and services would be met with the adoption of IPHS.

#### 4.7 Emergency Services

The goal of emergency services is to provide treatment to those in need of urgent medical care, with the purpose of satisfactorily treating the malady, or referring the patient to a more suitably equipped medical facility. In particular, the first hour called the “Golden hour” is critical for patients requiring emergency services.

##### 4.7.1 Availability of Emergency Services

As per IPHS, 24x7 operational emergency with dedicated emergency room shall be available with adequate manpower. Emergency should have mobile X-ray/laboratory, side labs/plaster room/and minor OT facilities. Besides, separate emergency beds may be provided.

Audit noticed that 24x7 emergency services were available in all the test checked DHs/JHs but emergency OT; and accident and trauma care services were not available in any of the test checked DHs/JHs including JH Chamoli where infrastructure was created as discussed in *paragraph 4.7.1.2*.

##### 4.7.1.1 Availability of Emergency Medical Officers

The details of availability of EMOs are shown in **Table-26** given below:

**Table-26: Availability of EMOs in test checked DHs/JHs**

Name of DHs/JH	Sanctioned strength	Availability of EMOs*				
		2014-15	2015-16	2016-17	2017-18	2018-19
DH Almora	2	1	1	0	1	1
DH Haridwar	3	2	1	1	1	2
JH Chamoli	3	0	0	1	1	0
JH Udham Singh Nagar	5	1	0	1	0	1

*Source: Information collected from test checked DHs/JHs.*

*\*In DH Almora, EMO was available only from 01.04.15 to 05.06.15.*

*In DH Haridwar, one out of two EMOs was available only from 01.04.2014 to 30.06.2014 during 2014-15. EMO was available only from 01.04.2015 to 30.05.2015, 04.07.2016 to 30.11.2016 and 27.06.2017 to 31.07.2017 during 2015-16, 2016-17 and 2017-18 respectively.*

*In JH Udham Singh Nagar, EMO was available only from 01.04.2014 to 01.11.2014, 21.05.2016 to 31.10.2016 and 25.04.2018 to 22.11.2018 during 2014-15, 2016-17 and 2018-19 respectively.*

It was also noticed that Emergency Medical Officers (EMOs) were not available fulltime in any of the test checked DHs/JHs during the period 2014-19. It can also be seen that

EMOs were not posted as per the sanctioned strength in test checked DHs/JHs during 2014-19. As a consequence, OPD doctors were deployed for emergency duty. Resultantly, the OPD duty of the doctor concerned and the consultation time available to patients suffered.

#### **4.7.1.2 Non-functioning of Trauma Centre**

Trauma Centre for strengthening and boosting the emergency services at JH Chamoli was inaugurated by Hon'ble Chief Minister of Uttarakhand (20 February 2009) but remained non-functional (20 March 2020) due to non-deployment of required specialist manpower such as Surgeon (2 posts); Orthopaedic Surgeon (2 posts); Radiologist (2 posts); and Anaesthetist (2 posts); supporting staff like staff nurse (6 posts); and non-availability of essential equipment such as CAT scan.

In the Exit Conference, the Government stated that due to non-availability of required specialised manpower, the Trauma Centre of JH Chamoli could not be made functional.

#### **4.7.2 Availability of essential drugs for emergency services**

To ascertain the availability of essential drugs in the emergency department of test checked DHs/JHs, Audit examined availability of 21 types of essential drugs<sup>11</sup> during the sampled months, as shown in the **Table-27** given below:

**Table-27: Availability of essential drugs in DHs/JHs**

Name of the hospital	Number of drugs available out of the 21 test checked drugs				
	May-2014	Aug-2015	Nov-2016	Feb-2018	May-2018
<b>DH Almora</b>	11	15	10	10	15
<b>DH Haridwar</b>	14	15	09	13	13
<b>JH Chamoli</b>	16	15	17	14	16
<b>JH Udham Singh Nagar</b>	14	14	14	14	14

*Source: information collected from test checked DHs/JHs.*

- Essential drugs such as Calcium Gluconate and Diazepam and Nifedipine were out of stock in test checked DHs/JHs during 25 to 85 *per cent* in the sampled period.
- Methyldopa and Injection Hydralazine were not available in any of the test checked DHs/JHs during the entire sampled period.
- Anti-tetanus human immunoglobulin was not available in DH Almora and JH Udham Singh Nagar during sampled months.

The shortage of essential drugs indicates that either the quality of treatment was compromised, or the patients were compelled to buy these drugs from outside, at their own cost.

<sup>11</sup> Ampicillin, Anti Tetanus Human Immunoglobulin, Atropine sulphate, Injection Calcium Gluconate, Injection Ceftriaxone, Injection Carboprost, Injection Diazepam, Diclofenac Sodium, Injection Fortwin, Injection Hydralazine, Injection Hydrocortisone, IV fluids, Injection Magsulf, Injection Metronidazole, Methyldopa, Nifedipine, Normal Saline, Injection Phenergan, Pheniramine maleate, Polyvalent Snake Venom and Ringer lactate.



### 4.7.3 Availability of equipment for Emergency Services

As per NHM Assessor's Guidebook, 14 types<sup>12</sup> of essential equipment should be available in emergency wing of a district hospital. Scrutiny of records of the sampled months revealed that:

- 29 to 64 *per cent* of 14 types of essential equipment were not available in test checked DHs/JHs.
- Vital equipment such as Laryngeal Mask Airway, Crash Cart and HIV kit were not available in any of the test checked DHs/JHs.
- Defibrillator was not available in DH Almora and DH Haridwar whereas Laryngoscope was not available in JH Udham Singh Nagar.

### 4.7.4 Triage of patients and average turnaround time

Triage is defined as prioritising or sorting the patients for the care and treatment because of shortage of the necessary resources in the emergency department. NHM Assessor's Guidebook prescribes standard treatment protocol for triaging<sup>13</sup> of patients getting admitted in emergency department. The DH Haridwar and JH Udham Singh Nagar stated that no triaging was conducted during the period 2014-19 while DH Almora and JH Chamoli stated that triaging was done but records were not maintained. Due to non-maintenance of relevant records, audit could not ascertain the average turnaround time of the patients admitted in the emergency department. Thus, assurance could not be drawn regarding efficacy of the emergency services in terms of classification of patients according to the criticality of their condition and the turnaround time.

## 4.8 Ambulance Services

As per IPHS, a district hospital is required to have three running ambulances with well-equipped Basic Life Support (BLS). It should be desirable to have one Advanced<sup>14</sup> Life Support (ALS) ambulance. There shall be a dedicated parking space separately for ambulances near emergency. Serviceability and availability of equipment and drugs in ambulance are required to be checked on a daily basis. It was observed that:

<sup>12</sup> BP Apparatus, Multipara torch, Glucometer, ECG machine, HIV Kit, Ambu bag(s), Defibrillator, laryngoscope, Suction apparatus, Laryngeal Mask Airway, Crash Cart, Drug Trolley, Instrument Trolley and Dressing Trolley.

<sup>13</sup> The process of sorting people based on their need for immediate medical treatment as compared to their chance of benefiting from such care.

<sup>14</sup> The ALS Ambulance is equipped with state-of-the-art heart and blood pressure monitoring equipment, pulse oximeter, IV pumps, airway equipment (oxygen delivery devices) including a CPAP, glucose testing device and advanced medications used to treat a variety of illnesses and provide pain relief. ALS is designed for pre-hospital life support and transportation of a patient to the hospital during an emergency. An ALS unit will have a paramedic along with Emergency Medical Technician who can administer medication to a patient.

- None of the test checked hospitals had three running ambulances<sup>15</sup> with well-equipped BLS.
- The ambulance with ALS was not available in any of the test checked hospitals.
- The available ambulances were running with expired fitness, insurance and pollution certificates which are mandatory for the operation of a vehicle.
- The available vehicles were not provided with adequate technicians as required under IPHS. Oxygen cylinders were available in eight out of nine running ambulances but were operated by the drivers whereas this service should ideally have two technicians.
- Serviceability and availability of equipment and drugs in ambulance were not being checked on a daily basis by any of the test checked hospitals.
- The logbooks of the ambulance service of DH Almora, JH Udham Singh Nagar, DFH Haridwar and DH Haridwar showed that these were used for multiple purposes such as dak delivery, electricity bill payments and attending court cases.
- The ambulances lacked drugs and equipment that are required to be necessarily available in each ambulance<sup>16</sup>.
- Physical inspection of the hospitals also revealed that although a dedicated parking space for ambulance was separately provided, it was not near to the emergency unit in DH Almora. Further, despite written notices on the wall and complaints made to police authorities, the private vehicles were allowed to be parked obstructing the exit of the ambulance as seen in the **Photograph-1**.



*Photograph-1: District Hospital, Almora*

- No ambulance service was available in DFH Almora which was dependent on 108 for providing the services. Besides, it had no approach road and parking facility for ambulance.

In the Exit Conference, Government stated that ambulances with BLS and ALS facilities were in the process of procurement and these would be operated by 108-service provider.

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<sup>15</sup> DH Almora:1, DH Haridwar:1, DFH Haridwar:1, JH Chamoli: 3 and JH Udham Singh Nagar:3 but none of these ambulances were well equipped with BLS.

<sup>16</sup> Test checked ambulances lacked critical equipment to administer venoclysis (used for slow infusion of medicine, serum, *etc.* into the vein of the patient), conduct resuscitation manoeuvres (used to correct lack of breathing/ heartbeat), immobilize fractures (to keep fractured body part from moving), undermining the potential of emergency ambulance services run by the test checked hospitals to provide the requisite critical care and treatment to the patients.

It was further added that necessary instructions would be given to the district hospitals to obtain the necessary certificates for operation of ambulances.

## 4.9 Dietary Services

### 4.9.1 Distinctive dietary requirement not met

The dietary service of a hospital is an important therapeutic tool. The IPHS stipulate that apart from the normal diet, the food supplied should be patient specific such as diabetic, semi solid and liquid.

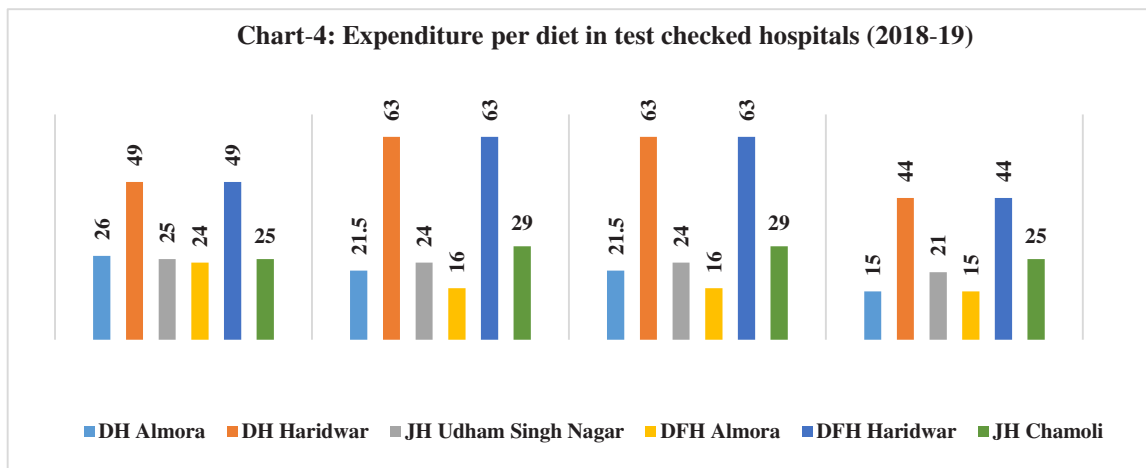
#### Positive feature

*Free of cost diet was being provided to all indoor patients three times a day in the test checked hospitals.*

It was noticed in audit that all patients were given similar diets thereby ignoring the distinctive dietary requirements of different categories of patients. It was further noticed that none of the test checked hospitals had adopted system of diet counselling to the patients; formulation of caloric requirement and accordingly setting of diet for the patients.

### 4.9.2 Expenditure on dietary services

Audit observed that the dietary services in all test checked hospitals were outsourced during the period 2014-19. However, there was substantial variation in expenditure per diet during 2018-19 in the test checked hospitals as shown in **Chart-4** below:



The expenditure per diet in 2018-19 in four test checked hospitals when compared with other two was far below. It was further observed that the rates provided for the supply of food by the contractor of three hospitals<sup>17</sup> were not realistic keeping in view the current open market rates for milk, eggs, fruits, *etc.* Audit observed that the service provider was not providing diet as per agreement and the patients were distributed non-packed milk in lieu of agreed packed milk; the quantity of milk as agreed was also not served; breakfast was served without fruits and lunch without curd, fruit, rice, *etc.* in test checked hospitals.

<sup>17</sup> DH Almora, DFH Almora and JH Udham Singh Nagar.

However, full payment as agreed for lunch, breakfast and dinner was made to the contractor.

In the Exit Conference, the Government assured that instructions would be issued to the hospitals to ensure availability of specific diets to the patients. It was further added that appropriate direction would be issued in regard to variation in expenditure per diet.

#### **4.9.3 Hygiene practices not followed in serving the diet**

As per Kayakalp guidelines, for maintenance of proper hygiene and infection-free environment in the kitchen, there is a minimum requirement of covered trolley for food distribution; separate room for storage<sup>18</sup>; adequate supply of treated water<sup>19</sup>; and refrigerators for storage of food items.

It was noticed during physical inspection that:

- The available serving trolley in DH Almora, DH Haridwar and DFH Haridwar was not being utilised for serving food due to stairs in front of the kitchen in Almora; blocked approach of kitchen in DH Haridwar and big steel trolley in DFH Haridwar, whereas no serving trolley was available in DFH Almora. Further, protective gears<sup>20</sup> were not used by the cooks in kitchen and by those who served food to the IPD occupants.
- It was noticed in DFH Almora that instead of keeping mops, brooms, cleaning material and buckets in the janitor room, these were placed adjacent to the kitchen window along with biomedical waste as seen in the **Photograph-2** alongside.



**Photograph-2: District Female Hospital, Almora**

#### **4.9.4 Quality testing of meals**

As per IPHS, the quality of diet should be checked by a competent person on a regular basis.

It was observed that in all the test checked hospitals, the sister was doing quality testing of the diets provided to the in-patients during 2014-19. However, the food distributed to the patients were never examined by the food inspector or district authorities from time to time in any of the test checked hospitals.

In the Exit Conference, the Government stated that food inspectors would be instructed to check the quality of food served by the contractors.

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<sup>18</sup> For storage of raw material, vegetables with appropriate numbers of refrigerators, racks, etc.

<sup>19</sup> If bore well/well water is used, there should be a provision for disinfection using chlorine or boiling before use.

<sup>20</sup> Apron, head gear, clear plastic gloves when dispensing food.

#### 4.9.5 Availability of kitchen

NHM Assessor's Guidebook envisages that the health facility must have standard procedures for preparation, handling, storage and distribution of food as per the requirement of diet by patients. It is, therefore, imperative that each hospital is equipped with its own in-house kitchen for preparation of meals as per the specific dietary requirements of patients and also for ensuring maintenance of hygiene during cooking.

- Scrutiny of records revealed that in-house kitchen facility was not available in DFH Haridwar during the period 2014-19. It was found that kitchen of DH Haridwar was used jointly by DH Haridwar and DFH Haridwar and it was 500 metres away from the campus of DFH, Haridwar.

The availability of other facilities in the kitchen of test checked hospitals is given in the **Table-28** below:

**Table-28: Availability of facilities in Kitchen**

Facilities	DH		JH		DFH	
	Almora	Haridwar	Udham Singh Nagar	Chamoli	Almora	Haridwar
Refrigerator	Yes	Yes	Yes	Yes	No	Kitchen shared with DH Haridwar
Water purifier	Yes	Yes	No	No	No	
Storage room	No	Yes	No	Yes	No	

*Source: Information collected from test checked hospitals.*

The test checked hospitals did not ensure provision of storage room to contractor while the contractor did not install other essential items<sup>21</sup> in the kitchen.

- Domestic gas cylinder instead of Commercial cylinder was used in the kitchen of DFH Almora and DH Haridwar.
- The inventory of kitchen equipment was not available in any of the test checked hospitals.
- Minimum number of staff required/deployed for cooking and for distribution of cooked food to the IPD patients was not specified in the agreement by any of the test checked hospitals.
- FSSAI registration certificate<sup>22</sup> issued under Food Safety and Standards Act, 2006 had expired<sup>23</sup> in three test checked hospitals. No action was taken by the hospital management to get it renewed by the contractor.

<sup>21</sup> Refrigerator for storage of raw material and water purifier for getting clean and quality water.

<sup>22</sup> As per FSSAI rules, any Registration or license for which renewal has not been applied for within the period mentioned in Regulation 2.1.7 (2) or 2.1.7(4) shall expire and the Food Business Operator shall stop all business activity at the premises. The Food Business Operator will have to apply for fresh Registration or license as provided in Regulation 2.1.1 and 2.1.3 as the case may be, if it wants to restart the business.

<sup>23</sup> JH Udham Singh Nagar- 16 April 2019, DH Haridwar- July 2017, DH Almora- July 2018.

- In three test checked hospitals, the contractors were running kitchen with expired<sup>24</sup> Labour registration certificate.
- The kitchen of DH Haridwar was not maintained in a sound condition. The floors, ceilings and walls of the kitchen were in dilapidated conditions. During physical inspection of the kitchen, it was found that the roof of the kitchen was leaking due to rain (8 January 2020) as seen in the *Photograph-3* below:



*Photograph-3: Kitchen was leaking due to rain at DH Haridwar*

In Exit Conference, the Government stated that appropriate direction would be issued in regard to deployment of manpower for dietary purposes and DH Haridwar would be instructed to take up maintenance work with its own funds.

#### **4.10 Patient Safety**

##### **4.10.1 Disaster management capability of hospitals**

The only rational manner in which hospitals can be prepared for disasters is by increasing their resilience and reducing their vulnerability by strengthening both structural and operational aspects of the hospital, such that they achieve a reasonable degree of safety. Therefore, preparing for expected and unexpected threats in advance is the best way to ensure that damages are as minimal as possible. In this regard, healthcare facilities can prepare by integrating smart technologies into existing infrastructure to improve the safety aspects.

##### **4.10.2 Plan to manage disasters, fire and mass casualty incidents**

As per State Disaster Management Action Plan for the State of Uttarakhand, State plan should streamline with overall health policy and health plan to address the preventive, mitigation and response plan in event of a disaster.

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<sup>24</sup> JH Udham Singh Nagar- 31 March 2019, DH Haridwar- 31 March 2019, DFH Almora- 31 March 2019.

Test check of records disclosed that the hospitals neither prepared plans nor standard operating procedures (SOP) to manage disasters and mass casualty incidents during the period 2014-19 with the exception being DFH Haridwar which had prepared SOP. Besides, buffer stock of medicines to meet out emergent situation like disasters, fire and mass casualty incidents was not maintained during the period 2014-19 by any of the test checked hospitals except Almora. The hospitals, therefore, failed to prepare themselves in advance for the expected and unexpected threats to ensure as minimal damages as possible.

In the Exit Conference, the Government stated that that fire safety plan and SOP to manage fire and other disasters was prepared at district level under the guidance of District Magistrate. Reply is not acceptable as IPHS envisaged every district hospital to have a dedicated disaster management plan in line with state disaster management plan.

#### **4.10.3 Safety from Fire**

Minimum requirements for a reasonable degree of safety from fire emergencies in hospitals must be met, such that the probability of injury and loss of life from the effects of fire are reduced. In this regard, measures shall be taken to limit the development and spread of fire by providing appropriate arrangements within the hospital through adequate staffing and careful development of operative and maintenance procedures consisting of design and construction; provision of detection, alarm and fire extinguishers; fire prevention; planning and training programs for isolation of fire; and transfer of occupants to a place of comparative safety or evacuation of the occupants to achieve ultimate safety.

It was observed that fire safety audit was not conducted in four hospitals<sup>25</sup> during 2014-19. Further, No Objection Certificate required to be obtained from the Fire Department was also not given to four test checked hospitals<sup>26</sup> for various reasons such as equipment being old, not refilled, inadequate hydrants, and less number of extinguishers.

#### **4.10.4 Availability of fire equipment**

National Building Code of India 2016, Part-4, Fire and Life Safety requires that fire extinguishers must be installed in every hospital, so that in case of any fire in the hospital premises, the safety of the patients/attendants/visitors and the hospital staff may be ensured.

The details of availability of fire extinguishers and other items in test checked hospitals during 2018-19 are shown in **Table-29** given below:

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<sup>25</sup> DH Almora, DH Haridwar, JH Udham Singh Nagar and JH Chamoli.

<sup>26</sup> DH Almora, DFH Almora, DH Haridwar and JH Udham Singh Nagar.

Table-29: Details of availability of fire equipment

Equipment/Statutory compliance			DFH		JH		DH	
			Almora	Haridwar	Udham Singh Nagar	Chamoli	Almora	Haridwar
Total functional beds			38	56	168	135	59	70
NOC granted (Yes/No)			No	Yes	No	Yes	No	No
Provision of Detection	Smoke detector		No	Yes	No	No	No	No
	Alarm		No	Yes	No	No	Yes	No
For meeting fire exigencies	Extinguishers	2014-15	5	29	25	36	17	10
		2018-19	13	34	29	34	27	25
	Fire Hydrants		1	9	No	No	5	No
	Sand buckets		Yes	Yes	No	Yes	Yes	No
	Underground backup water for fire		No	Yes	No	No	No	No
Evacuation			No	Yes	Yes	Yes	Yes	No

Source: Information collected from hospitals.

- Four out of the six test checked hospitals could not ensure compliance of the suggestions given by the fire department. As a result, NOC was not granted to these hospitals. Further, the following shortcomings were noticed in the test checked hospitals:
- As per the hospital safety guidelines for Fire Fighting, the underground static water tank should remain full at all times to meet any contingency. However, in five out of six test checked hospitals, the underground static water tank was not constructed for meeting the fire contingency.
- Fire hydrants<sup>27</sup> intended to provide water to the firemen were not installed in three out of six hospitals.
- Illuminated signage for fire exit was not available in two out of six test checked hospitals.
- DH Haridwar and JH Udham Singh Nagar had not installed extinguishers at power backup area.

**Positive feature**

**DFH Haridwar had ensured all safety measures for the safety of the patients/attendants/visitors and the hospital staff.**

In the Exit Conference, it was stated by the Government that instructions would be issued to all hospitals to place a demand for procuring fire safety equipment so that the fire safety norms are ensured.

#### 4.10.5 Other findings related to fire safety

Records of DFH, Almora revealed that the hospital building was an old structure constructed with woodwork. It was, therefore, essential for the hospital authorities to take adequate precautions to prevent mis-happenings caused due to fire. However, it was noticed that:

<sup>27</sup> Fire hydrant installation consists of a system of pipe work connected directly to the water supply main to provide water to each and every hydrant outlet and is intended to provide water to the firemen. The water is discharged into the fire engine from which it is then pumped and sprayed over fire.



- Hospital had single evacuation door.
- There was no place to transfer occupants to a comparative safe place.
- Non-repairable generator was also obstructing the fire safety equipment as seen in the **Photograph-4** alongside. There were insufficient fire hose reels<sup>28</sup> in the hospital.



**Photograph-4: DFH Almora**

Records of the DH Haridwar revealed that due to short circuit fire occurred in the premises of hospital in the midnight of 15-16 August 2015 which was timely diffused by the fire brigade. However, in its report (May 2016) the Fire Brigade Department, Haridwar, pointed out that the safety measures were not in place to meet untoward incidents for the safety of occupants and property of hospital. As per the suggestion made by the fire department, the hospital was required to provide all floors with hose reels with enough stored water on each floor; install terrace pump, fire alarm system and smoke analyser in wards; and to keep all exit doors cleared. Audit, however, observed that these items were not yet installed in the hospital even after lapse of four years. During physical inspection, it was also noticed that evacuation doors were blocked by vehicles as seen in **Photograph-5**. The facts were accepted by DH Haridwar and it was further stated that necessary action would be taken in this regard. Thus, the safety of the patients/attendants/visitors and the hospital staff was compromised.



**Photograph-5: DH Haridwar**

#### **4.11 Evaluation of in-patient services through Outcome Indicators**

The IPD services can be evaluated through Outcome Indicators viz. Bed Occupancy Rate (BOR), Bed Turnover Rate (BTR), Discharge Rate (DR), Referral Out Rate (ROR), Average Length of Stay (ALOS), Left Against Medical Advice (LAMA) Rate and Absconding Rate.

##### **4.11.1 Evaluating productivity of the hospitals**

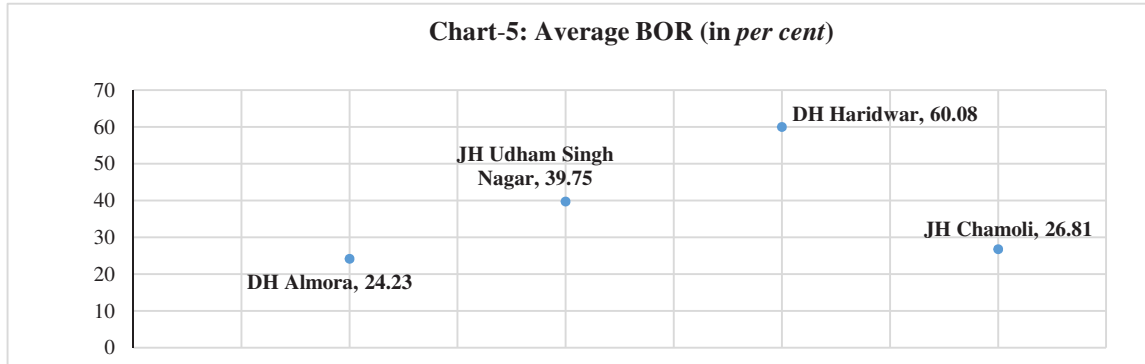
###### **4.11.1.1 Bed occupancy rate**

The Bed Occupancy Rate (BOR)<sup>29</sup> is an indicator of the productivity of the hospital services and is a measure of verifying whether the available infrastructure and processes

<sup>28</sup> Fire *hose reels* are located at strategic places in buildings to provide a reasonably accessible and controlled supply of water for fire extinguishing.

<sup>29</sup> BOR=Total patient bed days in a month\*100/ (Total No. of functional beds \*No. of days in a month).

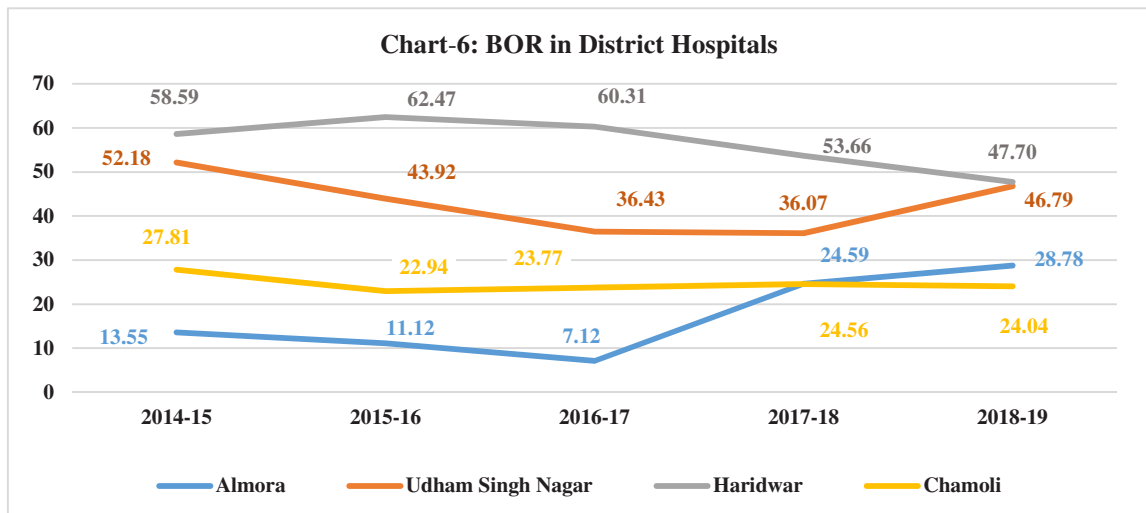
are adequate for delivery of health services. As per IPHS, it is expected that the BOR of a hospital should be at least 80 *per cent*. High BOR is a sign of good productivity of the hospital. Average BOR in the test checked DHs/JHs during sampled period was as per **Chart-5** below:



Benchmark<sup>30</sup>-80 *per cent*

The average BOR in all the test checked hospitals remained very low against the norm of 80 *per cent* for the test checked months.

The trend during the period 2014-15 to 2018-19 for BOR in the test checked DHs/JHs is given in **Chart-6** below:



#### **4.11.2 Evaluating efficiency of the hospitals**

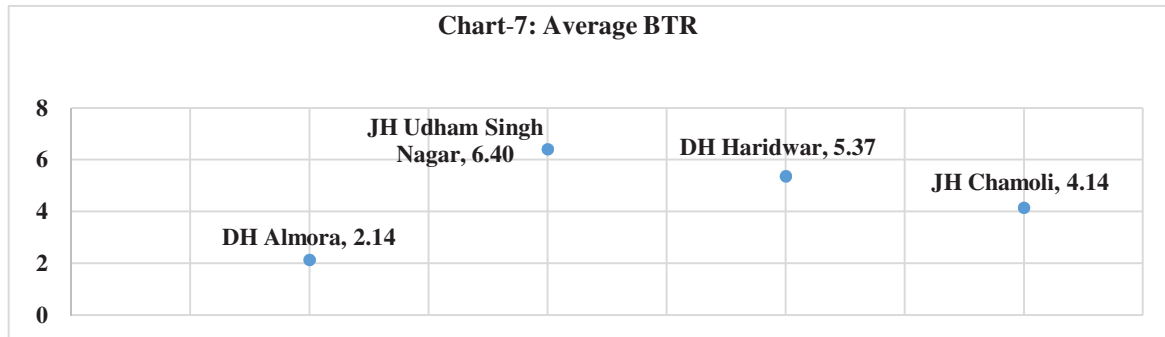
##### **4.11.2.1 Bed Turnover Rate (BTR)**

The Bed Turnover Rate (BTR)<sup>31</sup> is a measure of the utilization of the available bed capacity and serves as an indicator of the efficiency of the hospital. High BTR indicates high utilization of the in-patient beds in a hospital while low BTR could be due to fewer

<sup>30</sup> As per IPHS.

<sup>31</sup> BTR=Total No. of discharges (including Referral, LAMA, Absconding and Death)/Total No. of functional beds.

patient admissions or longer duration of stay in the hospitals. Average BTR in the test checked hospitals in sampled months was as per **Chart-7** below:

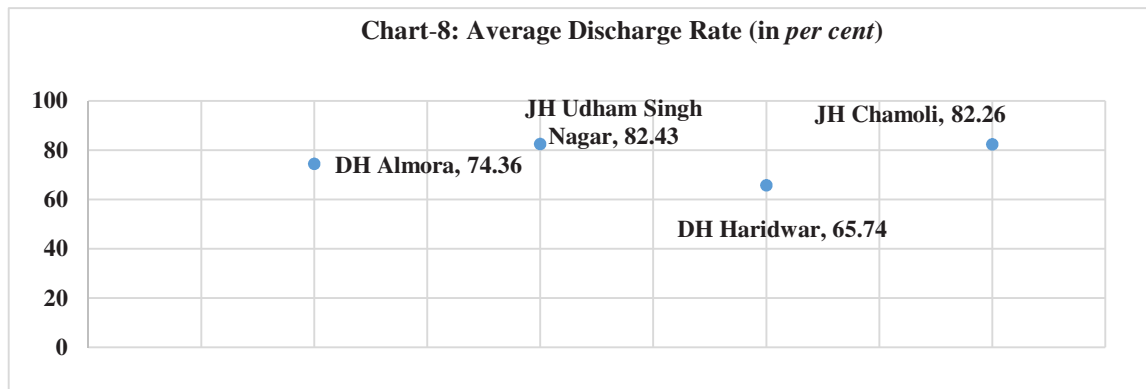


Benchmark<sup>32</sup>-5.36

The efficiency of the hospital as indicated by BTR was on lower side in DH Almora and JH Chamoli in test checked months during the period 2014-19.

#### 4.11.2.2 Discharge Rate (DR)

Discharge Rate (DR)<sup>33</sup> measures the number of patients leaving a hospital after receiving due health care. High DR denotes that the hospital is providing health care facilities to the patients efficiently. Average DR in the test checked DHs/JHs during sampled months was as per **Chart-8** below:



Benchmark<sup>34</sup>-78.90 per cent

The lowest DR was in DH Haridwar indicating that the hospital was the most under-performing hospital among the test checked DHs/JHs. Further, DH Almora also did not perform well in terms of the DR.

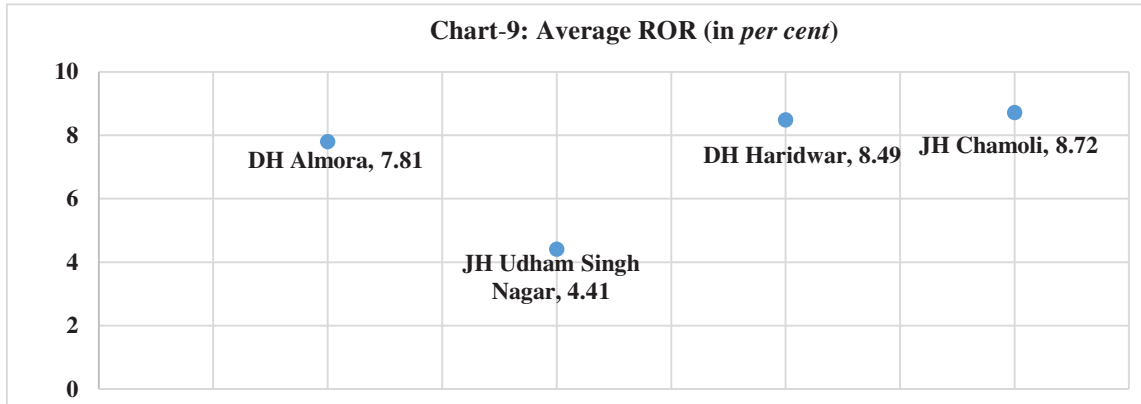
<sup>32</sup> Weighted average with average IPD load of sampled months as the weight.

<sup>33</sup> DR=Total No. of discharges (excluding Referral, LAMA, Absconding and Death) \*100/Total No. of Admissions.

<sup>34</sup> Weighted average with average IPD load of sampled months as the weight.

#### 4.11.2.3 Referral Out Rate (ROR)

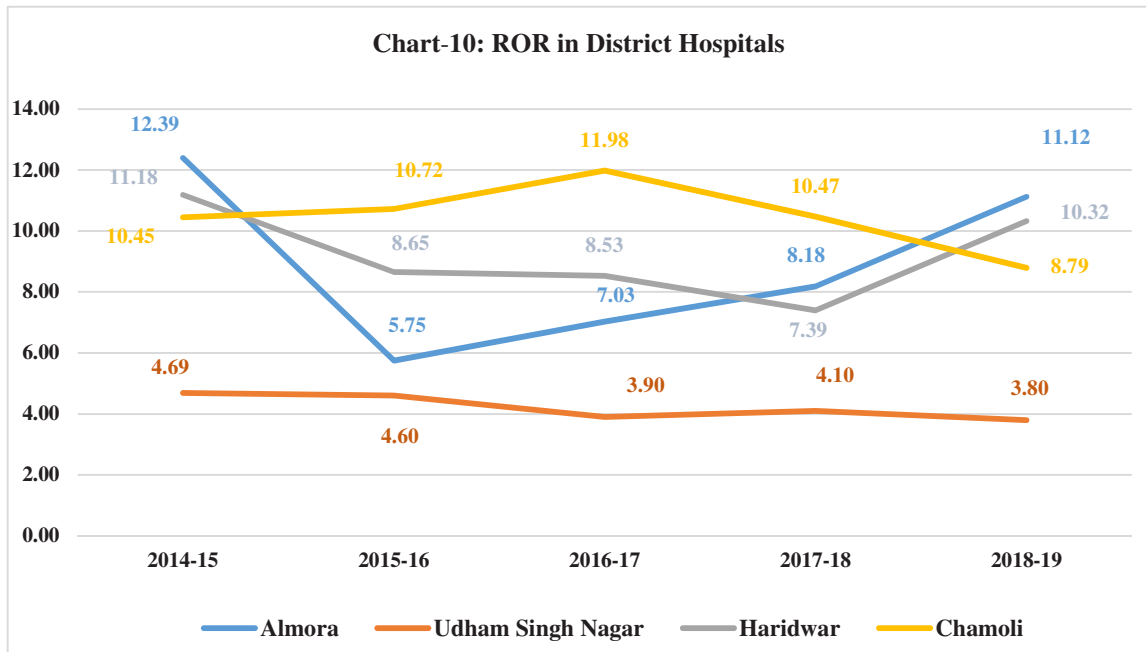
Referral to higher centres denotes that the facilities for treatments were not available in the hospitals. Average Referral Out Rate<sup>35</sup> in the test checked DHs/JHs during sampled months was as per as per **Chart-9** below:



Benchmark<sup>36</sup>-6.50 per cent

The ROR in JH Chamoli, DH Haridwar and DH Almora was on the higher side indicating that health care facilities were not adequate in these hospitals.

The trend during the period 2014-15 to 2018-19 for ROR in the test checked DHs/JHs is given in **Chart-10** below:



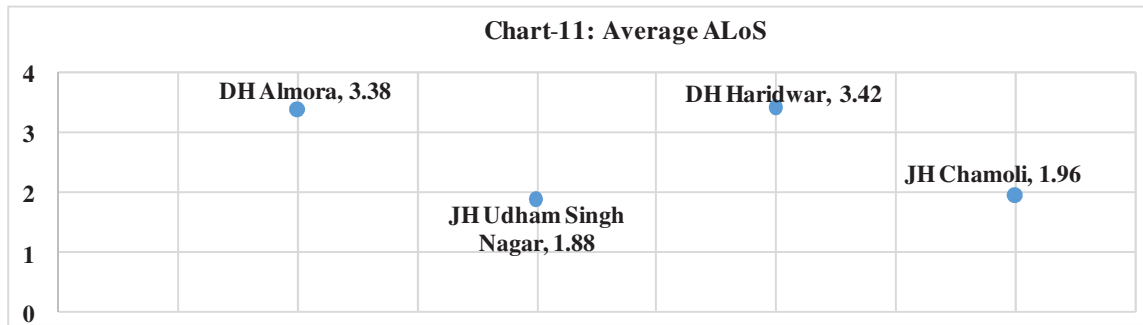
<sup>35</sup> ROR=Total No. of patients referred to higher facility\*100/Total No. of Admissions.

<sup>36</sup> Weighted average with average IPD load of sampled months as the weight.

### 4.11.3 Evaluating clinical care capability of the hospitals

#### 4.11.3.1 Average Length of Stay (ALoS)

Average Length of Stay (ALoS)<sup>37</sup> is an indicator of clinical care capability and to determine effectiveness of interventions. ALoS is the time between the admission and discharge/death of the patient. Average ALoS (in days) in the test checked DHs/JHs in sampled months was as per **Chart-11** below:



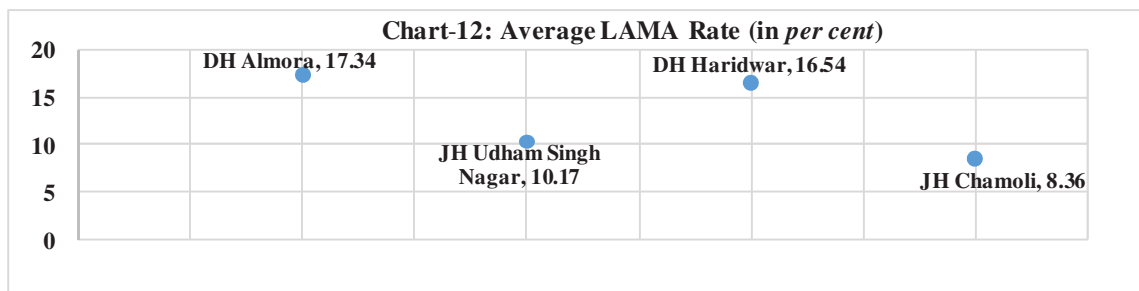
Benchmark<sup>38</sup>-2.27

The average ALoS in JH Udham Singh Nagar and JH Chamoli remained too low which indicate that clinical capability of these hospitals was not adequate in test checked months during the period 2014-19.

### 4.11.4 Evaluating service quality of the hospitals

#### 4.11.4.1 LAMA Rate

To measure service quality of a hospital, leave against medical advice (LAMA)<sup>39</sup> rate is evaluated. LAMA is the term used for a patient who leaves the hospital against the advice of the doctor. Average LAMA Rate in the test checked DHs/JHs in sampled months was as per **Chart-12** below:



Benchmark<sup>40</sup>-11.25 per cent

<sup>37</sup> ALoS=Total patient bed days/Total No. of discharges (including Referral, LAMA, Absconding and Death).

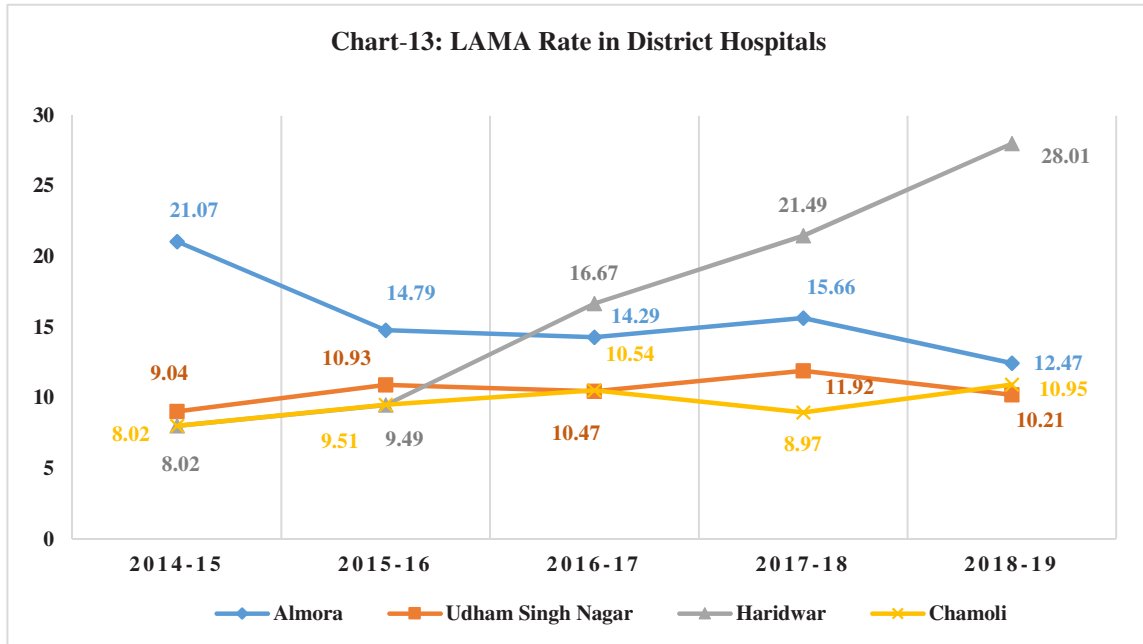
<sup>38</sup> Weighted average with average IPD load of sampled months as the weight.

<sup>39</sup> LAMA=Total No. of LAMA cases\*100/Total No. of Admissions.

<sup>40</sup> Weighted average with average IPD load of sampled months as the weight.

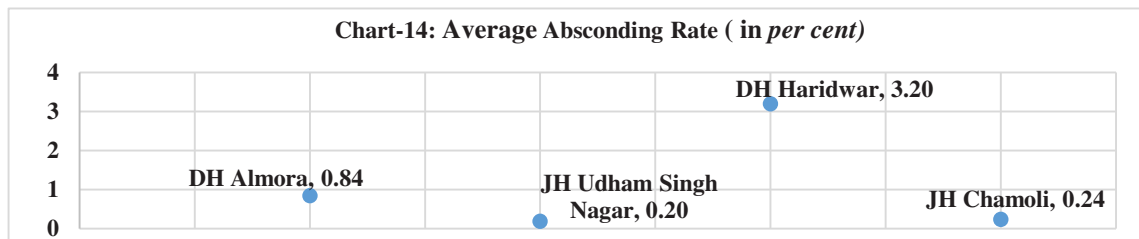
The average LAMA rate in DH Haridwar and DH Almora was too high in test checked months during the period 2014-19 indicating that the service quality in these hospitals was well below the desired level.

The trend during the period 2014-15 to 2018-19 for LAMA in the test checked DHs/JHs is given in **Chart-13** below:



#### 4.11.4.2 Absconding Rate (AR)

To measure service quality of a hospital, Absconding Rate<sup>41</sup> is evaluated. Average AR in the test checked DHs/JHs in sampled months was as per **Chart-14** below:



Benchmark<sup>42</sup>-0.79 per cent

The average AR in DH Haridwar was extremely high in test checked months during the period 2014-19 indicating poor service quality and lack of security arrangements in the DHs/JHs.

<sup>41</sup> Total No. of Absconding cases\*100/Total No. of Admissions.

<sup>42</sup> Weighted average with average IPD load of sampled months as the weight.

#### 4.11.4.3 Completeness of medical records

Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations, 2002, contains format for doctors to maintain medical records of patients in which details of the patients were required to be filled. These records are essential to measure effectiveness of care received by the patient for legal purposes as well as for follow-up treatment. Scrutiny of the test checked Bed Head Tickets (BHTs) of sampled days disclosed that the occupation and follow-up of the patients was not being mentioned on BHTs of the patients concerned.

Lack of properly filled-up BHTs would have adverse impact on medical care provided to a patient, especially in cases of follow up or referral to higher facilities.

#### 4.11.4.4 Patient Satisfaction Survey

Patient Satisfaction Survey (PSS) score is an indicator of patient satisfaction and acts as an important monitoring and feedback mechanism for the IPD. It was observed that only in DFH Haridwar and JH Udham Singh Nagar, PSS had been conducted during the year 2018-19.

##### (i) Outcome of Patient Satisfaction Survey conducted by Audit

Patient Satisfaction Survey of IPD patients in all the test checked DHs/JHs was carried out by the audit team.

The Patient Satisfaction Survey response was extrapolated for all the IPD patients in the test checked DHs/JHs. The estimates of percentage of patients<sup>43</sup> satisfied with various services are shown in the **Table-30** given below:

**Positive feature**  
*The patients were highly satisfied with availability of water and clean toilets in the test checked DHs/JHs.*

**Table-30: Estimates of Percentages in respect of IPD with 95 per cent Confidence Interval**

Sl. No.	District Hospital	DH Almora	JH Udham Singh Nagar	DH Haridwar	JH Chamoli
<b>1.</b>	<b>Dietary Services: percentage satisfied</b>				
(i)	Quality of food	21-40	27-43	84-95	21-40
(ii)	Quantity of food	67-85	27-43	82-94	24-43
(iii)	Meeting requirement of specific diets	15-34	24-39	33-51	16-34
<b>2.</b>	<b>Laundry Services: percentage satisfied</b>				
(i)	Availability of clean, dry & ironed linen	23-42	6-16	18-34	28-48
(ii)	Regular changing of bed linen	10-27	3-13	8-20	24-43
(iii)	Availability of clean house coat/pyjama etc.	Lower limit negative <sup>44</sup>	20-34	23-40	Not Estimated <sup>45</sup>

The satisfaction level of the patients regarding laundry services was low. Besides, the satisfaction score regarding availability of specific diets (diabetic, liquid, semi-solid) was also poor.

<sup>43</sup> Rounded to nearest whole number.

<sup>44</sup> All patients are dissatisfied/highly dissatisfied.

<sup>45</sup> All patients are highly dissatisfied.

Besides, the estimates of time taken by doctor to visit a patient after his/her admission in the IPD in the test checked DHs/JHs are shown in **Table-31** given below:

**Table-31: Estimation of time taken for doctor's visit after admission with 95 per cent Confidence Interval**

DH, Almora	JH Udham Singh Nagar	DH Haridwar	JH Chamoli
2.5-3.3 hours	2.7-4.5 hours	2.3-15.8 hours	1.8-2.2 hours

#### 4.12 Outcomes vis-à-vis availability of resources

The relative performance of the test checked DHs/JHs on the various outcome indicators worked out by audit and the corresponding availability of resources as discussed above is summarised in the **Table-32** given below:

**Table-32: Outcomes vis-à-vis availability of resources in DHs/JHs**

Hospital	Productivity	Efficiency			Service quality		Clinical care	Availability of resources			
	Bed Occupancy Rate (per cent)	Bed Turnover Rate	Discharge Rate (per cent)	Referral Out Rate (per cent)	LAMA Rate (per cent)	Absconding Rate (per cent)	Average Length of Stay (in days)	Doctors (per cent)	Nurses (per cent)	Essential Drugs (per cent)	Clinical Pathology Services (per cent)
DH Almora	24.23	2.14	74.36	7.81	17.34	0.84	3.38	90	83	71	63
DH Haridwar	60.08	5.37	65.74	8.49	16.54	3.20	3.42	75	73	60	50
JH Chamoli	26.81	4.14	82.26	8.72	8.36	0.24	1.96	61	61	71	40
JH Udham Singh Nagar	39.75	6.40	82.43	4.41	10.17	0.20	1.88	66	67	53	54
Benchmark <sup>46</sup>	80	5.36	78.90	6.50	11.25	0.79	2.27	100	100	62.25	73.75

Source: Test checked DHs/JHs.

It is evident that due to inadequate availability of resources, every hospital relative to the other test checked hospitals underperformed in at least one outcome indicator, with the performance of DH Almora and DH Haridwar being, in particular, below par.

*To sum up, the audit scrutiny of IPD services revealed non-availability of IPD services such as Psychiatry; Accident and Trauma; and Dialysis services<sup>47</sup> in all the test checked DHs/JHs. Besides, there was a substantial shortage of doctors, nurses and para-medical staff. Further, there was a significant shortage of drugs and equipment in IPD, OT and Emergency services. ICU facility was not available in any of the test checked DHs/JHs during 2014-19. Availability of ambulances equipped with basic life support system as per norms was not ensured. Distinctive dietary requirements for different categories of patients were not ensured while the patient safety in the hospital premises was compromised on account of non-compliance with the disaster management guidelines and lack of proper fire safety arrangements in the test checked DHs/JHs. Every hospital relative to the other test checked DHs/JHs under performed in at least one outcome indicator.*

<sup>46</sup> Benchmarks: BOR—as per IPHS, weighted average for rest of the outcome indicators with average IPD patients in sampled months as the respective weight for each hospital, 100 per cent (sanctioned strength) for availability of doctors and nurses, and simple mean for drugs and clinical pathology services.

<sup>47</sup> Except in JH Udham Singh Nagar.



**Chapter-5**  
**Maternity Services**



## 5 Maternity Services

Maternal Mortality Rate (MMR), Neonatal Mortality Rate (NMR), Infant Mortality Rate (IMR) and Under 5 Mortality Rate (U5MR) are significant indicators of the quality of maternity services available. According to the Report “Healthy States, Progressive India” on Health Index brought out (June 2019) by Niti Aayog, NMR (per 1,000 live births) was 30 for Uttarakhand during 2016. It was ranked 13<sup>1</sup> out of 21 larger States with just Uttar Pradesh, Madhya Pradesh and Odisha behind. The IMR (per 1,000 live births) and U5MR (per 1,000 live births) were 38 and 41 in 2016 compared to the All India Average of 34 and 39 respectively. The MMR (per lakh live births) was 201 in 2014-16 compared to the All India average of 130.

As adequacy of human and material resources and diagnostic services, along with clinical effectiveness of both medical and para-medical staff, are the major drivers of maternity services, norms for provisioning of various maternal health services and resources have been specified in Maternal and Neonatal Health Toolkit 2013 (MNH Toolkit) and Guidelines of *Janani Shishu Suraksha Karyakram* (JSSK) prescribed by Government of India.

### *Components of maternity services*

Antenatal care (ANC), Intra-partum care or delivery care (IPC) and Post Natal Care (PNC) are the major components of facility based maternity services. ANC 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. Under IPC, interventions for safe delivery in labour room and operation theatre are performed. PNC includes medical care of mother and the newborn especially during the 48 hours post-delivery, which are considered critical.

#### **5.1 Antenatal Care**

Under ANC component of maternity care, pregnant women are provided at least four antenatal check-ups during pregnancy period which include physical examination and laboratory investigations to monitor pregnancies for signs of complications for prompt management.

In the test checked DFHs/JHs; scrutiny of ANC registers revealed that the first ANC was being given at the stage of registration. Whenever the registered pregnant ladies turned up

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<sup>1</sup> Some of the states shared the same rank.

for 2<sup>nd</sup> or 3<sup>rd</sup> ANC, a new number was given to the concerned pregnant women by the hospital. No mechanism was in place to track the pregnant ladies who had been given ANC and, therefore, it could not be ascertained due to poor record maintenance and non-operationalisation of MCT System<sup>2</sup> as to whether all of them had received all essential ANCs.

### **5.1.1 Non-availability of IFA tablets**

ANC Guidelines 2010 envisage that all pregnant women need to be given one tablet of Iron Folic Acid (IFA: 100 mg elemental iron and 0.5 mg folic acid) every day for at least 100 days, starting after the first trimester, at 14-16 weeks of gestation. IFA dose is given to prevent anaemia (prophylactic dose) and this dosage regimen is to be repeated for three months post-partum. During audit it was noticed that IFA tablets were available in all the test checked DFHs/JHs except in JH Chamoli where availability of IFA tablets was not ensured. The IFA tablets were not available during the period 2014-17 and were out of stock for 223 days during the year 2018-19.

### **5.1.2 Pathological investigations**

ANC Guidelines 2010 prescribe conducting six pathological investigations<sup>3</sup>, depending upon the condition of pregnancy during ANC visits to identify pregnancy related complications. It was found that out of prescribed six pathological investigations, human immunodeficiency virus (HIV) and hepatitis B surface antigen (HBsAg) test in DH Almora<sup>4</sup> and malaria test in DFH Haridwar were not done to identify pregnancy related complications.

#### **Positive feature**

***JH Udham Singh Nagar and JH Chamoli were conducting all six pathological investigations.***

## **5.2 Intra-Partum Care**

Intra-partum Care (IPC) includes care of pregnant woman during intra-partum period (the time period spanning from the onset of labour to 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 dealing with the maternity cases. Specific audit observations on IPC are discussed below:

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<sup>2</sup> An initiative under NHM to track every pregnant woman right from conception up to 42 days' post-partum and all new born up to five years of age through **Mother Child Track System (MCTS)** to ensure that the pregnant woman and children receive 'full' set of medical services.

<sup>3</sup> Blood group including Rh factor, Venereal disease research laboratory (VDRL)/Rapid Plasma Reagin (RPR), HIV testing, Rapid Malaria test, Blood Sugar testing, Hepatitis B surface Antigen (HBsAg).

<sup>4</sup> No laboratory investigation facility was available in DFH Almora; the service was availed from DH Almora.

## 5.2.1 Availability of resources

### 5.2.1.1 Essential drugs

To ascertain the availability of essential drugs in the maternity wing of selected hospitals, audit examined the availability of 21 types of essential drugs<sup>5</sup> prescribed in MNH Toolkit during the sampled period<sup>6</sup>. The details are summarised in **Table-33** below:

**Table-33: Availability of essential drugs**

Name of hospital	Number of drugs available during total sampled period	Details of shortfall of Essential Drugs		
		Number of drugs		Stock out (in days)
		Not available	Stock out	
DFH-Almora	08	01	12	(21-121)
DFH-Haridwar	04	04	13	(4 -118)
JH-Chamoli	06	05	10	(28 - 62)
JH-Udham Singh Nagar	11	06	04	(31-120)

Source: Stock register Maternity wing of test checked hospitals.

It was observed that one to six essential drugs were not available during the sampled period. Besides, four to 13 types of essential drugs remained out of stock for up to four months during the sampled period.

Even the essential drugs for maternity care, such as Injection Diazepam, Injection Carboprost, Injection Gentamycin, Tablet Metronidazole 400 mg, Ringer Lactate, Normal Saline, Calcium Gluconate, Injection Hydrazaline, and Tablet Methyldopa were out of stock in test checked DFHs/JHs ranging from 17 to 75 per cent of the duration of the sampled period.

Shortages in critical drugs during majority of the sampled period compromised the ability of the hospitals to provide emergency and critical care in maternity cases, besides putting the patients at risk in case of non-availability of drugs outside.

#### *Uses of medicines:*

*Diazepam: to treat anxiety and seizures; relieve muscle spasms; and to provide sedation before medical procedures.*

*Carboprost: to treat severe bleeding after childbirth and to produce an abortion by causing uterine contractions.*

*Gentamycin and Hydrazaline: to prevent or treat a wide variety of bacterial infections and to treat the high blood pressure respectively.*

*Ringer Lactate solution is used for fluid replenishment after blood loss.*

*Normal Saline: for clean out an IV Catheter  
Calcium Gluconate: to treat conditions arising from calcium deficiency in pregnancy.*

<sup>5</sup> Adrenaline, Ampicillin, Betamethasone/Dexamethasone, B-Complex, Calcium Gluconate, Carboprost, Diazepam, Gentamycin, Hydrazaline, Hydrocortisone Succinate, Ibuprofen, Lignocaine, Misoprostol, Methyldopa, Tablet Metronidazole, Injection Metronidazole, Normal Saline, Oxytocin, Oxytocin 10 IU, Paracetamol and Ringer Lactate.

<sup>6</sup> May 2014, August 2015, November 2016, February 2018 and May 2018.

### 5.2.1.2 Essential consumables

MNH Toolkit prescribes 20 types of essential consumables such as draw sheet, cord clamp, baby wrapping sheets, disposable mucus extractor, sanitary pad, disposable nasogastric tube, cetrimide solution (500 ml), sterile urinary catheter, etc. for providing clean and safe environment for mother and newborn in the labour room and wards.

Scrutiny of records in the test checked DFHs/JHs for ascertaining the availability of essential consumables on sampled days<sup>7</sup> disclosed that.

- Baby wrapping sheets were not available in any of test checked DFHs/JHs except JH Udham Singh Nagar.
- Disposable nasogastric tubes (used for feeding and administering drugs and other oral agents) were available only in JH Chamoli and in JH Udham Singh Nagar.
- Cetrimide solution (antiseptic and disinfectant used topically for wound cleansing and the treatment of some skin disorders) and thread for suture (used to hold body tissues together after an injury or surgery) were not available in any of test checked DFHs/JHs.
- Sanitary pads and gowns for labouring woman were not available in DFH Haridwar and JH Chamoli.

Non-availability of essential consumables in test checked DFHs/JHs adversely impacted the achievement of the objective of providing a clean and safe environment for mother and newborn in labour room and wards.

### 5.2.1.3 Essential human resource

As per MNH Toolkit, “An adequate human resource is required for providing best possible care during pregnancy, delivery and postpartum period with dignity and privacy to client.” Human Resource requirement should be based on deliveries per month for a maternity wing. Details of requirement of human resources for maternity services as per MNH Toolkit are as per the **Table-34** given below:

**Table-34: Human resources as per MNH Toolkit**

Number of deliveries/months	Human resources required
Up to 100 deliveries	Medical Officers: 1-2 (available during routine hrs and on call during emergency) and ANM/Staff nurse: 4
100 to 200 deliveries	Medical Officers: 4 (for round the clock duty), Staff nurse: 4, ANM: 4 and LT: 2(for round the clock service).
200 to 500 deliveries	Obstetric (OBG): 1 (Mandatory), Obstetric/Emergency Obstetric Care (EmOC): 4 (for round the clock service), Anaesthetist: 1 (Mandatory) exclusive for maternity case, Medical Officer: 4 (trained in BEmOC, FIMNCI, NSSK), Paediatrician: 1, Staff Nurse: 8, ANM: 4 and LT: 4 (for round the clock service).

Audit noticed that sanctioned human resource was not in consonance with the provisions of MNH Toolkit in any of test checked DFHs/JHs. The details of availability of human

<sup>7</sup> Examination of records of the availability of consumables on particular day during audit.

resource against sanctioned posts in the test checked DFHs/JHs shown in the **Table-35** given below:

**Table-35: Details of availability of human resource against sanctioned post as on date of audit**

	DFH Almora		DFH Haridwar		JH Chamoli		JH Udhm Singh Nagar	
	S	A	S	A	S	A	S	A
Average delivery per month	92		323		57		309	
Post	S	A	S	A	S	A	S	A
Gynaecologist	5	3	3	2	1	-	1	-
Lady Medical Officer (LMO)	2	2	3	3	2	2	4	2
Anaesthetist	1	1	1	1	1*	1	2*	2
Paediatrician	1	1	1	1	1*	1	2*	1
Staff Nurse	11	8	11	11	28*	17	24*	16
Auxiliary Nursing Midwife (ANM)	2	2	1	1	2	2	1	1
Lab Technician	-	-	1	1	05*	01	5*	3
<b>Total</b>	<b>22</b>	<b>17</b>	<b>21</b>	<b>20</b>	<b>40</b>	<b>24</b>	<b>39</b>	<b>25</b>

Source: Information provided by test checked DFHs/JHs.

S: Sanction A: Available.

\*sanctioned strength for hospital as a whole.

- Ideal Human Resource requirement based on deliveries per month for maternity wing was not as per MNH tool kit. DFH Almora had more sanctioned posts of Gynaecologists than DFH Haridwar and JH Udhm Singh Nagar despite the delivery load of DFH Almora being less than 100 per month.

Audit further noticed that:

- No Gynaecologist was posted in JH Chamoli and JH Udhm Singh Nagar during 2014-19 against the sanctioned post whereas a Gynaecologist was posted as Principal Medical Superintendent (PMS) in DH Haridwar during the period 25 June 2016 to 13 December 2018 despite this service not offered by the hospital.
- No Anaesthetist was deployed between 28 June 2017 and 22 December 2017 in DFH Haridwar whereas 246 C-Section deliveries were conducted during the aforesaid period in the hospital. The DFH intimated that private Anaesthetist was hired as and when required.
- In DFH Almora, JH Chamoli and JH Udhm Singh Nagar, nurses were not available as per sanctioned strength.

The deployment of nurses was not according to Nursing Council of India (NCI) which recommends one nurse per six beds in the general ward. The details of bed to nurse ratio in maternity wing of test checked DFHs/JHs in sampled months are given in the **Table-36** given below:

**Table-36: Shift wise availability of nurses in IPD (maternity wing) of the test checked DFHs/JHs**

Sampled Period	DFH Almora			DFH Haridwar			JH Udhm Singh Nagar			JH Chamoli		
	Bed/Nurse			Bed/Nurse			Bed/Nurse			Bed/Nurse		
Ratio bed Nurse	Shift-1	Shift-2	Shift-3	Shift-1	Shift-2	Shift-3	Shift-1	Shift-2	Shift-3	Shift-1	Shift-2	Shift-3
May 2014	2	7	7	9	13	13	7	11	11	3	7	7
August 2015	1	5	5	11	17	17	7	13	13	3	5	5
November 2016	2	6	12	8	11	11	9	13	13	2	3	3
February 2018	1	9	9	11	14	14	7	10	10	2	4	4
May 2018	1	5	5	13	13	13	7	11	11	2	4	4

Source: Information provided by the test checked DHs/JHs.

The bed to nurse ratio in Shift-2 and Shift-3 was much higher than the NCI norm in DFH Haridwar and JH Udham Singh Nagar in sampled months during the period 2014-19.

Shortage of key resources in the hospitals was indicative of impaired functioning of the hospitals to manage the pregnancy related complications, ensure satisfactory new-born care and manage efficiently maternal health emergencies.

#### **5.2.1.4 Availability of essential equipment**

IPHS prescribes 28 types<sup>8</sup> of essential equipment for labour ward, neonatal and special newborn care unit.

Scrutiny of records in test checked DFHs/JHs for ascertaining the availability of essential equipment disclosed that 25 to 39 *per cent* of equipment were not available in the test checked DFHs/JHs. Important equipment like **Craniotomy instrument** (the surgical instrument for removal of part of the bone from the skull to expose the brain for surgery); **Silastic vacuum extractor** (used in second stage of labour if it has not progressed adequately) and **CPAP machine** (used for mild air pressure to keep the airways open in case of breathing problems during sleep) were not available in any of the test checked DFHs/JHs. Further, **Cardiotocography instrument** (used for recording the fetal heartbeat and the uterine contractions during pregnancy) and **Hemoglobinometer** (used for measuring hemoglobin blood concentration) were available only in DFH Haridwar.

### **5.3 Clinical efficiency**

#### **5.3.1 Preparation of Partographs**

A partograph consists of a graphic representation of the progress of labour. It enables the birth attendant to identify and manage complications of labour promptly or to take a decision to refer the patient to a higher medical facility, if required. Overall quality of care as provided by the health centers during labour is also

*Partograph is a composite graphical record of key data (maternal and foetal) during labour against time on a single sheet of paper. Relevant measurements might include statistics such as cervical dilation, foetal heart rate, duration of labour and other vital signs. It is intended to provide an accurate record of the progress in labour, so that any delay or deviation from normal may be detected quickly and treated accordingly.*

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<sup>8</sup> Baby Incubators, Phototherapy Unit, Emergency Resuscitation Kit-Baby, Standard weighing scale, Newborn Care equipment, Double-outlet Oxygen Concentrator, Radiant Warmer, Room Warmer, Foetal Doppler, Cardio Toco Graphy Monitor, Delivery Kit, Episiotomy kit, Forceps Delivery Kit, Craniotomy, Vacuum extractor metal, Silastic vacuum extractor, Pulse Oximeter baby & adult, Cardiac monitor baby & adult, Nebulizer baby, Weighing machine adult, Weighing machine infant, CPAP Machine, Head box for oxygen, Haemoglobinometer, Glucometer, Public Address System, Wall Clock, BP Apparatus & Stethoscope.



monitored through the partograph.

Scrutiny of records of sampled days<sup>9</sup> of the sampled months revealed that partographs were not prepared for all occupants/patients in the test checked DFHs/JHs as detailed in the **Table-37** given below:

**Table-37: Preparation of Partograph**

Hospital	Test checked sampled days (1-7) of sampled month									
	May 2014		Aug 2015		Nov 2016		Feb 2018		May 2018	
	D	P	D	P	D	P	D	P	D	P
<b>DFH Almora</b>	13	Nil	16	Nil	24	Nil	27	09	16	09
<b>DFH Haridwar</b>	50	Nil	82	03	60	Nil	78	Nil	92	Nil
<b>JH Chamoli</b>	17	Nil	15	Nil	08	Nil	12	07	18	06
<b>JH Udham Singh Nagar</b>	69	Nil	62	Nil	66	Nil	56	Nil	54	Nil

*Source: Information collected from test checked DFHs/JHs.*

*D-Total Deliveries & P- Partograph prepared.*

- In JH Udham Singh Nagar, no partograph was prepared in any of the sampled months during audit.
- In DFH Haridwar, no partograph was prepared in any of the sampled months during 2014-15 and 2016-17 to 2018-19. Further, during 2015-16, partographs were prepared only in three against 82 deliveries in the sampled period.
- In DFH Almora, no partograph was prepared in the sampled months during 2014-15 to 2016-17 and only 18 partographs were prepared against 43 deliveries in the sampled period during 2017-18 and 2018-19.
- In JH Chamoli, no partograph was prepared in the sampled months during 2014-15 to 2016-17 and during 2017-18 and 2018-19 only 13 partographs against 30 deliveries were prepared.

Non-preparation or insufficient preparation of partograph during labour impaired the ability of the hospital to monitor and ensure the required quality of service in the labour room to reduce the chances of adverse pregnancy outcomes.

During the Exit Conference, the Government stated that directions would be issued to the hospitals for preparation of partographs in the required cases.

### 5.3.2 Management of preterm labour

A preterm baby is defined as a baby who is born alive before completion of 37 weeks of pregnancy. As per Government of India<sup>10</sup>, India has the highest number of preterm births as well as neonatal deaths due to prematurity. Every year, out of all preterm births around

*Antenatal corticosteroids are used for accelerating foetal lung maturation for women at risk of preterm birth which results in decrease of neonatal morbidity and mortality. Antenatal corticosteroids are effective in reducing respiratory distress syndrome and other complications of premature deliveries.*

<sup>9</sup> First seven days of the selected months.

<sup>10</sup> Operational guidelines for use of Antenatal Corticosteroids in preterm labour.

10 per cent die due to complications of preterm births. Several survivors face a lifetime of disability including learning, hearing and visual disabilities. Preterm birth is a risk factor in at least 50 per cent of all neonatal deaths and is the second most common cause of death (after pneumonia) among children under the age of five.

As per NHM Guidelines, complications can be largely prevented by administering injection of Corticosteroids (Betamethasone Phosphate/Dexamethasone) and, therefore, a single course (four doses of 4 mg each) of Corticosteroids should be administered to a woman as soon as she is diagnosed with preterm labour.

Scrutiny of labour room records pertaining to five sampled months during 2014-19 disclosed that 253 out of 4,105 deliveries were recorded as preterm deliveries based on the gestation period and thus the women were to be administered Corticosteroid injection for safe delivery. Audit noticed that the required injection was not administered to 204 women before deliveries despite availability of the required drug in three out of four DFHs/JHs. Details are given in the **Table-38** below:

**Table-38: Administration of Betamethasone in pre-term delivery cases**

DFH/JH	No. of test checked delivery cases	Preterm deliveries	No. of cases in which Corticosteroid not administered	Stillbirths
DFH Almora	467	13	06	04
DFH Haridwar	1,816	124	96	16
JH Chamoli	302	03	02	00
JH Udham Singh Nagar	1,520	113	100	00
<b>Total</b>	<b>4,105</b>	<b>253</b>	<b>204</b>	<b>20</b>

*Source: information collected from test checked DFHs/JHs.*

It was also observed that in DFH Haridwar and DFH Almora, 16<sup>11</sup> and four women respectively, who delivered stillbirth, were not administered injection Betamethasone/Dexamethasone before deliveries. Besides, a newborn baby, delivered through pre-term labour, remained at risk of serious postnatal complications apart from neonatal deaths due to non-administration of Corticosteroid to the mother.

During the Exit Conference, the Government stated that the reasons for not administering Corticosteroid injection would be called for from the concerned district hospitals.

### **5.3.3 Caesarean deliveries (C-Section)**

MNH Toolkit designated all DFHs/JHs as centre for providing surgical (C-Section) services with the provision of specialised human resources (gynaecologist/obstetrician and anaesthetist) and equipped operation theatre to provide Emergency Obstetric Care (EmOC) to pregnant women. The *Janani Shishu Suraksha Karyakram*<sup>12</sup> (JSSK) entitles all pregnant women to C-Section services with a provision for free drugs, consumables, diagnostics, etc. The details of C-Section deliveries in test checked DFHs/JHs in sampled months are detailed in the **Table-39** given below:

<sup>11</sup> Of preterm delivery.

<sup>12</sup> A GoI-sponsored programme for maternal and child health care under NHM.

Table-39: C-Section deliveries

Category of hospital	Total delivery	Normal	C-Section	Per cent
DFH Haridwar	1,816	1,555	261	14.37
DFH Almora	467	399	68	14.56
JH Chamoli	302	289	13	4.30
JH Udham Singh Nagar	1,520	1,467	53	3.49

Source: information collected from test checked DFHs/JHs.

The percentage of C-Section deliveries in JH Udham Singh Nagar and JH Chamoli remained very low as compared to DFH Almora and DFH Haridwar due to non-availability of Gynaecologists in these hospitals in sampled months during the period 2014-19.

Further, JSSK Guidelines itemised 16 types<sup>13</sup> of drugs for performing C-Section deliveries and these drugs were to be provided to women free of cost under NHM. The health facility is empowered to procure drugs and consumables to prevent stock outs and ensure uninterrupted supply and availability of drugs and consumables at health institutions.

To assess whether the availability of drugs related to C-Section deliveries was ensured, the issue was examined in DFH, Haridwar and JH, Chamoli and it was found that:

- Out of prescribed 16 types of essential drugs, four to six types of drugs in DFH Haridwar and three to five types of drugs in JH Chamoli were not available during the period 2014-19.
- Out of available drugs, three to seven and four to seven drugs were out of stock in DFH Haridwar and JH Chamoli and stock out ranged between 13 to 343 days and 19 to 344 days respectively.

The patients, therefore, were deprived of free drug facility under JSSK guidelines during the above period, thereby defeating the objective of the scheme.

### 5.3.4 C-Section medical records

NHM Assessor's Guidebook stipulates that patient evaluation before surgery, use of surgical safety check-list and writing of post-operative notes during surgery and post-operative monitoring before discharging the patient to ward, should be done and recorded. This provides assurance towards observance of all procedures and care required for surgeries of the requisite quality.

Test check of C-Section surgery cases in DFHs/JHs in sampled days disclosed that the records related to surgical safety checklist, pre surgery evaluation and post-operative evaluations were not maintained. In the absence of documentation, there was no assurance that the doctors and other support staff took sufficient measures to deliver quality C-Section surgery services.

<sup>13</sup> Injection Metronidazole/Metrogyl 100 ml, Injection Gentamycin 80 mg, Injection Cefotaxime, Injection Cloxacillin, Injection Oxytocin, Injection Sensorcain, Injection Lignocaine Hydrochloride IP 5 per cent, Injection Lignocaine 2 per cent, Injection Phenergan/Promethazine, Injection Diclofenac Sodium, Ringer Lactate, Sodium Chloride, Injection Dextrose, Injection Sodium bicarbonate, Injection Menadione (Vitamin K3), Injection Fortwin/Pentazocine.

### 5.3.5 Special Newborn Care Unit/Newborn Stabilisation Unit

As per MNH Toolkit, 12 bedded Special Newborn Care Unit (SNCU)<sup>14</sup> is essential to treat critically ill newborns in a district hospital.

It was observed that SNCU was available only in DFH Haridwar. The other three DFH/JHs had merely the facility of Newborn Stabilisation Unit<sup>15</sup>.

Test check of records related to SNCU/NBSU of selected DFHs/JHs revealed that the average referral out rate, LAMA rate, absconding rate and neonatal death rate during the period 2014-19 were as per **Table-40** given below:

**Table-40: Average rate**

Name of DFHs/JHs	Total Admission	Referral out Rate (Referred cases)	LAMA Rate (LAMA cases)	Absconding Rate (Absconding cases)	Neonatal death Rate (Neonatal death cases)
DFH Almora	1,320	4.92 (65)	00	00	0.68 (09)
DFH Haridwar	4,193	11.80 (495)	4.79 (201)	0.05 (02)	1.62 (68)
JH Chamoli	320	32.50 (104)	6.25 (20)	00	10.31 (33)
JH Udham Singh Nagar	2,220	29.55 (656)	00	00	1.49 (33)

*Source: Information collected from test checked DFHs/JHs.*

- Referral out rate of neonates from NBSU in JH Chamoli and JH Udham Singh Nagar was extremely high as compared to DFH Almora and DFH Haridwar during 2014-19. These hospitals did not have SNCU facility, except in DFH Haridwar.
- LAMA rate of neonates in JH Chamoli and DFH Haridwar remained comparatively high during the period 2014-19, which indicates that service quality of these hospitals was well below the desired level.
- Neonatal death rate in JH, Chamoli was too high as compared to other test checked DFHs and JH during the period 2014-19.
- Absconding cases of neonates from SNCU of DFH Haridwar indicated lack of security in DFH Haridwar.

### 5.3.6 Non-follow-up of referred Neonates from SNCU/NBSU

The quality assurance guidelines prescribe that when a patient is referred to higher level hospital, the hospital authorities are required to inform in advance about the referral of the patients to the higher hospital in order to enable them avail better medical care. Further, the hospital authorities should follow-up the treatment of the referred patient. As seen in above **Table-40**, 1,320 neonates were referred to higher centres. However, hospital authorities neither informed the higher facilities in advance about the referral of the patients nor they followed-up with the treatment of the referred neonates during the period 2014-19.

<sup>14</sup> SNCU is meant to reduce the case of fatality and provide care for sick newborns except assisted ventilation and major surgeries.

<sup>15</sup> It helps in stabilizing sick newborns before referring to higher centres.

During the Exit Conference, the Government stated that directions would be issued for following up the treatment of referred neonates.

#### 5.4 Death Review

As per IPHS all the mortality that occurs in the hospital shall be, reviewed on fortnightly basis. Details of maternal and neonatal death reviews conducted during 2014-19 are in the **Table-41** given below:

**Table-41: Death Reviews**

Name of hospital	No. of maternal deaths	No. of maternal death reviews conducted	No. of neonatal deaths	No. of neonatal death reviews conducted
DFH, Almora	02	00	09	00
DFH, Haridwar	04	04	68	00
JH, Chamoli	01	00	33	00
JH, Udham Singh Nagar	02	01	33	00
<b>Total</b>	<b>09</b>	<b>05</b>	<b>143</b>	<b>00</b>

*Source: Information collected from test checked DFHs/JHs.*

- Neonatal death reviews were not conducted in any hospitals though there were 143 neonatal deaths during 2014-19.
- In DFH Almora and JH Chamoli, no maternal death review was conducted during the period 2014-19.
- In JH Udham Singh Nagar against two maternal deaths, one maternal death review had been conducted during the period 2014-19. Death review report disclosed that the maternal death occurred due to post-partum haemorrhage.

In DFH Haridwar, however, maternal death reviews were conducted in all four cases that occurred during the period 2014-19. A perusal of the death review reports disclosed that reasons of death in three cases were post-partum haemorrhage/anaemia and cardiogenic shock and one death occurred due to myocardial infraction. Death Review Committee had suggested<sup>16</sup> to ensure availability of ICU/Obstetric ICU; ultrasonography facility; physician/cardiologist/surgeon; anaesthetist/nursing staff; and 24x7 pathology services in DFH Haridwar. It was also noticed that even after suggestions made by Death Review Committee, ICU/Obstetric ICU; ultrasonography facility; and 24x7 pathology services were not made available in DFH Haridwar. It was stated by the hospital that due to shortage of manpower and specialised services; and lack of space, the said facilities could not be made available in DFH Haridwar. The reply of the hospital is not justifiable as compliance of suggestions made by the death review committees was not done.

In the Exit Conference, the Government informed that death reviews were being conducted on a regular basis since 2019-20 and for previous cases, the matter would be looked into.

<sup>16</sup> 05 June 2014; 02 July 2017; 06 January 2018; and 26 June 2018.

## 5.5 Postnatal maternal and newborn care

### 5.5.1 Postnatal care

Prompt Post Natal Care (PNC) is important for early detection and management of any kind of possible post-delivery complications the in mother and infant. Most of the major complications in mothers such as post-partum haemorrhage and eclampsia, which can lead to maternal death, occur during this period. ANC Guidelines and MNH Toolkit specify that the health check-ups of mother and infant should be monitored and recorded in the PNC register. As per Guidelines, newborns should be administered doses of three vaccines Oral Polio Vaccine (OPV), Bacillus Calmette Guerin (BCG), Hepatitis ‘B’; and Vitamin ‘K’ on the day of birth to protect them from the diseases.

- Audit examination of labour room records disclosed that immunisation records were not maintained. It was further noticed that the newborns were immunised at Post-Partum Cell (PPC), established in DFHs/JHs, which were also catering to the vaccination for the entire district. No separate records were maintained for vaccination to newborns of DFHs/JHs by PPC. However, in DFH Almora, mother child protection card was attached with Janani Suraksha Yojana (JSY) payment vouchers. Audit examined 60 such cases. It was found that only 27 newborns (45 per cent) were administered the three vaccines timely. Due to non-availability of mother child protection card in other test checked DFHs/JHs; audit could not ascertain whether all newborns of DFHs/JHs where fully immunised timely. Further, audit noticed shortage of vaccines in PPCs as detailed in the **Table-42** below:

**Table-42: Details of stock out of vaccines**

Vaccine Name	Stock out period					
	BCG		OPV		Hepatitis-B	
DFHs/JHs	From	To	From	To	From	To
DFH Almora	13-10-2015	20-10-2015	15-05-2016	19-05-2016	01-12-2018	05-12-2018
	24-11-2015	27-11-2015	07-12-2017	11-12-2017	05-01-2019	31-01-2019
	10-08-2017	16-08-2017	-	-	08-02-2019	14-03-2019
	-	-	-	-	22-03-2019	26-03-2019
DFH Haridwar	-	-	-	-	18-02-2016	23-02-2016
	-	-	-	-	01-11-2016	30-11-2016
JH Chamoli	21-04-2016	24-04-2016	-	-	15-04-2014	22-04-2014
	27-04-2017	04-05-2017	-	-	07-01-2016	19-01-2016
	07-09-2017	19-09-2017	-	-	10-03-2016	14-03-2016
	13-10-2017	22-10-2017	-	-	-	-

Source: Vaccine stock register.

The authorities of DFH Almora stated that newborns were vaccinated in the sub-district hospital during that period but no records were provided in support of reply. The authorities of DFH Haridwar accepted that Hepatitis-B was not administrated to newborns during the stock out period in which 62 and 362 deliveries had been conducted.

#### **Positive feature**

**No stock out of vaccines was found in JH Udham Singh Nagar during the period 2014-19.**

It was also noticed that Vitamin K was available in one out of the two<sup>17</sup> hospitals where this aspect was examined. Audit observed that in JH Chamoli, Vitamin K was out of stock for a period ranging between two to 32 days during the period 2014-19. During the stock out period, 434 infants were born.

Inadequacy in administering required vaccinations to newborns indicated that the implementation of immunisation programme may not have been fully ensured.

In the Exit Conference, the Government informed that availability of vaccine was now being ensured. It was also assured that a column would be inserted in the maternity register for including vaccination details of newborns.

### 5.5.2 Cash Assistance for Institutional Delivery

Under Janani Suraksha Yojana (JSY), the cash incentive is given to the mother for antenatal care during the pregnancy period, institutional care during delivery and immediate post-partum period in a health centre. As the financial assistance to the mother is mainly to meet the cost of delivery, it should be disbursed effectively at the institution itself.

Records of the test checked DFHs/JHs revealed that cash assistance to all the JSY beneficiaries were not provided as detailed in the **Table-43** given below:

**Table-43: Details of cash assistance not provided to JSY beneficiaries**

Name of the DH	Year	Institutional deliveries	No. of cases in which cash assistance not provided ( <i>per cent</i> )
DFH Almora	2017-18	1,120	132 (11)
	2018-19	1,278	205 (16)
DFH, Haridwar	2016-17	4,491	966 (22)
	2017-18	4,561	1,431 (31)
	2018-19	5,400	2,772 (51)
JH Chamoli	2017-18	643	332 (52)
	2018-19	653	152 (23)
JH Udham Singh Nagar	2017-18	3,836	635 (17)
	2018-19	3,866	1,034 (27)

Source: Records of test checked DFHs/JHs.

In JH Chamoli and in DFH Haridwar, percentage of cash assistance not provided was comparatively very high during the years 2017-18 and 2018-19 respectively.

To verify timely payment to JSY beneficiaries, 50 sampled<sup>18</sup> JSY cases in all the DFHs/JHs were selected. It was noticed that payments were delayed in sampled cases which ranged from 15 days to more than 180 days. Details are in the **Table-44** given below:

<sup>17</sup> JH Chamoli and DFH Haridwar.

<sup>18</sup> First 10 JSY payment cases of each financial year were selected for test check from each financial year 2014-15 to 2018-19.

**Table-44: Details of delayed payment to JSY beneficiaries**

Name of the Hospital	Total test checked cases	Delay payment in days						Non-payment
		On time	1-15 days	16-30 days	31-60 days	61-180 days	More than 180 days	
DFH Almora	50	NIL	40	NIL	NIL	NIL	10	NIL
DFH Haridwar <sup>19</sup>	30	03	10	04	05	03	NIL	04
JH Chamoli	50	23	07	08	08	02	NIL	02
JH US Nagar	50	02	43	05	NIL	NIL	NIL	NIL

Source: JSY payment of records of test checked DFHs/JHs.

Cash assistances under JSY scheme were, therefore, not being provided to the mothers timely despite availability of funds during the period 2016-19. It was stated by the authorities of the test checked hospitals that cash assistances could not be made timely due to want of beneficiary account and other required documents. Reply is not justifiable as these documents are to be completed by the ASHA well before the expected date of delivery of the beneficiary as per guidelines.

In the Exit Conference, it was stated by the Government that opening of separate bank accounts of the beneficiaries would be ensured at first ANC and concerned ASHAs would be made liable to facilitate the beneficiaries.

## 5.6 Other Issues

### 5.6.1 Availability of kits, drugs and equipment for management of STI/RTI

As per Operational Guidelines for Strengthening STI/RTI<sup>20</sup> services, all clinics should maintain adequate stocks of STI/RTI pre-packed kits of seven types and essential drugs of 14 types<sup>21</sup> at all times. A record-keeping and storage system should be in place to ensure an adequate stock of drugs and supplies. A minimum of a 3-month stock of all kits, drugs and supplies should be maintained at all times. It has also been suggested that STI/RTI service facilities should provide STI/RTI kits based on diagnosis.

Test check of records related to STI/RTI Clinic in JH Chamoli and DH Haridwar, from where DFH Haridwar was availing the services, revealed that adequate stock of the seven prescribed kits for diagnosis of STI/RTI was not maintained. It was found that:

- Only 57 per cent kits were available in DH Haridwar during 2014-17 and in JH Chamoli, 29 per cent to 100 per cent kits were not available during 2014-19.
- Out of prescribed 14 types of essential drugs, six to ten types of drugs in DH Haridwar and 9 to 14 types of drugs<sup>22</sup> in JH Chamoli were not available during the period 2014-19.

<sup>19</sup> JSY records related to 2014-16 were not produced.

<sup>20</sup> Sexually Transmitted Infection/Reproductive Tract Infection.

<sup>21</sup> Tablet Azithromycin, Tablet Cefixime, Benzyl benzoate, Clotrimazole, Tablet Erythromycin, Injection Benzathine Penicillin, Injection Distilled water ampoules/glass phials 10 ml, Capsule Amoxicillin, Tablet Secnidazole, Tablet Acyclovir, Tablet/Capsule, Fluconazole, Tablet Metronidazole, Podophyllin tincture, Capsule Doxycycline.

<sup>22</sup> None of the prescribed drugs was available in 2018-19.



- Out of the available drugs, one to three and two to three types of drugs were out of stock in DH Haridwar and JH Chamoli and stock out ranged between 99 and 218 days and 30 and 181 days respectively.
- As against 35 prescribed items of accessories, equipment and medical supplies, only 49 *per cent* and 51 *per cent* items were available in DH Haridwar and JH Chamoli.

The absence of essential drugs including kits for the management of STI/RTI was indicative of poor management of STI/RTI cases.

During the Exit Conference, the Government stated that adequate stock of the prescribed kits and medicines for diagnosis of STI/RTI was now being maintained.

### **5.6.2 Comprehensive Abortion Care**

Unsafe abortions due to pregnancy complications also contribute to maternal morbidity and mortality. Availability of safe, effective and acceptable abortion care services is one of the most important aspects of maternity services. MNH Toolkit prescribes for availability of Comprehensive Abortion Care (CAC) services at DFHs with deployment of MTP-trained<sup>23</sup> medical officer and availability of 16 essential drugs. Further, every head of the hospital shall maintain a register in 'Form III-Admission Register'<sup>24</sup> for case records for recording therein the details of the admissions of women for the termination of their pregnancies and keep such register for a period of five years from the end of the calendar year it relates to. MNH Toolkit prescribes that each facility must maintain MTP register.

#### **5.6.2.1 Non-maintenance of register**

As per Handbook for Safe Abortion-2016, it is mandatory to fill and record information for abortion cases performed by the hospital.

Audit examined the records of DFH Haridwar and JH Chamoli and it was observed that Form III as well as MTP register had not been maintained in DFH Haridwar during 2014-19; in JH Chamoli, the said records were maintained for the period 2016-19.

#### **5.6.2.2 Shortage and stock out of essential drugs**

The availability of 16 essential drugs<sup>25</sup> in DFH Haridwar and JH Chamoli was examined and it was observed that full range of 16 essential drugs was not available. Besides, stock

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<sup>23</sup> MTP–Medical Termination of Pregnancy.

<sup>24</sup> As per Comprehensive Abortion Care (CAC) Training and Service Delivery Guidelines (2010 & 2018).

<sup>25</sup> Injection Adrenaline, Injection Aminophylline, Injection Ampicillin 500 mg, Injection Atropine Sulphate, Injection Calcium gluconate, IV Fluids- Injection Dextrose 5 *per cent*, 10 *per cent*, 25 *per cent* & Injection DNS, Injection Diazepam, Injection Fortwin/Pentazocine/Tablet Paracetamol 500 mg, Injection Hydrocortisone Succinate, Injection Lignocaine 2 *per cent*, Injection Metclopramide, Injection Oxytocin 10 IU, Injection Phenergen/Promethazine, Injection Frusemide, Injection Sodium Bicarbonate 7.5 *per cent*, Injection Dopamine.

out of essential drugs was also noticed in these hospitals which ranged between nine and 355 days; and 11 and 348 days respectively as detailed in the **Table-45** given below:

**Table-45: Abortion cases in DFH/JH during 2014-19**

Name of DFH/JH	No. of stock out medicines (range)	No. of medicines not available for whole year	No. of abortion cases treated
<b>DFH Haridwar</b>	5 (9-355 days)	1	738
<b>JH Chamoli</b>	5 (11-348 days)	1	148

*Source: Information collected from test checked DFH/JH.*

Without full availability of essential drugs, the required quality of CAC services may not have been ensured as the patients were either compelled to buy the required drugs from outside or forgo the benefit of usage of the drugs.

## **5.7 Pregnancy outcomes**

With a view to gauge the quality of maternity care provided by the test checked DFHs/JHs, Audit ascertained the pregnancy outcomes in terms of live births, stillbirths and neonatal deaths pertaining to five selected months of 2014-19.

### **5.7.1 Stillbirths**

The stillbirth rate is a key indicator of quality of care during pregnancy and childbirth. Stillbirth or intrauterine foetal death is an unfavourable pregnancy outcome and is defined as complete expulsion or extraction of baby from its mother with no signs of life. As per NFHS-4 (2015-16), average stillbirth rate of Uttarakhand was 0.9 per 100 pregnancy outcomes.

Audit observed that average stillbirth rate in sampled months during the period 2014-19 was between 1.32 and 2.53 *per cent* in the test checked DFHs/JHs as given in the **Table-46** below:

**Table-46: Average stillbirths during 2014-19**

Name of hospital	Total no. of deliveries	Total no. of live birth	Total no. of still birth	Still birth rate
<b>DFH Almora</b>	467	463	12	2.53
<b>DFH Haridwar</b>	1,816	1,802	33	1.80
<b>JH Chamoli</b>	302	298	04	1.32
<b>JH Udham Singh Nagar</b>	1,520	1,499	27	1.77

*Source: Information collected from the test checked DFHs/JHs.*

The average stillbirth rate in all the test checked hospitals was higher than the average stillbirth rate of Uttarakhand. The stillbirth rate in DFH Almora was higher in comparison to other test checked hospitals and close to three times the stillbirth rate of Uttarakhand indicating unsatisfactory quality of pregnancy care. The test checked hospitals attributed the reasons for stillbirth to pregnant ladies coming to hospital from remote areas; critical condition of the foetus; non-availability of specialist doctors; and shortage of supporting staff, *etc.*

### 5.7.2 Neonatal deaths

Neonatal death rate is also an indicator of quality of maternity and newborn care services. MNH Toolkit requires hospitals to record the number of neonatal deaths per month with causes of such deaths in the labour room register.

Audit observed that neonatal deaths were recorded in the prescribed labour room register during 2014-19. In test checked DFHs/JHs, the average neonatal deaths rate in sampled months during the period 2014-19 was between 0.07 and 0.47 *per cent* in the test checked hospitals as given in the **Table-47** below:

**Table-47: Neonatal death rate during 2014-19**

Name of hospital	Total no. of deliveries in DFH/JH	Total no. of live birth	Deliveries outside DFH/JH but admitted in SNCU/NBSU	Total neonates (3+4)	Neonatal death	Death rate
1	2	3	4	5	6	7
DFH Almora	467	463	0	463	02	0.43
DFH Haridwar	1,816	1,802	96	1,898	9	0.47
JH Chamoli	302	298	08	306	01	0.33
JH Udham Singh Nagar	1,520	1,499	14	1,513	01	0.07

Source: Information collected from the test checked DFHs/JH).

### 5.8 Outcome of Patient Satisfaction Survey conducted by Audit

Patient Satisfaction Survey of IPD patients in the test checked DFHs was carried out by the audit team. The satisfaction score on different services provided by hospitals is summarised in the **Table-48** given below:

**Table-48: Patient satisfaction Score in test checked DFHs**

(in percentage)

Services provided by the Hospitals	DFH Almora	DFH Haridwar
Nursing care	48	91
Availability of water facility	100	94
Availability of clean toilets	100	81
Availability of specific diets	3	30
Availability of clean linen	16	51
Availability of clean house coat/pyjama	0	2

The patients were highly satisfied with availability of water facility and clean toilets. However, they were extremely dissatisfied with non-availability of specific diets, clean linen and clean house coat/pyjama. Besides, it was found that eight *per cent* patients paid out of their pockets for medicines, consumables for surgeries and diagnostic services in DFH Haridwar.

### 5.9 Performance of the test checked hospitals

#### 5.9.1 Outcomes vis-à-vis availability of resources

The relative performance of the test checked DFHs/JHs on outcome indicators evaluated by audit and the corresponding availability of resources was as shown in the **Table-49** given below:

**Table-49: Outcomes vis-à-vis availability of resources in DFHs/JHs**

DFHs/JHs	Productivity	Efficiency		Clinical Care	Service Quality	C-Section Rate (per cent)	Availability of resources		
	BOR (per cent)	Discharge Rate (per cent)	ROR (per cent)	ALOS (in days)	LAMA Rate (per cent)		Human Resource (per cent)	Drug	Equipment
DFH Almora	29.61	72.45	6.60	2.08	10.55	14.56	76	38	71
DFH Haridwar	61.74	91.36	3.04	2.21	4.23	14.37	95	19	75
JH Chamoli	26.13	78.14	11.92	2.08	3.19	4.30	59	29	68
JH Udham Singh Nagar	52.98	83.90	2.36	1.81	13.48	3.49	65	52	61
Weighted Average <sup>26</sup>	80	85.06	4.05	2.05	8.04	10.25	100	34.50	68.75

*Source: Test checked DFHs/JHs.*

As seen from above, that due to inadequate availability of resources,

- All the DFHs/JHs underperformed with regard to productivity outcome as average BOR remained well below the benchmark. JH Chamoli and DFH Almora underperformed even when compared to the other two hospitals.
- Efficiency outcome of DFH Almora, JH Chamoli and JH Udham Singh Nagar was not satisfactory as discharge rate was low while ROR was high in JH Chamoli and DFH Almora against the weighted average in test checked months during 2014-19.
- Clinical care outcome of JH Udham Singh Nagar was not satisfactory as average ALOS was low as compared to other three DFHs/JHs as well as weighted average of all the test checked hospitals in test checked months during 2014-19.
- Service quality of DFH Almora and JH Udham Singh Nagar was also not satisfactory as both hospitals had a very high LAMA rate as compared to DFH Haridwar and JH Chamoli during test checked period.
- JH Chamoli and JH Udham Singh Nagar underperformed with regard to C-Section rate as compared to other two selected DFHs due to inadequacy of human resource in test checked months during the period 2014-19.
- Availability of drugs in DFH Haridwar and JH Chamoli was also inadequate as compared to JH Udham Singh Nagar and DFH Almora in test checked months during the period 2014-19.

*To sum up, proper record maintenance and operationalisation of MCT system with essential human resource, drugs and pathological investigation facilities were lacking which impaired the ability of the hospitals to monitor the health of mothers and newborns, potentially impacting maternal and infant mortality rates. Newborns delivered through pre-term labour remained at risk of serious postnatal complications and neonatal deaths due to non-administration of Corticosteroid to the mother. Management of complications during delivery in hospitals was also lacking as in most of the cases, the partographs were not prepared. Timely cash assistances to the mothers under JSY scheme was also not ensured by the hospital authorities defeating the envisaged objectives of the scheme.*

<sup>26</sup> Benchmarks: BOR–80 per cent as per IPHS, weighted average for rest of the outcome indicators with average IPD patients in sampled months as the respective weight for each hospital, 100 per cent (sanctioned strength) for availability of human resource, and simple mean for drugs and equipment.

# **Chapter-6**

## **Infection Control**



## 6 Infection Control

### *Infection Control Management*

Health care associated infections are major burdens for patients, society and health care management. An infection control program is considered efficient which, when used appropriately, restricts the spread of infection among patients and staff in the hospital. Infection control practices are important in maintaining a safe environment for everyone by reducing the risk of potential spread of diseases.

**Figure-3: Various aspects of infection control**



### **6.1 Aspects of infection control**

#### **6.1.1 Standard Operating Procedure and Checklist for infection control**

To prevent hospital acquired infection in patients, visitors and staff, it was required under IPHS to frame standard practices for cleaning and disinfection of patient care areas known as Standard Operating Procedures (SOPs). As per the NHM Assessor's Guidebook a checklist for hygiene and infection control is required to be maintained in each hospital.

*“Kayakalp” initiative was launched by the Ministry of Health & Family Welfare on 15 May 2015 with the objectives:*

- *to promote cleanliness, hygiene and infection control practices in public healthcare facilities, through incentivising and recognising such public healthcare facilities that show exemplary performance in adhering to standard protocols of cleanliness and infection control;*
- *to inculcate a culture of ongoing assessment and peer review of performance related to hygiene, cleanliness and sanitation;*
- *to create and share sustainable practices related to improved cleanliness in public health facilities linked to positive health outcomes.*

It was observed that SOP for infection control was issued by the Directorate of Health, Government of Uttarakhand. Further, the detailed checklist included in Kayakalp guidelines issued by Ministry of Health and Family Welfare, Government of India for cleanliness, hygiene and infection control at public healthcare facilities was being followed during 2015-19 by the test checked hospitals. The deficiencies noticed in the implementation of the Kayakalp guidelines are given in subsequent paragraphs.

### **6.1.2 Hospital Infection Control Committee**

The role of the Hospital Infection Control Committee (HICC) is to implement the infection control programme and policies. Further, as per Kayakalp guidelines, the committee is required to meet at least once in a month and review the progress made for meeting the criteria for cleanliness and infection control.

It was observed that the HICC of the test checked hospitals did not meet regularly to review and ensure that the facility and the employees complied with the requirements of infection control. Year wise details of review meetings held against minimum required 12 meetings are shown in the **Table-50** given below:

**Table-50: Number of meetings held**

Year	Number of meetings held					
	DHs		JHs		DFHs	
	Almora	Haridwar	Chamoli	Udham Singh Nagar	Almora	Haridwar
2015-16	Nil	Nil	03	2	7	8
2016-17	2	Nil	06	4	6	5
2017-18	3	Nil	01	4	7	2
2018-19	2	Nil	07	6	3	7

*Source: Test checked hospitals.*

It was further observed that due to posting of Hospital Managers from the year 2012 in JH Udham Singh Nagar and from 2014 in DFH Haridwar, the position of these test checked DHs improved which was reflected in the six tier assessment carried out under Kayakalp by way of internal-assessment, peer review and external assessment process on various aspects such as Hospital upkeep; Sanitation and Hygiene; Support Services, Waste Management; Infection control; and Beyond hospital.

Year wise rating of the test checked DHs under Kayakalp is given in the **Table-51** below:

**Table-51: Rating of Health Care Facilities under Kayakalp**

Year	Grading in percent's given by State bodies						Awarded
	DHs		JHs		DFHs		
	Almora	Haridwar	Chamoli	Udham Singh Nagar	Almora	Haridwar	
2015-16	60.60	NQ	74.80	73.40	55.60	<b>81.40</b>	50 lakh
2016-17	NQ	NQ	<b>80.80</b>	NQ	NQ	85.51	50 lakh
2017-18	NQ	NQ	77.50	<b>84.50</b>	NQ	81.30	50 lakh
2018-19	80.00	NQ	83.16	79.00	NQ	<b>84.50</b>	50 lakh

*Source: Information collected from the test checked DHs.*

*NQ-Not Qualified.*



DH Haridwar and DFH Almora could not qualify for external assessments during 2018-19 as they were not able to meet 70 per cent bench mark in peer review which indicates that these DHs were unable to promote cleanliness, hygiene and infection control practices as desired in Kayakalp guidelines.

*Positive feature*  
**DFH Haridwar, JH Udham Singh Nagar and JH Chamoli were recognised for performing well in six tier assessment under Kayakalp.**

### 6.1.3 Pest and rodent control records not maintained

As per Kayakalp guidelines, hospitals are required to engage a pest control agency for carrying out pest control activities including anti-termite treatment for wooden furniture and fixtures and maintain records of pest control activities. Hospital boundary wall should be intact (at least 2.5 metres) and cattle traps installed at all entrances and exits of the hospital to restrict entry of stray animals.

*Pests and animals are attracted to health facilities in search of food, water, shelter and optimal temperatures and pose a number of health threats through spreading of microbial infections and communicable diseases.*

The records of pest and rodent control activities were not maintained in all the test checked hospitals except in JH Chamoli. In the absence of records, audit could not derive an assurance on whether pest and rodent control practices were actually followed in these hospitals. It was further noticed that:

- i) Anti-termite protection of wooden furniture was done only by two hospitals<sup>1</sup>, however, life of such treatment in DH Haridwar had already expired (October 2018).
- ii) Cattle traps were installed in all test checked hospitals except DFH Almora.

Kayakalp guidelines envisage that security personnel also need to be vigilant for any stray animals within the premises. However, several instances of presence of stray dogs and other street animals in the premises were noticed in three out of six test checked hospitals as depicted in **Photographs-6, 7 and 8** below:



**Photograph-6:**  
**JH Udham Singh Nagar**



**Photograph-7:**  
**DH Haridwar**



**Photograph-8:**  
**JH Chamoli**

<sup>1</sup> JH Chamoli and DFH Haridwar.

In the Exit Conference, Government accepted the facts and stated that clear directions would be issued to the hospitals for effective compliance of prescribed norms.

## 6.2 Laundry Services

The provision of clean linen is a fundamental requirement for patient care. Incorrect procedure for handling or processing of linen can present an infection risk both to staff and patients who subsequently use it. Hence, linen management is important to prevent Hospital Acquired Infection and ensure a hygienic hospital environment. As per Kayakalp guidelines, the patient's linen including bed sheets and patient gowns need to be changed on a daily basis.

### 6.2.1 Availability of linen

IPHS prescribe the number of different types of linen<sup>2</sup> facilities that are required for patient care services in hospitals.

In test checked hospitals, audit observed shortage of different types of linen such as bedspreads, hospital workers' OT coat, pediatrics mattress, tablecloths, etc. The shortage ranged between seven (29 per cent) and 13 (54 per cent) against the requirement of 24 different types of linen during 2018-19. Further, seven (29 per cent) to 12 (50 per cent) types of linen were not at all available in the test checked hospitals during 2018-19. The data is given in **Table-52** and **Table-53** below:

**Table-52: Shortage in linen items during 2018-19**

	DHs		JHs		DFHs	
	Almora	Haridwar	Chamoli	Udham Singh Nagar	Almora	Haridwar
Shortage in types of linen (out of 24 types of linen required)	9	10	13	11	7	11
Types of linen not available at all (out of 24 types of linen required)	12	9	7	8	10	7

Source: Information collected from test checked hospitals.

**Table-53: Linen items not available during 2018-19**

<b>DH Almora</b>	Bdspreads, Over-shoe pairs, Patients Pyjama (for female) Shirt, Paediatric Mattress, Leggings, Mortuary sheet, Mackintosh sheet, Apron for cook, Towel, perennial sheets for OT, Hospital workers' OT coat, Tablecloth and Mats.
<b>DH Haridwar</b>	Bdspreads, Leggings, Mats, Mortuary sheet, Abdominal sheets for OT, Mackintosh sheet, Apron for cook, Apron and Tablecloth.
<b>JH Udham Singh Nagar</b>	Bdspreads, Over-shoe pairs, Paediatric Mattress, Leggings, Mortuary sheet, Apron for cook, Hospital workers' OT coat and Mackintosh sheet.
<b>JH Chamoli</b>	Paediatric Mattress, Leggings, Hospital workers' OT coat, Mortuary sheet, Apron for cook, Mats and Tablecloth.
<b>DFH Almora</b>	Bdspreads, Towels, Doctor's overcoat, Leggings, Mats, Mortuary sheet, Tablecloth, Over-shoes pairs. Apron for cook and Mackintosh sheet.
<b>DFH Haridwar</b>	Bdspreads, Leggings, Mortuary sheet, Mats, Apron for cook, Uniform Apron and Tablecloth.

Source: Information collected from the test checked DHs/JHs/DFHs.

<sup>2</sup> Abdominal sheets for OT, Bed sheets, Bedspreads, Blankets (Red and Blue), Doctor's overcoats, Draw sheets, Hospital workers' OT coats, Leggings, Mackintosh sheets, Mats (nylon), Mattresses (Foam) for adults, Mortuary sheets, Over-shoe pairs, paediatric mattresses, Patient's coats (Female), Patient's Pyjamas Shirts (Male), Patna towels, Perennial sheets for OT, Pillows, Pillows cover, Apron for cook, Curtain cloth windows and doors, Uniform/Apron and Table cloth.

On the other hand, it was observed that except in JH Chamoli, the bed sheets<sup>3</sup> were in excess by 59 per cent to 101 per cent and blankets were in excess by 60 per cent to 714 per cent in test checked hospitals, indicating that hospitals were procuring bed sheets and blankets in excess while there was shortage of other types of linen items.

### 6.2.2 Issue of clean linen items

As per the IPHS, laundry facility should be available in the hospitals to provide well washed and infection free linen to patients. Audit scrutiny revealed that daily collection of soiled linen and daily delivery of cleaned linen was not done in test checked hospitals during the period 2014-19. It was further noticed that:

- Bed sheets were not changed on daily basis in any of the test checked hospitals. Further, during physical inspection of wards in the test checked hospitals it was stated by the occupants of the wards that the bed sheets and pillow covers, *etc.* required to be changed on daily basis were changed in two to three days. The patients were thus not provided hygienic and clean bed linen in these hospitals, putting them at risk of further infection.
- Date wise and patient wise records were not kept by test checked hospitals for linen issued to the patients.
- Covered trolleys were not available to carry the linen from wards to laundry in DFH Almora and in DH Haridwar whereas the available covered trolley was not put into use by DFH Haridwar. Non-availability/non-use of covered trolleys increased chances of spread of infection in the two hospitals.

In the Exit Conference, the Government accepted the facts and stated that clear directions would be issued to the hospitals to ensure availability of required items and effective compliance of prescribed norms.

### 6.2.3 Other shortcomings noticed in washing and storage of linen

As per Kayakalp guidelines, during the process of drying of the linen it is to be ensured that the linen is kept off the ground and away from dust exposure. It was noticed during physical inspection that:

- In two<sup>4</sup> out of six test checked hospitals, the linen was being dried on the surface of ground as depicted in **Photograph-9** alongside.



**Photographs-9: JH Udham Singh Nagar**

<sup>3</sup> Calculated on MNH tool kit guidelines (number of beds x 3).

<sup>4</sup> DH Almora and JH Udham Singh Nagar.

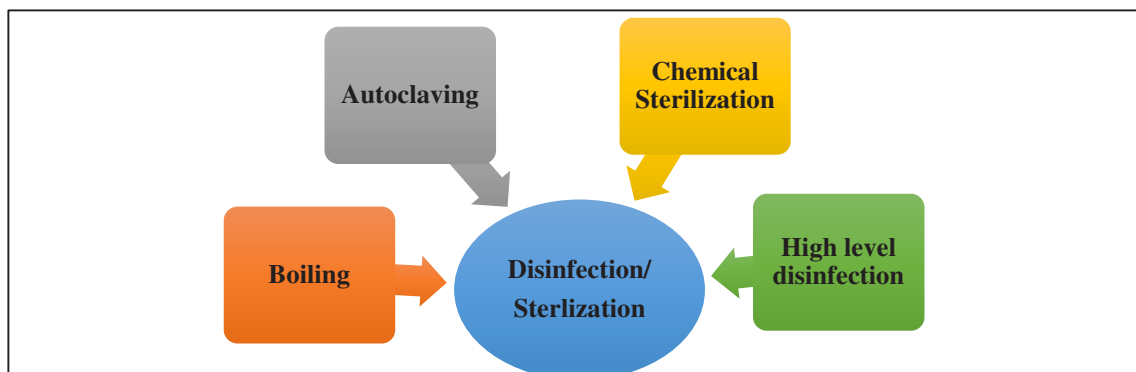
- Washed clothes were not ironed by the contractor in two<sup>5</sup> test checked hospitals.
- There was no proper place to store linen in DFH Almora and JH Udham Singh Nagar in wards.

The facts were accepted by the authorities and it was further stated that necessary instructions would be issued for regular issue of bed sheets and other items.

### 6.3 Disinfection and Sterilisation

Sterilisation helps to prevent the build-up of bacteria, viruses, *etc.* on the medical tools and reduces the chances of spread of infection in patients undergoing treatment. As per Hospital Infection Control Guidelines of the Indian Council of Medical Research (ICMR), disinfection and sterilisation help prevent the build-up of bacteria/Virus. *etc.* on the medical tools, linen and consumables, and reduce the chances of spread of infection in patients and staff of hospitals. NHM Assessor’s Guidebook recommends boiling, autoclaving, high level disinfection (HLD) and chemical sterilisation process for disinfection/sterilisation in the district hospitals.

**Figure-4: Various methods of disinfection and sterilisation**



Generally, critical instruments/equipment (those surgical instruments penetrating skin or mucous membrane) should undergo sterilisation before and after use; semi-critical instruments/equipment (those in contact with intact mucous membrane without penetration like endotracheal tubes) should undergo high level disinfection before use and intermediate level disinfection after use. Availability of the different methods of disinfection and sterilisation in the test checked hospitals is in the **Table-54** given below:

**Table-54: Availability of disinfection and sterilisation procedures (2018-19)**

Hospital	Boiling	Chemical Sterilisation	Autoclaving	High level disinfection (HLD)
DH Almora	Yes	Yes	Yes	No
DH Haridwar	Yes	Yes	Yes	No
JH Udham Singh Nagar	Yes	Yes	Yes	Yes
JH Chamoli	Yes	Yes	Yes	Yes
DFH Almora	Yes	No	Yes	No
DFH Haridwar	Yes	Yes	Yes	No

*Source: Information collected from test checked hospitals.*

<sup>5</sup> DFH Almora and JH Chamoli.

### 6.3.1 Boiling, Autoclaving and Chemical Sterilisation

Boiling for 10-15 minutes kills bacteria but not viruses and spores are used for sterilisation of syringes, needles, bowls, trays and metallic instruments. On the other hand, autoclaving at 15 lbs pressure for 45 minutes at 121°C kills even spores and viruses<sup>6</sup> is used for blunt metallic instruments; rubber and glass articles; linen and bandages; and non-absorbable suture material. Chemical sterilisation involves immersion in a sterilising chemical liquid for 15 minutes and is used for sharp metallic instruments.

Audit observed that sterilisation through boiling was available in all the test checked hospitals.

#### Positive feature

*Autoclaving was available in all the test checked hospitals. Besides, chemical sterilisation method was available in all the test checked hospitals except DFH Almora.*

### 6.3.2 High Level Disinfection

High Level Disinfection (HLD) is the process of complete elimination of all micro-organisms in or on a device, with the exception of small numbers of bacterial spores.

HLD is used for disinfecting semi-critical devices that come into contact with intact mucous membranes but do not ordinarily penetrate sterile tissue such as endoscopes, laryngoscope blades and respiratory therapy equipment, HLD process was needed to be available in every hospital.

HLD method for disinfection was not used by four out of six test checked hospitals. In the test checked hospitals, autoclaving was, therefore, the chief method of sterilisation.

#### Positive feature

*High Level Disinfection method was available in JH Chamoli and Udham Singh Nagar.*

### 6.3.3 Records of Sterilisation using autoclave

Audit observed the following discrepancies in maintenance of records of sterilisation using autoclaves in three<sup>7</sup> hospitals where this aspect was test checked as given in **Table-55** below:

**Table-55: Availability of records of sterilisation using autoclave**

Name of the record	Availability of records (out of three hospitals test checked)					Impact of non-maintenance of records
	2014-15	2015-16	2016-17	2017-18	2018-19	
Register of date of Sterilisation	3	3	3	3	3	-
Register of date of return of equipment after sterilisation	3	3	3	3	3	
Records of number of instruments received per pack	0	0	0	0	0	Weakness in monitoring of requisite equipment.
Records of number of instruments sterilised per pack	0	0	0	0	0	As above

Source: Information collected from the test checked hospitals.

<sup>6</sup> As per the provisions laid down in Manual of Laboratory Techniques, National Institute of Communicable Diseases, Directorate General of Health Services, Government of India.

<sup>7</sup> DH and DFH Haridwar and JH Chamoli.

Non-maintenance of the requisite records indicated weakness in monitoring of sterilised equipment. Also, the periodicity of the sterilisation of the equipment could not be ascertained in audit.

## **6.4 Cleaning services**

### **6.4.1 Housekeeping**

The test checked hospitals except DH Almora and DFH Almora<sup>8</sup> outsourced their housekeeping functions to external agencies. It was noticed that Kayakalp checklists were followed by the housekeeping agencies. The following shortcomings were noticed.

- Kayakalp guidelines envisage usage of dust control mops instead of brooms prior to wet mop. However, in all the test checked hospitals, it was found that normal brooms were used by the cleaning staff as seen in the **Photograph-10** alongside.



**Photograph-10: DH Haridwar**

- The Municipal Solid Waste (MSW) generated by hospitals should be segregated into bio-degradable, non-degradable and domestic hazardous wastes as per MSW guidelines 2016 and stored properly in the suitable bins. Further, the used sanitary waste like diapers, sanitary pads, *etc.* are required to be wrapped securely in the pouches and are to be placed in the bin meant for dry waste/non bio-degradable waste.

However, it was found that in two<sup>9</sup> out of six test checked hospitals, the procedure as laid down in MSW guidelines 2016 for disposal of MSW wastes were not being followed. The generated waste was not being segregated and stored properly as is evident from the **Photographs-11** and **12** given below:



**Photographs-11: Waste dumped in front of hospital premise of DH Haridwar**



**Photographs-12: Waste dumped at Ambulance station, JH Udham Singh Nagar**

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<sup>8</sup> Contractual Staff and Regular staff.

<sup>9</sup> JH Udham Singh Nagar & DH Haridwar.

- Stray animals were seen moving around the dumped MSW waste in DH Haridwar while bio-degradable waste<sup>10</sup> was being burnt in JH Udham Singh Nagar and JH Chamoli in violation of MSW guidelines as is evident from the **Photographs-13** and **14** given below:



**Photographs-13: Stray animals moving around MSW at DH Haridwar**



**Photographs-14: Biodegradable waste burnt in JH Chamoli**

- During physical inspection, it was noticed that in JH Udham Singh Nagar pathology toilet was in non-usable condition. Further, cleanliness in few areas of JH Udham Singh Nagar and DH Haridwar premise was also not ensured as evident from the **Photographs-15** and **16** given below:



**Photograph-15: Toilet in non-usable condition in JH Udham Singh Nagar**



**Photographs-16: Area of hospital premise of JH Udham Singh Nagar**

During the Exit Conference, the Government accepted the facts and stated that clear directions would be issued to the hospitals for effective compliance of prescribed norms.

#### **6.4.2 Air and surface samples for microbiological survey**

NHM Assessor's Guidebook prescribes that the health care facility must have a system to take air and surface samples for microbiological survey to check for infections. Kayakalp guidelines prescribe that routine environmental surface and air sampling should be done in all OTs. If results are not satisfactory, investigation should be done and appropriate corrective actions are needed to be taken.

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<sup>10</sup> Tree leaves.

It was noticed that only DFH Haridwar had conducted (July 2016) air sampling in OTs. However, three out of four test checked hospitals had done microbiology surface swab tests in few wings<sup>11</sup> of the hospital. The results of the tests are detailed in the **Table-56** below:

**Table-56: Microbiological test results**

Tests conducted	DFH	JHs		DH
	Haridwar	Udham Singh Nagar	Chamoli <sup>12</sup>	Haridwar
Pathology laboratory	Growth	Positive		No test done
Labour room	Growth	Negative	Positive	
Orthopaedic OT		Positive		
General OT	Growth		Positive	
Minor OT			Positive	
NBSU		Negative	Positive	
NICU	Growth			

*Source: Test-reports of hospitals.*

The results were, therefore, adverse for Pathology laboratory and Orthopaedic OT in JH Udham Singh Nagar; Labour room, Minor OT, General OT and NBSU in JH Chamoli; and Labour room, General OT, NICU and Pathology laboratory at DFH Haridwar. Apart from this, no reports of any surface/air/hand swab tests were prepared in the test checked hospitals during 2014-19. Audit could not, therefore, derive assurance regarding cleanliness of surfaces/hands of hospital staff in the sampled hospitals.

During the Exit Conference, the Government accepted the facts and stated that clear directions would be issued to the hospitals for effective compliance of prescribed norms.

### **6.4.3 Fumigation of OT**

International Infection Control Guidelines including Centre for Disease control (CDC) do not advocate fumigation<sup>13</sup> practice in OT as all the modern critical parameters required for OT disinfection are in place with a well-equipped Heat Ventilation Air Conditioning<sup>14</sup> (HVAC) system. The HVAC system maintains indoor air temperature and humidity, controls odours, removes contaminated air and minimises the risk of transmission of airborne micro-organisms. The Kayakalp guidelines further state that without HVAC system the quality of air in the OT cannot be guaranteed and, therefore, after fogging, air sampling is to be taken and records of the same are to be kept.

<sup>11</sup> DFH Haridwar- General OT (July 2016); NICU (August 2016); Labour room, General OT, NICU and Pathology Laboratory (July 2018); General OT and Labour room (August 2019); JH Udham Singh Nagar- Pathology Laboratory; Labour room; NBSU & Orthopaedic OT (September 2018).

<sup>12</sup> Two microbiology tests carried by the hospital: General OT (July 2019) and Labour room; OT and NBSU (August 2019).

<sup>13</sup> Fumigation: It is the process by which we can sterilize the enclosed area by spraying chemical usually in gaseous form which will kill or destroy microbes present in the air.

<sup>14</sup> An HVAC system with modern AHU helps to maintain positive air pressure in OT and maintain 15-20 air changes/hour. Use of HEPA filters (to remove particles of size of > 0.3 mm), laminar air flow and UV radiations further helps in maintaining asepsis and infection control.



Examination of records of the test checked hospitals revealed that four test checked hospitals<sup>15</sup> were using fumigation practice while others were using Carbolization<sup>16</sup> disinfection system. None of the hospitals had installed HVAC facility in the OT. Further, records of air samples taken after fogging were not maintained by the hospitals.

#### 6.4.4 Microbiological surveillance report at the instance of audit

NHM Assessor's Guidebook prescribes that the facility must have a system to take air and surface samples for microbiological survey to check for infections. As microbiological survey checks were not conducted regularly by the test checked hospitals as discussed in the *paragraph 6.4.2*, at the request of audit, four test checked hospitals<sup>17</sup> conducted air and surface swab test in General OT, Eye OT, Labour room, General ward and Pathology laboratory besides hand swab test of nurse and doctor. Reports of these tests revealed that:

- Pathology laboratory (Surface Swab) and General ward (Surface Swab) in JH Udham Singh Nagar had positive results.
- Microbiological surveillance report of Labour room (labour table 1; labour table 2; labour table 3; and suction machine) in DFH Haridwar was unacceptable and sterilisation was termed unsatisfactory.
- Microbiological surveillance report of Eye and General OT in DH Haridwar was reported acceptable but Sterilisation was termed unsatisfactory.
- Microbiological surveillance report of Labour room (labour table and labour rack) of JH Chamoli was reported of having growth in culture in Gram-positive bacteria and Gram Negative Cocco bacillus (GNCB).

In addition to above, it was found that in two<sup>18</sup> out of 6 test checked hospitals, the wards were having moisture<sup>19</sup> and growth of *Aerobic Spore Bearer staphylococcus aureus* was detected in the microbiological surveillance report. The authorities stated that necessary action would be taken in this regard.

### 6.5 Bio-Medical Waste Management

Bio-medical waste (BM waste) 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. Government of India framed Bio-Medical

<sup>15</sup> DH Almora, DFH Haridwar, JH Chamoli and DH Haridwar.

<sup>16</sup> Carbolization: It is a process of cleaning equipment articles with antiseptic solution.

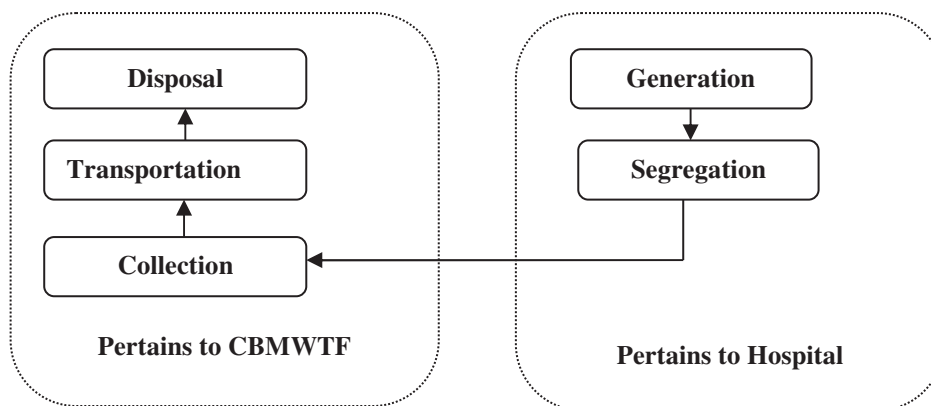
<sup>17</sup> JH Udham Singh Nagar, DH Haridwar, JH Chamoli & DFH Haridwar.

<sup>18</sup> DH Haridwar and JH Udham Singh Nagar.

<sup>19</sup> Seepage and Moisture in wall was due to discarded material kept on the roof by DH Haridwar. Neither auction of discarded material nor annual maintenance/repairs were done by the DHs/JHs/DFHs.

Waste (Management and Handling) Rules, 1998 under Environment (Protection) Act, 1986, which were superseded by Bio-Medical Waste Management Rules, 2016 (BMW Rules). The BMW Rules, *inter alia*, stipulate the procedures for collection, handling, transportation, disposal and monitoring of the BM waste.

**Figure-5: Stages of bio-medical waste management<sup>20</sup>**



### **6.5.1 Generation of bio-medical waste**

#### **6.5.1.1 Authorisation for generating bio-medical waste and annual reporting**

The BMW Rules require hospitals generating BM waste to obtain authorisation from the State Environment Protection and Pollution Control Board (SEPPCB).

The status of authorisation from SEPPCB is depicted in the **Table-57** given below:

**Table-57: Status of Authorisation from SEPPCB**

	DH		JHs		DFH	
	Almora	Haridwar	Udham Singh Nagar	Chamoli	Almora	Haridwar
<b>Authorisation received up-to</b>	March 2017	March 2013	March 2014	September 2018	March 2014	Information not available

*Source: Information collected from test checked DHs/JHs/DFHs.*

As can be seen from above, none of the hospitals had valid authorisation from the SEPPCB as on 31 March 2019. In five out of six test checked hospitals, the reasons regarding non-renewal of authorisation were not available. In case of DH Haridwar, the SEPPCB stated that the district hospital was not following the BMW Rules and, therefore, no authorisation was granted. Further, the hospital was also penalised (September 2019) for non-adherence to rules.

#### **6.5.1.2 Segregation of bio-medical waste**

The BMW Rules require hospitals to segregate and store different categories of BM waste in separate coloured bins at the source of generation for their collection by the Common Bio-Medical Waste Treatment Facilitator (CBMWTF).

<sup>20</sup> CBMWTF-Common Bio-Medical Waste Treatment Facilitator.

Audit observed that the segregation of BM waste in separate coloured bins was done in all the test checked hospitals and disposal by three hospitals was done through CBMWTF whereas three hospitals<sup>21</sup> were using tank for disposal<sup>22</sup>. Further, in respect of liquid chemical waste generated in the hospitals, BMW Rules mandate segregation of the waste at source and its pre-treatment or neutralisation prior to mixing with other effluent generated from hospital. It was observed that in none of the test checked hospitals, an Effluent Treatment Plant (ETP) was established for pre-treatment of BM waste, resulting in drainage of the BM waste directly in the sewerage system, which was not only hazardous to the public health but also violated the BMW Rules. It was noticed that the demand for establishment of ETP had been made by only four out of six test checked hospitals<sup>23</sup>.

### **6.5.1.3 Duties of the occupier**

As per guidelines of BMW of 2016, in order to ensure occupational safety of all its health care workers and others involved in handling of biomedical waste, the occupier has to provide appropriate and adequate personal protective equipment<sup>24</sup>; conduct health check-up; ensure protection against diseases that are likely to be transmitted by handling of bio-medical waste; and establish a barcode system for bags or containers containing bio-medical waste that are to be sent out of the premises. Scrutiny of records disclosed the following shortcomings:

- Protective gears/equipment were not provided and used by the bio-medical waste handlers during work.
- Records relating to health check-ups done at the time of induction and at least once in a year for all its health care workers and others involved in handling of bio-medical waste, were not maintained except in DFH Haridwar, JH Chamoli and DH Almora where the procedure was followed partially.
- Immunisation of all its health care workers and others, involved in handling of bio-medical waste was not ensured by test checked hospitals.
- No barcode system<sup>25</sup>, for bags or containers containing bio-medical waste that were to be sent out of the premises, was ensured in any of the test checked hospitals.

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<sup>21</sup> DH Almora, JH Chamoli and DFH Almora.

<sup>22</sup> BMW guidelines 2016 envisage that the disposal by deep burial is permitted only in rural or remote areas where there is no access to common bio-medical waste treatment facility. This has to be carried out with prior approval from the prescribed authority and as per the Standards specified in Schedule-III. The renewal of authorisation for disposal of BMW was not granted by the SEPPCB to these hospitals.

<sup>23</sup> JH Udham Singh Nagar (December 2019) and JH Chamoli (March 2020) had not placed the demand for the establishment of ETP.

<sup>24</sup> Gum boots, masks, aprons gloves and head gear.

<sup>25</sup> To be ensured within one year from the date of the notification (2016).

- There were no records except in DFH Haridwar and JH Udham Singh Nagar to show that Waste Management Committee meetings were regularly held to review the performance of the waste disposal.
- For disposal of bio-medical waste, chlorinated bags<sup>26</sup> were to be phased out within two years from the date of notification of the BMW Rules 2016 but these bags were still being used by DFH Haridwar and DH Haridwar for disposal of bio-medical waste.

During the Exit Conference, the Government accepted the facts and stated that clear directions would be issued to the hospitals for effective compliance of prescribed norms.

*To sum up, the test checked hospitals, air and surface samples were not regularly taken for microbiological survey to check for infections. Cleaning and laundry services, despite outsourcing, were not of a satisfactory level in most of the hospitals. Similarly, bio-medical waste management was inadequate. None of the test checked hospitals had authorisation from the SEPPCB as on 31 March 2019 for generating bio-medical waste. Protective gears/equipment were not provided and used by the bio-medical waste handlers during work. Thus test checked hospitals lacked an overall environment of infection control.*

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<sup>26</sup> Incineration of chlorinated polyvinyl chloride has negative environmental consequences as there is a chance that dioxins, which are carcinogenic in nature, might be released.

**Chapter-7**  
**Drug Management**



## 7 Drug Management

Accessibility, availability and affordability of good quality and safe drugs with minimum out of pocket expenditure by patients are the key functions of a good public health system.

Audit observations on various components of drug management-availability of drugs, their storage, quality check, *etc.* are discussed in the succeeding paragraphs.

### 7.1 Availability of essential drugs

The district hospitals are required to forecast actual requirement of drugs to support the procurement<sup>1</sup> of drugs by the DGMH & FW. Audit noticed that the procedure for forecasting of drugs was being followed by the test checked hospitals. However, only a portion of the drugs against the forecasted requirement were procured by the DGMH & FW. As a result, only a portion of the drugs under Essential Drug List (EDL) (575) was available with inadequate quantity to meet the requirements of the hospitals. Hospital-wise position is given in the **Table-58** below:

**Table-58: Availability of drugs in the test checked hospitals in 2018-19**

Description	Name of test checked hospitals					
	DH		JH		DFH	
	Almora	Haridwar	JH-Udham Singh Nagar	JH-Chamoli	DFH-Almora	DFH-Haridwar
Number of drugs available <sup>2</sup>	160	168	131	186	133	133
<b>Stock Out of Drugs</b>						
Drugs not available for one month	03	04	05	17	17	09
Drugs not available for one to two months	02	12	11	9	17	14
Drugs not available for two to six months	14	13	30	28	23	12
Drug not available for more than six months	09	14	34	21	18	15
<b>Total drugs stock out</b>	<b>28</b>	<b>43</b>	<b>80</b>	<b>75</b>	<b>75</b>	<b>50</b>
<b>Percentage of stock out of drugs out of available drugs</b>	<b>18</b>	<b>26</b>	<b>61</b>	<b>40</b>	<b>56</b>	<b>38</b>

*Source: Information collected from test checked hospitals.*

<sup>1</sup> Government of Uttarakhand promulgated Drug Procurement Policy (DPP) containing drug purchase procedures. As per DPP, DGMH & FW was the central procurement authority at the state level for ensuring supply of essential drugs in the hospitals at district-level and below. DGMH & FW had the mandate to prepare list of essential drugs and to conclude Rate Contracts with the manufacturing firms for supply of drugs.

<sup>2</sup> Including local purchase.

The drugs provided to the hospitals by DGMH & FW could not meet the requirements. There was stock out of drugs ranged between 18 and 61 *per cent*. The percentage of stock out of drugs for more than six months was on a very high side. It was also noticed that the hospitals did not prepare formulary<sup>3</sup> on the basis of disease patterns and inflow of patients in the hospitals to support the procurement of drugs.

Further, even the essential drugs needed for IPD, OT, ICU, emergency and maternity services were not available in the hospitals to deliver the assured health services as discussed in **Chapter 4: In-patients services** and **Chapter 5: Maternity Services**.

### **7.1.1 Short supply of indented drugs**

Scrutiny of records revealed that drugs were not issued to the test checked hospitals according to the indents placed by these hospitals with the DGMH & FW. Details of indents of drugs by the test checked hospitals and supply of drugs against the indented quantities by the DGMH & FW in the year 2018-19 are shown in the **Table-59** given below:

**Table-59: Details of indent and supply of drugs to test checked hospitals**

Particulars	Name of test checked hospitals					
	Almora		Chamoli	Udham Singh Nagar	Haridwar	
	DH	DFH	JH	JH	DH	DFH
Indented	121	148	138	164	127	88
Provided	113	66	111	108	112	88
<b>Indent quantity issued in percent</b>						
100 <i>per cent</i>	35	13	39	03	30	48
Less than 100 but above 50 <i>per cent</i>	46	15	39	10	33	33
Up to 50 <i>per cent</i>	32	38	33	95	49	07

*Source: Information collected from test checked hospitals.*

- Only 76 *per cent* of indented type of drugs were supplied to the test checked hospitals whereas DFH Almora was supplied only 45 *per cent* of indented type of drugs.
- Only 21 *per cent* of indented drugs were provided in full indented quantities to the test checked hospitals. Only three (two *per cent*) out of 164 types of indented drugs were provided in full to JH Udham Singh Nagar.
- DFH Almora was provided only nine *per cent* of indented drugs in full indented quantities whereas DFH Haridwar was provided 55 *per cent* of indented drugs in full.

As medicines were not issued by the Central Store as indented by the hospitals, local purchasing was done by the hospitals to meet the additional requirement and the patients had also to purchase medicines from their own pockets as discussed in **paragraph 2.6.3**.

During the Exit Conference, it was stated by the Government that in the Drug Procurement Policy 2019, the turnover capacity of firms had been reduced which would enable more firms to participate and provide the drugs as required. It was added that this would not only help to provide all indented drugs to the hospitals but would also help to reduce the shortage/stock out of drugs in the hospitals.

<sup>3</sup> A formulary is a list of updated prescription drugs.



## 7.2 Storage of drugs

Drugs and Cosmetic Rules, 1945 stipulate parameters for the storage of drugs in stores to maintain the efficacy of the procured drugs before issue to patients.

**Positive features**  
*Controlled and Poisonous drugs were kept in locked Almirah by the test checked hospitals.*

The norms and parameters prescribed in the said Rules were, however, not adhered to as seen in the physical inspection. The details of deficiencies in storage facilities in the test checked hospitals are given in **Table-60** below:

**Table-60: Deficiencies in storage of drugs**

Parameters	Hospitals having deficiency (Test checked: 06)	Particulars impact of not adhering to parameter
Air-conditioned pharmacy	05	Loss of efficacy and shelf life of drugs
Labelled shelves/racks	03	High Turnover time in distribution of drugs.
Storage away from water and heat	01	Loss of efficacy and shelf life of drugs
Drugs stored above the floor	03	
Drugs stored away from walls	04	
24-hour temperature recording of cold storage area	04	
Display instructions for storage of vaccines	05	
Functional temperature monitoring device in freezers <sup>4</sup>	04	
Maintenance of temperature chart of deep freezers	05	

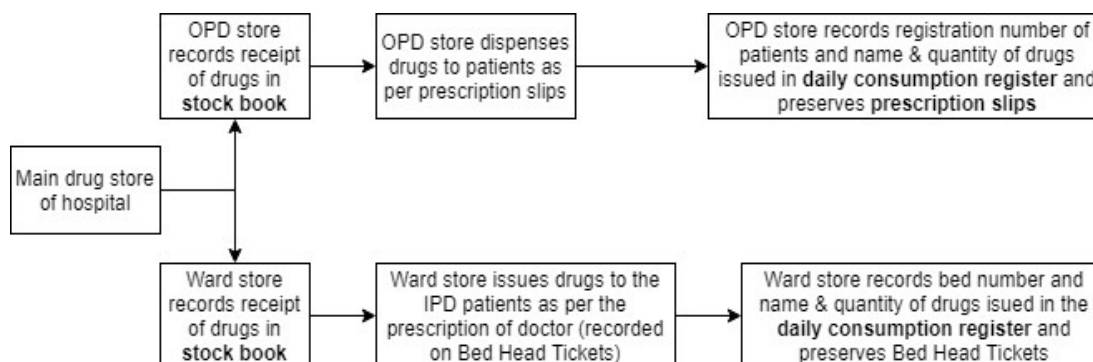
*Source: Information collected from the test checked hospitals.*

It is evident from above that there were several deficiencies in the system of drug storage in the test checked hospitals. It was stated by the test checked hospitals that the above drug storage deficiencies would be addressed.

## 7.3 Dispensing of drugs to the patients

Paragraph 258 of Financial Rules<sup>5</sup> stipulates that all quantities received in or issued from stores should be entered in the stock account on the date of transactions.

**Figure-6: Process of dispensing of drugs in a hospital**



<sup>4</sup> Vaccines kept in normal Refrigerator in all the test checked hospitals except DFH Almora and JH Udham Singh Nagar.

<sup>5</sup> Financial Handbook Vol-V.

The drugs are issued to the OPD patient on the basis of the prescription slips. After receiving drugs from the store the prescription slips are retained by the patients. Audit observed following discrepancies in the documentation examined in four hospitals<sup>6</sup> in respect of receipt and distribution of drugs in/from the stores, as detailed below.

- The records of number and name of the medicine prescribed on the prescription slip and those medicines not dispensed to the OPD patients from the drug dispensation counter were not maintained by any of the test checked hospitals.
- None of the test checked hospitals kept the prescription slips in which the doctors prescribed the drugs.

As such there was no mechanism available to check the number of medicines prescribed and issued to the OPD patient.

- It was further noticed that the records of drugs issued to each indoor patient were also not maintained in two<sup>7</sup> DHs/JHs.

#### **7.4 Quality assurance of drugs**

Quality control plays a major role in providing high quality drugs to the patients. Drug Policy provides that in case suppliers produce the quality test-report along with the supplies, the same would be accepted. Besides, quality of drugs could also be checked through random sampling by the Drug Inspector. Norms of 20 *per cent* of each drug procured were provisioned for testing.

Audit observed that quality test-reports of drugs supplied by the DGMH & FW were not provided to any of the hospitals during 2014-19. Resultantly, hospitals were unaware about quality of drugs supplied. It was further found that:

- Testing of medicines was observed to be minimal. Out of the test checked hospitals, only DH Haridwar, DFH Haridwar and JH Chamoli carried out quality checks. The quality checks were conducted by DH Haridwar and DFH Haridwar only in 2017-18 and in respect of only 15 and 5 types of drugs respectively. The quality checks were carried by JH Chamoli only two times during 2014-19.
- Samples for quality testing of drugs were taken by Drug inspector only in DH Almora (in 2014-15) and DFH Haridwar (in 2015-16) and in JH Chamoli (in 2014-15) but no quality test-reports were provided to the hospitals.
- Three drugs were reported substandard<sup>8</sup> by the DGMH & FW. However, these drugs were distributed to patients by the test checked hospitals<sup>9</sup> before and even after receiving<sup>10</sup> the quality test-reports.

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<sup>6</sup> DH and DFH Haridwar, JH Chamoli and JH Udham Singh Nagar.

<sup>7</sup> JH Chamoli and DH Haridwar.

<sup>8</sup> Instructions regarding substandard drugs were issued after 8 to 12 months of issue of these drugs by the DGMH & FW to the test checked hospitals.

<sup>9</sup> DH Haridwar, DFH Haridwar, JH Chamoli and JH Udham Singh Nagar.

<sup>10</sup> JH Chamoli distributed the drug even after receiving the quality report.

Failure to ensure quality testing of drugs through Drug Inspector and non-fulfilment of norms of 20 *per cent* for testing of procured drugs, therefore, diluted the mechanism for supply of quality drugs to the patients.

During the Exit Conference, the Government stated that instructions would be issued to the Drug Controller to increase the frequency of checking the procured drugs.

*To sum up, the drugs provided to the hospitals by DGMH & FW could not meet their requirements as medicines were not issued by the Central Store as indented by the hospitals. Stock out of drugs in the test checked hospitals ranged between 18 and 61 per cent. The norms and parameters prescribed for storage of medicine were not adhered to and quality testing of medicines was also not as per norms in the test checked hospitals.*



# **Chapter-8**

## **Infrastructure and Other Issues**



## 8 Infrastructure and Other Issues

To deliver quality health services in the public health facilities, adequate and properly maintained building infrastructure is of critical importance. Examination of records disclosed inadequacies in infrastructure, as discussed in the succeeding paragraphs.

### 8.1 Availability of beds

As per IPHS, there should be a district hospital in each district to cater to the secondary health care needs of the public at the district level. Further, IPHS provide that there should be 220 beds in a district hospital for a district having a population of 10 lakh.

It was observed that district hospitals were established in all districts as of March 2019 except in Dehradun<sup>1</sup>. Although, the number of hospital beds functional in the test checked hospitals (except DH Almora) were more than the sanctioned strength, the number of sanctioned hospital beds did not confirm to the IPHS norms in all test check case except DH Almora. The details are given in the **Table-61** below:

**Table-61: Availability of beds in the test checked hospitals**

District	District Population	Number of beds required as per IPHS	Actual Number (DH+DFH)		Percentage of functional beds w.r.t. IPHS	
			Sanctioned	Functional	Shortage	Excess
Almora	6,22,506	137	143	97	29	-
Chamoli	3,91,605	86	78	135	-	57
Haridwar	18,90,422	416	120	138	67	-
Udham Singh Nagar	16,48,902	363	125	161	56	-

*Source: Information collected from test checked hospitals; Census 2011; and IPHS.*

In the test checked hospitals<sup>2</sup>, it was noticed that number of functional beds was higher than that of sanctioned beds but additional staff was not provided by the DGMH & FW. Further, the number of hospital beds functional in the hospitals did not conform to the IPHS in three sampled districts<sup>3</sup> as only 396 hospital beds (43 per cent) were functional against the requirement of 916 hospital beds as of March 2019.

During the Exit Conference, the Government while accepting the facts stated that the standardisation of resources and services would be met with the adoption of IPHS.

<sup>1</sup> DH Dehradun was converted into Medical College on 23 December 2015 and no district hospital was established thereafter.

<sup>2</sup> DH & DFH Haridwar, JH Udham Singh Nagar and JH Chamoli.

<sup>3</sup> Almora, Haridwar and Udham Singh Nagar.

### **8.1.1 Inadequate infrastructure and lack of maintenance**

Upkeep of hospital buildings through periodic maintenance is critical to utilise the created infrastructure optimally and to ensure availability of a safe, clean and conducive environment for the public and hospital staff. Further, as per IPHS, the building should be well maintained<sup>4</sup>. There should be no growth of algae and mosses on walls. Hospitals should have anti-skid and non-slippery floors.

- Records of DH Haridwar revealed that the overall maintenance of hospital buildings was not carried out even once during 2017-20. The repairs of X-ray room, renovation of Mortuary, OPD and Emergency rooms, which were in dilapidated condition with seepage (**Photograph-17** alongside) on walls, could not be carried out due to non-approval of Annual Maintenance Plan for the year 2017-18 and 2018-19 (as on January 2020) by DGMH & FW.



**Photograph-17: Seepage in OPD (Ortho room) at DH Haridwar**

During the Exit Conference, the Government while accepting the facts stated that DH Haridwar would be instructed to take up maintenance work with its own funds (user charges).

- During joint physical inspection, audit observed that the hospital buildings of DH Haridwar were poorly maintained and residential quarters of doctors and kitchen were in a dilapidated condition. Further, the wards had seepages/moisture causing peeling of paint and damaging the roof<sup>5</sup> as seen in the **Photographs-18** and **19** below.



**Photograph-18: Broken roof in Ward in DH Haridwar**



**Photograph-19: Ward in dilapidated condition in DH Haridwar**

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<sup>4</sup> With no seepage; cracks in the walls; broken windows and glass panes.

<sup>5</sup> The occupant of the bed is in danger of receiving injuries in case of sudden collapse of further area of the ceiling.



- In JH Chamoli and DH Haridwar, testing and collection of samples in Pathology laboratory were done in single room whereas separate rooms for collection and testing are required for maintaining hygiene and for preventing any infection to the patients.
- Separate lavatory was not available in DH Haridwar and JH Chamoli for Pathology laboratory and the occupants had to use lavatory of other wing<sup>6</sup>.
- Scrutiny of Records of DH Haridwar and JH Udham Singh Nagar also revealed that some of the services, to be provided within the hospital premises<sup>7</sup>, were functional either in separate buildings<sup>8</sup> not within the campus of DH/JH or in another hospital<sup>9</sup>. Further, due to inadequate space in the building, the DFH Haridwar had to create labour ward with temporary structure at the exit lobby/circulation area on the second floor of the building to meet the existing demand.

### 8.1.2 *Non utilisation of created infrastructure*

- It was found that SNCU in JH Udham Singh Nagar was not operational (December 2019) despite having the civil structure created with NHM funds in 2016-17. The requirement for equipment and human resources was identified only after a gap of three years which indicates the inability of the management in making the SNCU facility operational.
- The ICUs created in JH Udham Singh Nagar in 2006-07 and JH Chamoli in 2005-06 were not functional due to non-availability of equipment and manpower.
- In JH Chamoli, infrastructure for Emergency and Trauma Centre was created in 2005-06. However, this facility was not being utilised due to non-availability of essential equipment and specialised manpower.

During the Exit Conference, the Government while accepting the facts stated that ICU infrastructure was not created/operationalised in all hospitals due to non-availability of dedicated staff. However, in response to the Covid-19 pandemic, the ICU infrastructure in the hospitals had now been created. Further, it was informed that due to non-availability of required specialised manpower, the Trauma Centre of JH Chamoli could not be made functional.

## 8.2 *Power backup*

As per IPHS, the district hospitals must have 24-hour uninterrupted stabilised power supply with three phases and capacity of 25-50 KVA. Records and logbook of the power backup system of the test checked hospitals revealed that:

- All test checked hospitals had generator installed but were being operated manually. This implied that uninterrupted power backup necessary for smooth functioning of OT; AC in the wards; medicines kept in cold chain/refrigerators; lifts; and blood

<sup>6</sup> In DH Haridwar, occupants used the lavatory facility of STI wing and in JH Chamoli, the occupants of the laboratory had to use common lavatory situated in the lobby.

<sup>7</sup> As per IPHS, the blood bank should be within the proximity of OT and emergency.

<sup>8</sup> Blood Bank of DH Haridwar and JH Udham Singh Nagar.

<sup>9</sup> Physiotherapy, Dental OPD and Microbiology lab of DH Haridwar were located in Mela Hospital.

banks could not be ensured due to manual operation of the generator. In JH Udham Singh Nagar, it was noticed that a patient was ready for procedure in OT, but the doctor had to wait due to power interruption for around 10 minutes. In JH Chamoli, due to interruption of power supply and non-availability of back up supply in OT<sup>10</sup>, the OT procedure which was undergoing was hindered for some time. The facts were admitted by the concerned authorities.

- Dialysis Department in JH Udham Singh Nagar was functional on PPP mode but the expenses of consumption of electricity were not borne by the concessionaire as per the agreement. It was stated that necessary recovery would be made from the private partner.
- The AMC of generators was not done in five out of six test checked hospitals.
- AMC of invertors was not done by any of the test checked hospitals except DFH Haridwar.

### **8.3 Adequacy of Water Supply**

As per IPHS, arrangement should be made for round the clock piped water supply along with an overhead water storage tank with pumping and boosting arrangements. Water requirement per bed per day is around 450 to 500 litres (excluding requirements for firefighting, horticulture and steam).

Records of test checked hospitals revealed that water was supplied through piped line by Jal Sansthan except for JH Udham Singh Nagar<sup>11</sup>. The details of requirement, capacity of overhead tanks and availability of backup of water as on date of audit is detailed in the **Table-62** given below:

**Table-62: Adequacy of Water supply in test checked hospitals**

Details of requirement	DFH		JH		DH	
	Almora	Haridwar	Chamoli	Udham Singh Nagar	Almora	Haridwar
Number of beds operational	38	68	135	161	59	70
Water requirement @ 450 (in litres)	17,100	30,600	60,750	72,450	26,550	31,500
Water consumption (as per capacity of overhead tank in litres)	14,800	30,000	16,400	1,50,000	24,900	22,000
Backup (in litres)	12,600	Nil	30,000	Bore well	40,000	Nil
Biological testing of water samples.	No	No	No	Yes	No	No
Cleaning of Tanks	No	Yes	Yes	Yes	Yes	Yes
AMC ROs	No	Yes	No	No	No	No

*Source: Test checked hospitals.*

- No biological testing of water samples was conducted by five test checked hospitals during the period 2014-19.
- No concrete measures were taken by taken by DFH Haridwar, JH Chamoli and DH Haridwar to augment the availability of water to meet the requirement as per norms.
- All the test checked hospitals failed to clean the overhead and underground tanks periodically during the period 2014-19.

<sup>10</sup> Inverter and Generator not in order.

<sup>11</sup> Using bore well facility.

- Comprehensive AMC of available Water Purifiers was not done by any of the test checked hospitals except DFH Haridwar.
- Records of water disruptions during the last five years were not maintained by any test checked hospitals.

The facts were accepted by the hospitals and it was stated that necessary measures would be taken to overcome the deficiencies.

#### 8.4 Medical Gas (Oxygen)

Oxygen is an essential element of basic emergency care<sup>12</sup> and is required for surgery and treatment of several respiratory diseases, both chronic and acute. In June 2017, the World Health Organisation (WHO) included oxygen in the WHO Model list of essential medicines (EML) due to its proven lifesaving properties, safety and cost-effectiveness. The IPHS also require that OT/ICU/SNCU, etc. should have medical gases.

Audit observed that:

- Centralised<sup>13</sup> Oxygen supply system was not installed in five test checked hospitals to ensure uninterrupted oxygen supply.
- Adequate arrangements<sup>14</sup> for oxygen cylinder were not available in test checked hospitals and the buffer stock was also not identified in two<sup>15</sup> hospitals.
- As per LaQshya guidelines and Standard Operating Procedure, the oxygen cylinders are required to be checked daily and weekly. However, no such records were maintained in DFH Haridwar and JH Chamoli.

#### *Positive feature*

*JH Udham Singh Nagar had installed Centralised Oxygen supply system.*

#### 8.5 Quality Certification

Quality Certification program for public health facilities recognises the good performing facilities and it also enables to improve the credibility of public hospitals in community. National Accreditation Board for Hospitals and Healthcare Providers (NABH) is a constituent board of Quality Council of India, an autonomous body, for accreditation of healthcare organisations. Certification is also provided against National Quality Assurance Standards (NQAS) on meeting pre-determined criteria. The certified facilities are also provided financial incentives as recognition of their good work.

<sup>12</sup> Oxygen is a life-saving therapeutic medical gas used for the management of hypoxaemia-an abnormally low level of oxygen in the blood that is caused by disease, trauma or other health conditions.

<sup>13</sup> Centralized pipeline system comprises a main source of supply (generally with a secondary and tertiary source to ensure continuity of service) connected via a permanent fixed pipeline system to appropriate terminal unit outlets in relevant locations across the site. Plant and system status are monitored continuously by a series of alarms which sound at designated locations to indicate faults or low pressure.

<sup>14</sup> No agreement was done with any vendor for uninterrupted supply of oxygen cylinders.

<sup>15</sup> DFH and DH Haridwar.

None of the test checked hospitals had received NABH accreditation. For NQAS, certification records revealed that only three out of six test checked hospitals had applied for certification under NQAS. Further, only two had received quality certification under NQAS in five Departments each while JH Chamoli was in the process of obtaining accreditation.

**Positive feature**  
**JH Udham Singh Nagar and DFH Haridwar had received quality certification under NQAS in five<sup>16</sup> departments each.**

During Exit Conference, it was informed by the Government that instructions would be issued to all hospitals to prepare themselves for obtaining accreditation under NABH and also to obtain accreditation under NQAS.

### 8.6 Compliances in regard to statutory requirements

IPHS provide 25 types of statutory requirements which shall be fulfilled by the district hospitals. The status regarding the statutory compliances fulfilled by the test checked hospitals is indicated in **Table-63** given below:

**Table-63: Status of statutory compliances fulfilled by the test checked hospitals**

Sl. No.	Statutory compliances	Almora		Haridwar		Chamoli	Udham Singh Nagar
		DH	DFH	DH	DFH	JH	JH
1.	No Objection Certificate from the Chief Fire officer	No	No	No	Yes	No	No
2.	Authorisation under Bio-medical Waste (Management and Handling) Rules, 1998.	No	No	No	No	No**	No
3.	Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2008.	No	No	No	No	No	No
4.	License for Blood Bank or Authorisation for Blood Storage facility.	No	NA	Yes	NA	No	Yes
5.	Excise permit to store spirit.	No	No	No	No	No	No
6.	Authorisation from the Atomic Energy Regulation Board.	Yes*	NA	Yes*	NA	No	Yes*
7.	Vehicle Registration Certificates for Ambulances	Yes	NA	No <sup>17</sup>	Yes	Yes	Yes
8.	Consumer Protection Act	No	No	No	No	No	No
9.	Drug & Cosmetic Act 1950	Yes	Yes	Yes	Yes	Yes	Yes
10.	Fatal Accidents Act 1855	No	No	No	No	No	No
11.	Indian Lunacy Act 1912	No	No	No	No	No	No
12.	Indian Medical Council Act and code of Medical Ethics	Yes	Yes	Yes	Yes	Yes	Yes
13.	Right to Information Act	Yes	Yes	Yes	Yes	Yes	Yes
14.	Indian nursing Council Act	Yes	Yes	Yes	Yes	Yes	Yes
15.	Insecticides Act 1968	Yes	Yes	Yes	No	No	No
16.	Maternity Benefit Act 1961	NA	No	NA	No	No	No
17.	Boilers Act as amended in 2007	No	No	No	No	No	No
18.	MTP Act 1971	NA	No	NA	No	No	Yes
19.	Persons with Disability Act 1995	Yes	No	No	No	Yes	No
20.	PC & PNDT Act 1994	Yes	Yes	Yes	Yes	Yes	Yes
21.	PNDT Act 1996	Yes	Yes	Yes	Yes	Yes	Yes
22.	Narcotics and psychotropic substances Act 1985	Yes	Yes	Yes	No	No	No
23.	Clinical Establishments (Registration and Regulation) Act 2010	Yes	Yes	Yes	No	No	Yes
24.	Type and Site Approval from AERB for X-ray, CT Scan unit.	Yes	No	No	No	No	No
25.	Mental Health Act 1987	Yes	Yes	Yes	No	No	No

NA: Not Applicable.

\* obtained in April 2019.

\*\*Valid upto 2 September 2018 only.

<sup>16</sup> JH Udham Singh Nagar (OPD, OT, Blood Bank, Laboratory and Radiology) and in DFH Haridwar (OPD, Labour room, Maternity ward, SNCU and Operation Theatre).

<sup>17</sup> Expired Registration.

- No Objection Certificate from the Chief Fire Officer was not obtained by any of the test checked hospitals except DFH Haridwar.
- Authorisation under Bio-medical Waste (Management and Handling) Rules, 2016 and Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2016 was not available in any of the test checked hospitals.
- Compliances in respect of Excise permit to store spirit, Fatal Accidents Act 1855, Indian Lunacy Act 1912<sup>18</sup>, Boilers Act and Type and site Approval from AERB for X-ray, CT Scan unit<sup>19</sup> were not adhered by any of test checked hospitals.
- Narcotics and Psychotropic Substances Act 1985 and Mental Health Act 1987 were not complied by DFH Haridwar, JH Chamoli and JH Udham Singh Nagar.

During the Exit Conference, it was stated by the Government that instructions would be issued to all hospitals for early compliance.

*To sum up, the number of beds functional in the hospital did not conform to the norms. Uninterrupted power backup and centralised medical gases (oxygen) system critical to Hospital functioning were not ensured. Further, failure of the Department to operationalise the completed infrastructure only served to aggravate the problems of inadequate access to quality health care.*

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<sup>18</sup> Reception, Care and Treatment of Lunatics.

<sup>19</sup> Except in DH Almora.



# **Chapter-9**

## **Recommendations**





## 9 Recommendations

District hospitals are an essential component of the district health system and functions as a secondary level of health care which provides curative, preventive and promotive healthcare services to the people in the district. These hospitals, therefore, profoundly influence the performance of the entire health system.

According to Niti Aayog's report "Healthy States, Progressive India" published in June 2019, the State of Uttarakhand ranks 17 among 21 larger States with only Madhya Pradesh, Odisha, Bihar and Uttar Pradesh behind. As such, there is tremendous scope for improvement and the situation demands for better healthcare services in order to build psychological confidence in the patients and enhance their faith in the services rendered by the hospitals.

Ministry of Health and Family Welfare, Government of India, has issued a set of uniform standards called the Indian Public Health Standards (IPHS) to improve the quality of healthcare delivery in the country and serve as the benchmark for assessing performance of healthcare delivery system. The IPHS for District Hospitals prescribe standards for the services, manpower, equipment, drug, building and other facilities. These include the standards to bring the District Hospitals to a minimum acceptable functional grade (indicated as Essential) with scope for further improvement (indicated as Desired). The Essential Services include General Medicine, General Surgery, Obstetrics & Gynaecology Services, Psychiatry, Orthopaedics, Radiology including Imaging, Emergency (Accident & other emergency) and Critical care/Intensive Care Unit (ICU) under General Specialities; Laboratory Services, X-Ray, ECG, Physiotherapy, Drugs and Pharmacy under essential Diagnostic and other Para clinical Services; Ambulance Services, Electric Supply, Hospital Infection Control, Dietary Services, Laundry Services and Waste Management including Biomedical Waste under Ancillary and Support Services. Besides, every district hospital should provide facilities of Special Newborn Care Units (SNCU) with specially trained staff. The Maternal and Newborn Health (MNH) toolkit also aims to standardize the maternal and neonatal care at public health institutions.

Audit noticed that despite a considerable increase in public health expenditure in Uttarakhand during 2014-19, the test checked hospitals at secondary care level were lagging behind in efficiency, service quality and clinical care capability. In order to

improve the functioning of the district hospitals, the State Government may consider the following recommendations on priority:

- The State Government should draw up an action plan to prioritise the provisioning of the most essential healthcare services first. It should adopt and implement IPHS fully for provisioning of essential OPD, IPD and Emergency services along with ensuring availability of essential drugs, equipment and human resources so that patients do not face shortages of medical resources and access to quality medical care is improved in the district hospitals.
- The State Government should ensure the availability of round the clock accident and trauma services along with fully functional ICU facilities in district hospitals for critically ill patients requiring highly skilled life saving medical aid and nursing care.
- The State Government should ensure the availability of fully equipped Special New Born Care Unit as required under MNH Toolkit and IPHS to treat critically ill newborns in a district hospital.
- Essential radiology services and pathology investigations as per IPHS must be available in the district hospitals particularly in view of the increasing reliance on diagnostics for treatment of patients in district hospitals.
- The availability of ambulances with well-equipped Basic Life Support along with serviceability and availability of equipment and drugs in ambulances must be ensured.
- Availability of uninterrupted power backup, adequacy of water supply and medical gas (centralised oxygen supply) should be prioritised to deliver quality health services.
- There should be strict adherence with laid down standards on clean and disinfectant patient care areas to prevent healthcare associated infections.

The State Government may also consider the following recommendations:

**(i) *Out-Patient Services***

- Consultation time per patient in district hospitals should be peer reviewed at the State level by the Director General of Medical and Health Services, so that corrective steps may be taken to address the very short per patient consultation period.
- The State Government may take steps to fulfil the core objective of providing free drugs to the patients in district hospitals.

- Measures like Online Registration System to capture the registration electronically and better appointment system may be taken to reduce the patient's 'Registration to Drug Time'.
- Patient satisfaction survey of outdoor patients on a monthly basis as per NHM Assessor's Guidebook may be ensured.

**(ii) Diagnostic Services**

- Pathological tests performed by the district hospitals should be validated by External Quality Agency on a regular basis.
- Immediate steps may be taken for getting the required certification from the Atomic Energy Regulatory Board as regards the established X-ray units in the district hospitals so as to not compromise with the safety of patients and staff in the Radiology departments of these hospitals.
- Monitoring equipment such as Thermoluminescent dosimeters may be provided to all the technicians of the X-ray room and dose records shall be maintained.

**(iii) In-Patient Services**

- The monitoring mechanism, a significant lever for facilitating the responsibility and accountability of the hospital, should be revamped by including measurement of outcome indicators pertaining to productivity, efficiency, service quality and clinical care capability of the district hospitals.
- To ascertain safety procedures, vital records related to OTs such as surgical safety checklist, pre-surgery evaluation records and post-operative evaluation records should be prepared for each case as required under NHM Assessor's Guidebook.
- Nutritional care of in-patients, in order to reduce complications and facilitate speedy recovery; and distinctive dietary requirements of different categories of patients should be ensured in the district hospitals.
- Each district hospital should have a dedicated disaster management plan in line with state disaster management plan to address issues relating to prevention, mitigation and response to ensure as minimal damages as possible in event of a disaster.

**(iv) Maternity Services**

Concerted efforts to reduce the Neonatal, Infant and Maternal mortality rates should focus on:

- Proper record maintenance and operationalisation of mother child track system along with availability of essential human resources, drugs and pathological investigation facilities to enhance the ability of the district hospitals to monitor the health of mothers and newborns;
- Providing well-equipped facilities for abortion care; management of Sexually Transmitted Infection/Reproductive Tract Infection; handling C-section deliveries; and intra-partum care through augmentation of essential resources as well as providing a clinically safe environment in district hospitals;
- Monitoring of the delivery of prescribed postpartum care towards minimising adverse pregnancy outcomes so that women and newborns reach their full potential for health; and
- Providing financial assistance timely to the beneficiaries in order to ensure them a good diet and care and encourage institutional deliveries.

**(v) *Infection Control***

A culture of infection control management should be embedded in the district hospitals through:

- Effective implementation as well as documentation of pest/rodent control and sterilisation procedures;
- Adequate availability of clean linen to thwart the spread of hospital acquired infections;
- Active microbiological surveillance to monitor air/surface infections; and
- Observance of Bio-Medical Waste Rules 2016 for reducing the spread of infectious diseases.

**(vi) *Drug Management***

- It should be ensured that a formulary of drugs is prepared by each hospital on the basis of disease patterns and inflow of patients; the Essential Drug List is updated accordingly; and the eventuality of stock-out of required drugs forestalled.
- Norms prescribed for testing of procured drugs should be scrupulously observed. Besides, quality of drugs should also be checked through sampling by the Drug Inspectors.

**(vii) *Infrastructure and other issues***


- Efforts should be made for proper upkeep of hospital buildings through periodic maintenance to utilise the created infrastructure optimally and to

ensure availability of a safe, clean and conducive environment for the public and hospital staff.

- The district hospitals shall comply with all statutory requirements as prescribed under IPHS.


During the Exit Conference, all the recommendations made in the Performance Audit Report were discussed and the Government assured that it would take needful action, wherever required.

Dehradun  
The 10 February 2021

  
(S. ALOK)  
Principal Accountant General (Audit)  
Uttarakhand

Countersigned

New Delhi  
The 12 February 2021

  
(GIRISH CHANDRA MURMU)  
Comptroller and Auditor General of India



# **Glossary of Abbreviations**





## GLOSSARY OF ABBREVIATIONS

Abbreviation	Expanded Form
AERB	Atomic Energy Regulatory Board
AC	Air Conditioner
AHU	Air Handling Unit
AIDS	Acquired Immune Deficiency Syndrome
ALoS	Average Length of Stay
ALS	Advance Life Support
AMC	Annual Maintenance Contract
ANC	Antenatal Care
ANM	Auxiliary Nursing Midwife
ASHA	Accredited Social Health Activist
BCG	Bacillus Calmette Guerin
B-EmOC	Basic Emergency Obstetric Care
BHT	Bed Head Ticket
BLS	Basic Life Support
BMW	Bio Medical Waste
BOR	Bed Occupancy Rate
BTR	Bed Turnover Rate
CAC	Comprehensive Abortion Care
CAG	Comptroller and Auditor General of India
CBMWTF	Common Bio-Medical Waste Treatment Facilitator
CDC	Centre for Disease control
CHC	Community Health Centre
CMO	Chief Medical Officer
CMS	Chief Medical Superintendent
CPAP	Continuous positive airway pressure therapy
CT Scan	Computerised Tomography Scan
DC	Drug Controller
DFH	District Female Hospitals
DGMH & FW	Director General, Medical Health and Family Welfare
DGS&D	Director General of Supplies and Disposal
DH	District Hospital
DHS	District Health Society
DMP	Disaster Management Plan
DPP	Drug Procurement Policy
DR	Discharge Rate
DWH	District Women Hospital
ECG	Electrocardiogram
EDL	Essential Drug List
ELISA	Enzyme-linked Immunosorbent Assay
EML	Model list of Essential Medicines
EMO	Emergency Medical Officer
EmOC	Emergency Obstetric Care
EMR	Electronic Medical records
ENT	Ear, Nose & Throat
EPP	Equipment Procurement Policy
EQA	External Quality Assessment
EtO	Ethylene Oxide
ETP	Effluent Treatment Plant
FHB	Financial Hand Book
FIMNCI	Facility-based Integrated Management of Neonatal and Childhood Illness

FR	Fertility Rate
FRU	First Referral Unit
FSSAI	Food Safety and Standards Authority of India
GNCB	Gram Negative Cocco bacillus
GoI	Government of India
GoU	Government of Uttarakhand
GS	General Surgeons
HB	Haemoglobin
HBsAG	Hepatitis B Surface Antigen
HCV	Hepatitis C Virus
HEPA	High Efficiency Particulate Air
HICC	Hospital Infection Control Committee
HIV	Human Immunodeficiency Virus
HLD	High Level Disinfection
HR	Human Resource
HVAC	Heat Ventilation Air Conditioning
ICCU	Intensive Cardiac Care Unit
ICU	Intensive Care Unit
IEC	Information, Education and Communication
IFA	Iron Folic Acid
IMR	Infant Mortality Rate
IPC	Intra-partum Care
IPD	Indoor Patient Department
IPHS	Indian Public Health Standards
IT	Information Technology
JE	Japanese Encephalitis
JH	Joint Hospital
JSSK	Janani Shishu Suraksha Karyakram
JSY	Janani Suraksha Yojana
KVA	Kilovolt-ampere
LAMA	Leave Against Medical Advice
LD	Liquidated Damage
LMO	Lady Medical Officer
LT	Laboratory Technician
MCH	Maternal and Child Health
MCTS	Mother Child Track System
MMR	Maternal Mortality Rate
MNH Toolkit	Maternal and Newborn Health Toolkit
MoIC	Medical Officer in Charge
MoU	Memorandum of Understanding
MSW	Municipal Solid Waste
MTP	Medical Termination of Pregnancy
NABH	National Accreditation Board for Hospitals and Healthcare Providers
NABL	National Accreditation Board for Testing and Calibration
NBCI	National Building Code of India
NBSU	Newborn Stabilization Unit
NCI	Nursing Council of India
NFHS	National Family Health Survey
NHM	National Health Mission
NICU	Neonatal Intensive Care Unit
NITI	National Institution for Transforming India
NMR	Neonatal Mortality Rate
NOC	No Objection Certificate

NQAS	National Quality Assurance Standards
NSSK	Navjaat Shishu Suraksha Karyakram
OBG	Obstetrics and gynaecology
OI	Outcome Indicators
OPD	Outdoor Patient Department
OPV	Oral Polio Vaccine
ORS	Online Registration System
Ortho	Orthopaedic
OT	Operation Theatre
PMS	Principal Medical Superintendent
PNC	Post Natal Care
PP	Perspective Plan
PPC	Post-Partum Cell
PPP	Public-private partnership
PSS	Patient Satisfaction Survey
PSU	Public Sector Undertaking
RBC	Red Blood Cell
RC	Rate Contract
RIS	Radiology/image
RO	Reverse Osmosis
ROR	Referral Out Rate
RPR	Rapid Plasma Reagin
RTI	Reproductive Tract Infection
SDG	Sustainable Development Goal
SEPPCB	State Environment Protection and Pollution Control Board
SHS	State Health Society
SNCU	Special New Born Care Unit
SOP	Standard Operating Procedure
SPCB	State Pollution Control Board
SRB	Sex ratio at birth
SRSWOR	Simple Random Sampling Without Replacement
STI	Sexually Transmitted Infection
TAT	Turn-around Time
TFR	Total Fertility Rate
TLD	Thermoluminescent dosimeters
Toolkit	Maternal and Neonatal Health Toolkit
U5MR	Under 5 Mortality Rate
USG	Ultrasonography
UV	Ultra violet
VDRL	Venereal Disease Research Laboratory
WBC	White Blood Cell
WHO	World Health Organisation
WT	Waiting Time





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