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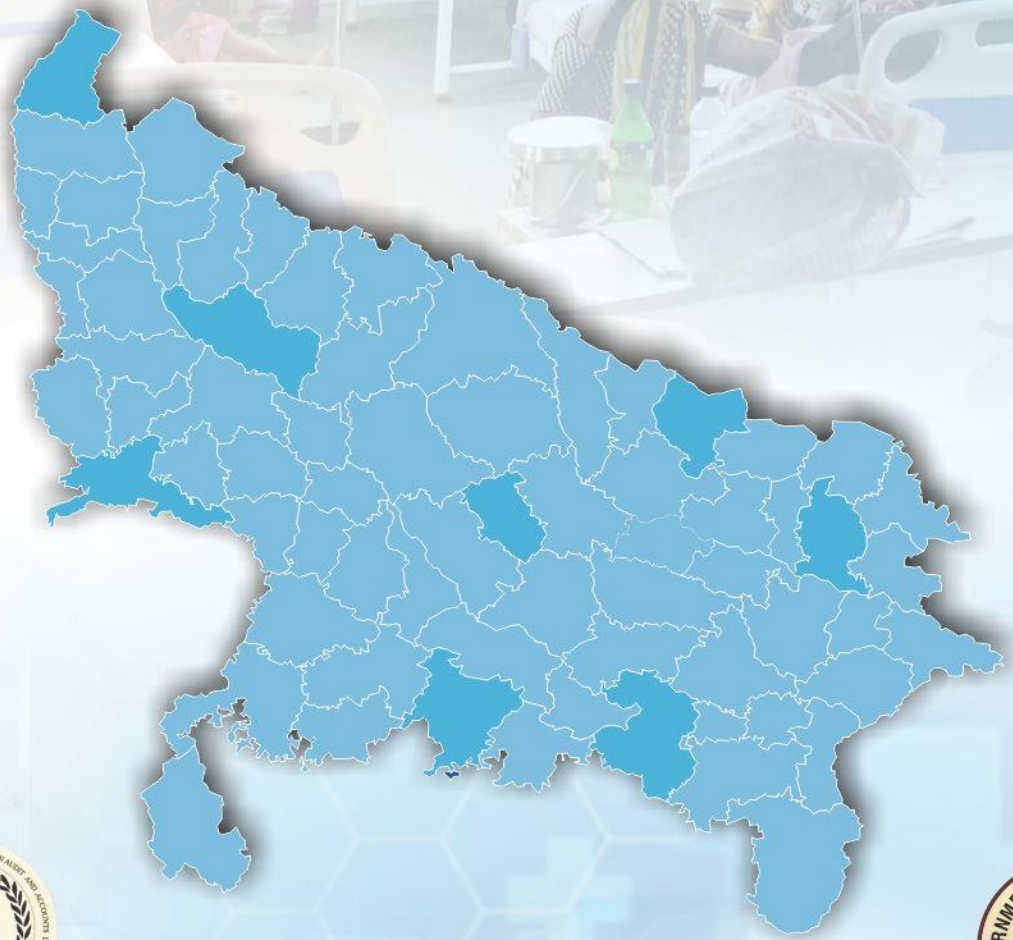
Performance Audit Report of the Comptroller and Auditor General of India on

Hospital Management in Uttar Pradesh



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GOVERNMENT OF UTTAR PRADESH

Government of Uttar Pradesh
Report No. 02 of the year 2019

Report of the

Comptroller and Auditor General of India

on

Hospital Management in Uttar Pradesh

for the year ended 31 March 2018

Government of Uttar Pradesh

Report No. 02 of the year 2019

(Performance Audit)

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Preface

This Report of the Comptroller and Auditor General of India for the year ended 31 March 2018 has been prepared for submission to the Governor of Uttar Pradesh under Article 151 of the Constitution of India.

The Report contains the results of the Performance Audit on 'Hospital Management in Uttar Pradesh', covering the period 2013-18.

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

Executive Summary

About the Report:

There is a critical requirement for sustained and determined action to close the gap between the patient care received and the target outcomes in public hospitals at the primary and secondary care levels. Uttar Pradesh, as the most populous State in India with poor health indicators as compared to the national average, has a significant weight in the unmet needs of public health in the country.

It is in this backdrop that the Performance Audit of Hospital Management in Uttar Pradesh has been carried out during 2018-19, covering the period 2013-18. This Report has attempted to assess the quality of medical services and patient care being provided by the district and block level hospitals.

Why have we prepared this Report now?

We have audited the health sector and presented the findings in various Union and State Reports to the Parliament and legislature of different States over the last decade. All India Performance Audit of National Rural Health Mission (NRHM) was conducted and findings presented in Union Report No. 8 of 2009-10. More recently Union Report No. 25 of 2017 on NRHM-Reproductive and Child Health Component was laid in the Parliament. Audit of NRHM in the State of Uttar Pradesh was also conducted for the period 2005-11 and a Report was laid in the State Legislature on 30 May 2012.

All these earlier reports had focussed on compliance issues, inadequacies and mismatch of inputs and outputs, efficiency of quality assurance mechanism and effectiveness of monitoring *etc*. Keeping in view the goals laid down in the National Health Policy and expected outcomes of Sustainable Development Goal #3 at the global level, evaluating the outcome has become crucial for timely and systemic corrections. In this context, we have tried to assess the outcomes in this audit with a view to ascertain the quality of healthcare being made available to people through the existing policy interventions and scope for further improvement. This Report aims at identifying the areas that require systemic corrections and improvement.

What has been covered in this audit?

In this outcome based audit we have focussed on patient care received at the primary and secondary care levels in the State. Various Services like Out-Patient and In-patient Services, Maternity Services, Emergency Services, Diagnostic Services, Infection Control and Drug Management **have been assessed on pre-determined outcome indicators/criteria in the sampled district level and block level hospitals (Community Health Centres).**

What have we found and what do we recommend?

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

Policy framework for healthcare services

The policy framework for hospital management in the State had a gap that needs to be addressed: we noted that the Department neither prepared its own norms/standards nor did it adopt those prescribed by the Government of India (GoI) in respect of out-patient and in-patient services, pathology investigations and human resources. As a result, a methodical gap analysis was not, and cannot be, carried out. This would, and has, impacted the availability of resources and services in the hospitals/Community Health Centres (CHCs).

The revised Drug Procurement Policy 2012 and revised Equipment Procurement Policy 2012 also had significant gaps such as modalities to be followed in case of emergencies necessitating local purchase of drugs and consumables; sampling norms, criteria and periodicity for quality testing of drugs; types of equipment required in the district level hospitals; and maintenance of equipment.

Recommendations

Keeping in view the fact that Health is a State subject, it is imperative that the State Government should prescribe/adopt standards and norms for provisioning of services and resources for different levels of hospitals. A serious policy response is required to address gaps in the Drug Procurement Policy and the Equipment Procurement Policy.

Out-patient services

We found that the patient load in the Out-Patient Departments (OPD) in the test-checked hospitals and CHCs spiked by one-third during 2013-18, but the addition in the number of doctors available was nominal. Resultantly, there was a crisis of overcrowding with a rise in the number of OPD cases per doctor by 24 *per cent* in District Hospitals (DHs)/Joint Hospitals (JHs), as well as 20 *per cent* in District Women Hospitals (DWHs) and 12 *per cent* in CHCs. This had a cascading impact with 86 *per cent* patients in DHs/JHs, 69 *per cent* in DWHs and 50 *per cent* in CHCs **experiencing less than five minutes' consultation time, signifying inadequate diagnosis, investigation and treatment in OPD.**

Conversely, wait times for patients were adversely impacted since the number of registration counters were not commensurate with the increase in the daily patient load, exacerbated in some of the test-checked hospitals/CHCs by a lack of suitable and commensurate increase in seating facility and toilets, and an overall weak grievance redressal system.

Recommendations

Consultation time per patient in district hospitals and CHCs 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 inequities in the number of registration

counters *vis-à-vis* the rising patient demand should be addressed without delay so that wait times for patients are reduced and seating/toilet facilities be increased commensurate to increase in patient load.

Diagnostic services

Despite being the bedrock of evidence-based modern treatment procedures, diagnostic services, both radiological and pathological, were deficient in terms of availability of functional equipment, consumables and human resources in the test-checked hospitals/CHCs.

A majority of DWHs and a large number of CHCs did not have the baseline X-ray facility; more than half of the DHs lacked the requisite range of X-ray machines; a substantial number of CHCs were without an ultrasonography (USG) facility and the computed tomography (CT) scan was available in less than one-third of the eligible hospitals.

There were also serious gaps in the availability of essential pathological investigations in almost all the hospitals and CHCs; whereas in-house pathology services were hamstrung by a shortage of lab technicians and unsatisfactory quality assurance. Engaging private service provider, to fill this gap, does not seem to have improved the situation substantially.

Quality-wise, due to lack of monitoring of the time lag between receipt of samples and completion as well as reporting of results of investigations to the patients, minimum efficiency standards in diagnostic services remain a challenge.

Recommendations

The availability of essential radiology services *viz.* X-ray and USG and pathology investigations as per Indian Public Health Standards (IPHS) and availability of requisite human resources should be ensured in every hospital/CHC, particularly in view of the increasing reliance on diagnostics for treatment of patients. Records pertaining to waiting time and turnaround time in respect of both radiological and pathological investigations should be maintained, so as to monitor the timeliness of the diagnostic services alongside the interpretation and reporting of results for treatment plan and further referral to higher centers.

In-patient services

There were considerable gaps in the availability of in-patient services with more than half of the DHs lacking a Burn ward, an Accident and trauma ward as well as indoor services for Dialysis, Physiotherapy and Psychiatry whereas pediatric services were available in less than half of the CHCs.

In-patient services in the different hospitals also varied in terms of the availability of resources.

- Asymmetric distribution of human resources in the test-checked hospitals was revealed ranging from a 54 *per cent* excess in JH Lucknow to a 74 *per cent* shortfall in JH Balrampur of doctors; an excess of 210 *per cent* in

JH Lucknow to a shortage of 67 *per cent* in JH Balrampur of nurses; and a 45 *per cent* shortfall in DH Banda to a 356 *per cent* excess in JH Lucknow of para-medical staff, vis-à-vis the sanctioned strength. Since similar unevenness was also noticed in CHCs, there is an urgent need to rationalise the workforce shortages towards achieving the right skills mix in a hospital/CHC. Excess posting of doctors and para-medical staff in big cities like Lucknow and Agra needs to be reversed quickly, and a system put in place where such excessive postings/"deputations" (other than for emergency and for a specific period) are impossible at any level of authority.

- The availability of doctors in the IPD could not be ascertained in any of the hospitals in the absence of rosters for assigning their duty. Furthermore, as against the requirement of one nurse per six beds, except for Shift-I in DH Banda the number of beds tended to by a nurse ranged from 10 to 43 beds in eight hospitals wherein rosters for nursing duty were maintained. This was a reflection on the indifferent quality of the nursing care provided in IPD.

- Only 07 to 12 types of essential drugs were available in IPD against the 14 types required in the test-checked DHs during 2017-18; thus, either the quality of treatment was compromised or significant out-of-pocket expenditure was incurred by the patients to buy vital drugs such as adrenaline (used in emergencies to stimulate heart), diclofenac sodium (relieves inflammation) and salbutamol (used to treat asthma) from outside.

- Similarly, vital equipment such as Doppler (for estimation of blood flow) in DHs Agra, Allahabad, Banda, Balrampur, Budaun, Saharanpur and DH-II Allahabad; Glucometer (for estimation of blood sugar) in DH Balrampur; and Defibrillator (for use in life-threatening cardiac cases) in DHs Agra, Balrampur and Budaun, were not available during 2017-18. Further, none of the DHs had executed an Annual Maintenance Contract for IPD equipment.

Operation Theatre (OT) services were sub-optimal in DH and JH Balrampur, DH Banda and DH Budaun where considerably less numbers of major surgeries could be performed as compared to rest of the DHs. Further, ENT surgeries in DH and JH Balrampur, and orthopaedic surgery in DH Banda were not conducted due to non-availability of surgeons. Furthermore, the prescribed essential drugs and equipment pertaining to OT services were short by at least 50 *per cent* in five and eight DHs/JHs respectively. Thus resources available for OTs were insufficient and offered little prospect of effective treatment in the concerned hospitals.

Intensive Care Unit (ICU) services were available only in DHs Lucknow and Gorakhpur out of the 11 test-checked DHs/JHs. In the absence of an ICU facility in the remaining DHs/JHs, patients approaching these hospitals in an emergent condition were likely to be referred and/or passed on to higher facility public or private hospitals.

- The ICUs in DHs Lucknow and Gorakhpur also suffered from shortage of essential equipment such as Ventilators, Infusion Pumps, Ultrasound and Arterial Blood Gas analysis machine. Nursing care was compromised as against the requirement of one nurse for each bed in the ICU, three to seven beds were assigned to a nurse in DH Lucknow.

There was a serious dearth of emergency services as five out of the 11 DHs/JHs test-checked did not have any emergency OT, while accident and trauma services were available in DHs Banda and Saharanpur only. However, the trauma centre in Banda was non-functional since December 2017 for want of a surgeon and both trauma centres suffered from substantial shortages of essential equipment. Further, in respect of CHCs, the emergency services were limited to snake bite and other cases not requiring diagnostic services, while for emergencies such as cardiac arrest and severe pneumonia, the CHCs effectively served only as referral centres.

Dietary services, an important therapeutic tool, were sub-optimal since the prescribed six types of diet for in-patients were provided only in DHs Lucknow and Saharanpur; the per patient per day expenditure on diet ranged from ₹ 29 to ₹ 102, indicating that the quality of the diet served was inconsistent, even providing for inter-district difference in prices. Most of the test-checked hospitals/CHCs also did not have a system of quality checking of the diet.

Patient safety was a matter of serious concern as a Disaster Management Plan was prepared in only two hospitals and in none of the CHCs. Further, a fire audit was not conducted in any of the hospitals/CHCs during 2013-18.

The IPD services in 10 DHs/JH were compared against each other using outcome indicators evaluated and the resources available with them.

- Every hospital, relative to the other test-checked DHs/JH, underperformed on at least one outcome indicator, with the performance of DHs Banda, Budaun, Gorakhpur and Saharanpur being, in particular, below par.

- The combined Leave against Medical Advice & Absconding Rate was very high at 78 *per cent* in DH Budaun and 50 *per cent* in DH Gorakhpur, indicating poor satisfaction with the service quality as experienced by the patients. However, both these hospitals had substantially higher number of doctors and nurses vis-à-vis the sanctioned strength and also above average availability of other resources, indicating ineffectual management.

- A high bed occupancy rate was observed in DHs Banda and Saharanpur along with a high referral out rate as well as a low discharge rate, indicating that these hospitals struggled to provide quality services.

Recommendations

Government should proactively synergize availability of specialised in-patient services along with the essential drugs, equipment and human resources in district hospitals and CHCs, so that patients do not face shortages of medical

resources and access to quality medical care is boosted. The availability of round the clock accident and trauma services in DHs and emergency services in CHCs should be ensured. Nutritional care of in-patients, in order to reduce complications and facilitate speedy recovery, should be ensured through availability of the recommended six types of diet in the hospitals.

The hospitals and CHCs should rigorously adhere to the Uttar Pradesh Manual of Fire Safety Norms 2005. The monitoring mechanism- a significant lever for facilitating the responsibility and accountability of the hospitals- should be revamped by including measurement of outcome indicators pertaining to productivity, efficiency, service quality and clinical care capability of the hospitals.

Maternity services

Significant deficiencies were observed in all three major components of facility based maternity services - Antenatal care, Intra-partum care or delivery care and postnatal care:

- Antenatal Care (ANC) was of low quality since in nine out of the 10 CHCs upgraded to First Referral Units (FRUs) for maternity services, gynaecologists were not or only intermittently available during 2013-18; only six out of 22 CHCs had the facility for conducting all six prescribed pathological investigations; there were substantial shortages of drugs for management of Reproductive Tract Infection (RTI) and Sexually Transmitted Infection (STI) cases in both hospitals and CHCs; and Comprehensive Abortion Care services were not available in 19 CHCs out of the 22 test-checked.

- Intra-partum Care was marked by a more than 50 *per cent* deficiency of essential drugs in eight out of 10 hospitals; shortages in both CHCs and hospitals of basic consumables, including baby wrapping sheets, as well as shortfall in key human resources typified, for instance, by a particularly grim situation in DWHs Agra, Lucknow and Saharanpur wherein the number of deliveries dealt with by a nurse ranged from 31 to 61 deliveries per day.

  – Partographs, which enable the birth attendant to identify and manage the complication of labour promptly, were not plotted in any of the hospitals and CHCs except DWH Allahabad and CHC Campiarganj, Gorakhpur.

  – Pre-term labour was inadequately managed as the requisite Corticosteroid injection was not administered or records in this regard were not maintained in the concerned hospitals and CHCs; besides in a large number of pre-term delivery cases the prescribed injection itself was not in stock. Thus, pre-term babies remained at risk of serious post-natal complications and neonatal deaths.

  - NHM Guidelines state that around 8-10 *per cent* of total delivery cases require C-Section. While 21 *per cent* of deliveries in hospitals occurred through C-section, the corresponding figure for FRU-CHCs[1] was only one *per cent*. This is because there were shortfalls of gynaecologists and/or anaesthetists, particularly in FRU-CHCs. This was coupled with substantial shortages of the relevant drugs and consumables. Thus, pregnant women in rural areas apparently had no option but to go to DWHs for C-section services. DWHs themselves faced insufficiency of resources, and were hard-pressed to take the extra load.

- Postnatal Care (PNC) was characterised by lack of documentation regarding post-partum health check-ups of the mothers and the newborns. Further, the immunization status of 69 *per cent* newborns in hospitals and at least 13 *per cent* in CHCs was not available on record, thus implying poor monitoring of neonatal health. This is indicative of the inadequacy of comprehensive PNC, with an emphasis on a series of check-ups during pregnancy but not after it.

- High stillbirth rates of 2 to 2.4 *per cent* were observed in the test-checked hospitals/CHCs against the average of 1.6 *per cent* for Uttar Pradesh. While the reasons for stillbirths were not available on record, these high rates were a sign of poorly managed ante-natal care and delivery process.

- Neonatal deaths were not recorded at all in the CHCs and majority of the hospitals, thus compromising the ability to seek continuous quality improvement towards neonatal health.

On the outcome indicators evaluated, DWHs Allahabad, Banda and Gorakhpur underperformed the most compared to the other test-checked hospitals.

- In DWH Banda, the combined Leave against Medical Advice (LAMA) & Absconding rate was at a very high level of 82 *per cent* while the average length of stay was the lowest at just more than a day, thus indicating less than satisfactory clinical care of patients. Pertinently, this hospital had below average availability of resources.

- DWH Gorakhpur had significantly low Bed Occupancy Rate as well as the highest LAMA & Absconding rate (95 per cent), indicating poor service quality despite low patient load. DWH Allahabad performed poorly on outcome indicators despite higher than average availability of human resources and equipment, indicating ineffectual management.

Recommendations

Concerted efforts to reduce the very high infant and maternal mortality rates should focus on achieving a greater level of consistency and performance by - strengthening the timeliness, adequacy and quality of Antenatal Care services

[1] Some CHCs have been upgraded to First Referral Units (FRU-CHCs) to equip them for providing delivery of emergency obstetric care to pregnant women with complications.

in the CHCs; ensuring that all DWHs and CHCs have a well-equipped facility for abortion care, management of RTI/STI, handling C-section deliveries; and intra-partum care is impactful through augmentation of essential resources as well as providing a clinically safe environment; and, meticulous monitoring of the delivery of prescribed postpartum care towards minimizing adverse pregnancy outcomes, so that women and newborns reach their full potential for health.

Infection control

Infection control practices were not sufficiently embedded in the functioning of a large number of hospitals and all CHCs since they lacked even standard operating procedures (SOPs)/checklists for hygiene and infection control; disinfection and sterilisation of medical tools, instruments and equipment in the hospitals and CHCs was mostly limited to boiling and autoclaving, whereas a large number of hospitals and CHCs lacked chemical sterilisation and high level disinfection facility.

SOPs for housekeeping were not available in a majority of the hospitals and all CHCs; cleaning services, despite outsourcing, were not of a satisfactory level in several hospitals; reports of surface/air/hand swab tests were not prepared in almost all hospitals/CHCs, signalling lack of oversight on the part of the hospital administration in ensuring adequate decontamination of functional areas.

Laundry services were also highly inadequate as there was a shortage/non–availability of 13 to 19 types of prescribed linen items in the hospitals; bed sheets were not changed nor soiled linen collected on a daily basis in several hospitals and CHCs; outsourcing partners did not adhere to the agreement conditions in respect of providing the requisite washing equipment, collection of dirty linen in covered trolleys and its pre-bleaching, provision of coloured bags to separate soiled and dirty linen *etc*., increasing the vulnerability of patients to hospital acquired infections.

Further, monitoring of the disposal of bio-medical waste was extremely weak since most of the hospitals and CHCs did not shoulder the responsibility of submitting annual reports to the State Pollution Control Board; the daily collection of the waste was not done in at least 13 Hospitals/CHCs during 2017-18, up from seven such hospitals/CHCs in 2013-14; staff were not trained in handling the waste in all the CHCs as well as a majority of the hospitals, putting them at-risk of contamination; and none of the hospitals had an Effluent Treatment Plant, escalating the hazards of poor disposal of the waste.

Recommendations

A culture of infection control management should be embedded in the hospitals through - strict adherence to National Quality Assurance Standards; 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; rigorous conduct of microbiological surveys to monitor air/surface infections; and, active surveillance regarding

adherence to Bio-Medical Waste Rules 2016 to identify any potential issues for reducing the spread of infectious diseases.

Drug management

The Department did not provide an unbroken supply of drugs as per its own Essential Drug List (EDL) which prescribed 498, 809 and 859 drugs for the CHCs, DHs and DWHs/JHs, respectively. Only a portion of the drugs under the EDL were procured ranging between 06 and 34 per cent, 03 and 24 per cent, 07 and 42 *per cent* in the DHs, DWHs/JHs and CHCs, respectively, during 2016-17 and 2017-18.

Stock out of at least 30 days was observed during the year 2017-18 for more than 50 *per cent* of the drugs procured in DH Agra, DH Allahabad, DH-II Allahabad, DH Balrampur and DH Gorakhpur. Due to non-procurement of the full range of drugs as per EDL, even the vital drugs for IPD, OT, ICU, emergency and maternity services were not available in the hospitals.

Further, the CMOs and CMSs did not assess the requirement of drugs as per EDL or prepare drug formulary on the basis of disease patterns and inflow of patients in the hospitals to support the selective procurement of drugs. However, they took recourse to copious procurement of drugs through local purchase without ascertaining reasonableness of prices, ensuring quality assurance or putting on record the justification warranting, in view of any emergent situations, such local purchases.

There was lack of publicity of Notice Inviting Tenders, thus Rate Contracts for only 83 drugs (2016-17) to 371 drugs (2014-15) from the EDL could be concluded during 2013-18. The details of the capacity of the bidders was not ascertained nor were the quantity of drugs to be supplied by the bidders mentioned in the NITs. In the absence of these vital parameters, production capacity of the firms was not evaluated, leading to delay/non-supply of drugs in several cases.

The Department also did not actively restrict unsafe or ineffective products which is critical to patient safety. There were major deficiencies in the system of drug storage in the test-checked hospitals and CHCs. Quality assurance of the drugs procured was ignored as a bulk of the drug supplies were accepted without quality test reports issued by National Accreditation Board for Testing and Calibration Laboratories, while drug testing through Drug Controllers was minimal.

Overall, the weak supply chains for procurement of essential medicines and lack of reliable access to safe and effective drugs, potentially exposed patients to financial hardships and diminished public trust in the health system.

Recommendations

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 EDL updated accordingly and the eventuality of stock-out of required drugs forestalled. The Department should enter into rate contracts for all drugs under EDL to ensure consistency in prices as well as quality of the drugs supplied. Storage of drugs

under conditions prescribed in the Drugs and Cosmetics Rules 1945 to maintain their efficacy should be ensured, before being administered to the patients. The free drug distribution initiative of the State Government should be underpinned by the careful maintenance of ward-wise drugs stock book, records of daily distribution of drugs and OPD drugs slips in each hospital, towards ensuring its effective implementation.

Building infrastructure

Leveraging positive health outcomes from augmentation and improvement of health infrastructure was stymied on account of

- the tardy pace of construction of hospital buildings in the State with 361 works sanctioned during 2013-18 yet to be completed, despite an overall shortage of 38 *per cent* beds in district hospitals and a 47 *per cent* shortfall of CHCs;
- non-operationalisation of newly completed hospital buildings with, for instance, eight out of the 12 works completed during 2013-18 in the test-checked hospitals/CHCs yet to achieve functional status for want of human resources and equipment, even after a lapse of one month to 32 months from the date of handover of these buildings; and
- faulty maintenance of existing buildings, stemmed from non-preparation by CMOs and CMSs of building maintenance plans as per the stipulated norms and periodicity as well as records of building-wise annual maintenance of hospitals/CHCs, and inadequate control of management over maintenance issues.

Recommendations

The Department should as quickly as possible operationalise every newly constructed hospital or a medical facility within its premises, by dovetailing the provision of required human resources and equipment at the planning stage itself. Further, maintenance management of hospitals buildings should be strictly monitored to ensure a conducive environment in the hospitals.

What has been the response of the Government?

While providing general response regarding efforts being made at their level, the Government have agreed with the recommendations and assured to take necessary action to improve the system.

Chapter-1

Introduction

Chapter 1 Introduction

The focus of India's National Health Policy 2017 is to strengthen the trust of the common man in the public healthcare system by making it predictable, efficient, patient-centric, affordable and effective, with a comprehensive package of services and products that meet immediate healthcare needs of most people. At the global level, the Sustainable Development Agenda aims to ensure healthy lives and promote well-being for all at all ages by 2030 as per Sustainable Development Goal (SDG) 3.

In this context, the performance of the public healthcare system in the State of Uttar Pradesh (UP), the most populous State in India with more than 20 crore population, would be one of the most critical factors in achieving goals of National Health Policy and SDG 3 for the country as a whole. This assumes even more importance as the health indicators in UP lag much behind the national average as shown in **Table 1**.

Table 1: Health Indicators

Sl. No.	Health Indicator	Uttar Pradesh		India	
		2011	2016	2011	2016
1	Birth Rate (in *per cent*)	27.8	26.2	21.8	20.4
2	Death Rate (in *per cent*)	7.9	6.9	7.1	6.4
3	Total Fertility Rate (number of births per woman)	3.4	3.1	2.4	2.3
4	Institutional Deliveries (as *per cent* of total deliveries) [2]	56.7	67.8	67.0	78.9
5	Maternal Mortality Rate (MMR) (*per* lakh live births)[3]	292	201	178	130
6	Infant Mortality Rate (IMR) (*per* 1000 live births)	57	43	44	34

(Source: National Family Health Survey-4, Sample Registration System, Annual Health Survey-3, GoI)

National Family Health Survey-4, 2015-16 (NFHS-4) reported that in UP only about 20 *per cent* (the lowest among all States in India) of households generally use a government health facility as compared to 45 *per cent* average for India; more than three-fifths of the surveyed households in UP cited '*poor quality of care'* as a reason for not generally using a government health facility, while '*no nearby facility'* and '*waiting time too long*' were also reported as reasons by around 48 *per cent* and 36 *per cent* of the surveyed households, respectively.

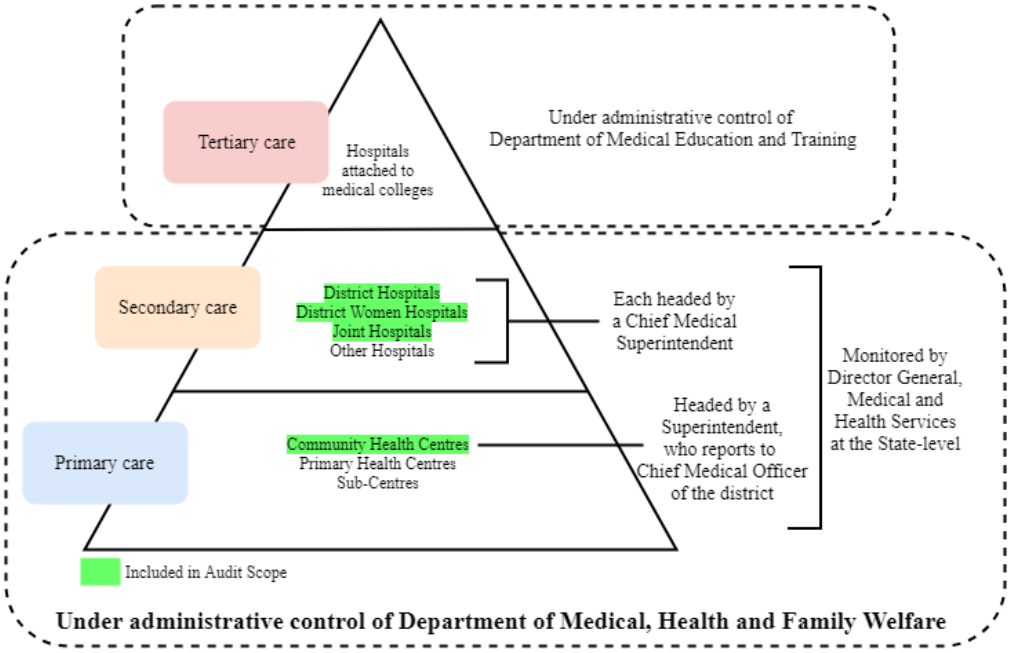
1.1. Public healthcare facilities in the State

The landscape of public healthcare facilities in Uttar Pradesh is structured into three levels in the State for providing primary care, secondary care and tertiary care. While tertiary healthcare is administered by the Department of Medical Education and Training, the secondary and primary healthcare is administered

[2] Data for institutional deliveries pertains to 2012-13 and 2015-16
[3] Combined figures for Uttar Pradesh and Uttarakhand

by the Department of Medical, Health and Family Welfare, Government of Uttar Pradesh (GoUP), as shown below:

Figure 1: Public healthcare facilities in Uttar Pradesh



1.1.1. Funding for hospitals and CHCs

The District Hospitals (DHs), District Women Hospitals (DWHs), Joint Hospitals (JHs) and Community Health Centres (CHCs) (through Chief Medical Officers of the districts) receive funds from the State budget. Apart from the State budget, financial assistance under the National Health Mission (NHM) is also received from the Government of India (GoI) with corresponding share of the State Government.

1.1.1.1. Funds under State budget

Year-wise allotment and expenditure of the funds during 2013-18 pertaining to the Department of Medical, Health and Family Welfare was as shown in **Table 2.**

Table 2: Budget provision and expenditure during 2013-18

(₹ in crore)

Year	Budget Provision	Expenditure	Savings
2013-14	6,095.00	5,080.03	1,014.97
2014-15	6,710.63	6,036.24	674.39
2015-16	7,456.89	6,423.27	1,033.62
2016-17	8,080.13	6,938.01	1,142.12
2017-18	8,726.82	7,782.89	943.93
Total	**37,069.47**	**32,260.44**	**4,809.03**

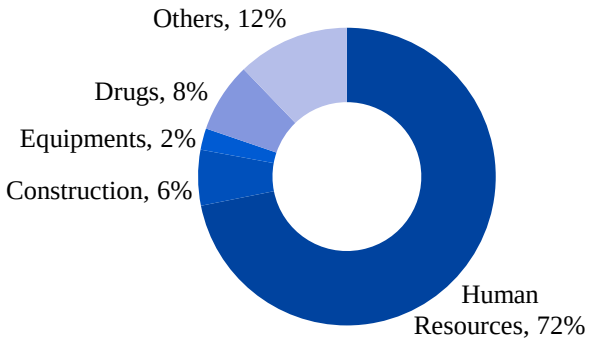
(Source: Budget document)

Table 2 indicates that expenditure incurred on medical, health and family welfare by the State Government increased by 53 *per cent* from 2013-14 to

2017-18. Component-wise break-up of the expenditure incurred during 2013-18 is presented in

1.

Chart 1: Component-wise expenditure during 2013-18



(Source: Budget Document)

Further, in respect of savings, provision for human resources accounted for 58 *per cent* of the total savings and the Government explained that these savings occurred on account of a significant number of posts remaining vacant due to multiple reasons. Equipment and construction activities accounted for further 20 *per cent* of the savings, while other services accounted for the remaining 22 *per cent*.

1.1.1.2. Funds under NHM

During 2013-15, the ratio of the GoI and GoUP share in respect of NHM funds was 75:25, which changed to 60:40 during 2015-18. The amount of funds received under NHM was as shown in **Table 3.**

Table 3: Receipt and expenditure under NHM during 2013-18

(₹ in crore)

Year	Opening balance	Interest earned	Receipt during the year	Expenditure	Closing balance
2013-14	2139.48	96.49	2654.28	1796.32	3093.93
2014-15	3093.93	76.12	2277.19	2363.03	3084.21
2015-16	3084.21	33.15	2979.20	2903.36	3193.20
2016-17	3193.20	34.65	3453.85	3184.99	3496.71
2017-18	3496.71	27.64	3769.28	4402.21	2891.42
Total		**268.05**	**15,133.80**	**14,649.91**	

(Source: State Project Management Unit, NHM, UP)

Thus, 84 *per cent* of the funds available under NHM in the State during 2013-18 were utilised.

1.2. Planning and execution of Performance Audit

1.2.1. Audit objectives

The Performance Audit of Hospital Management in Uttar Pradesh was undertaken to assess whether:

1) Policy framework was robust enough to improve the quality of healthcare.

2) 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.

3) Efficient support services with regards to diagnostic services, maintenance of equipment, storage of drugs, dietary services, laundry services, upkeep of facilities, *etc*. were present in hospitals.

4) Hospitals had adequate resources, *viz.* human, infrastructure, drugs, consumables, equipment *etc*. as per prescribed norms and utilised those resources efficiently and effectively.

5) 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 the various guidelines on health care services issued by GoI and GoUP, Indian Public Health Standards (IPHS), legal Acts and Rules, and policies, orders and manuals issued by GoUP. The list of sources of criteria is given in ***Appendix-I.***

1.2.3. Audit scope and methodology

An entry conference was held on 09 July 2018 with the Secretary, Medical, Health and Family Welfare Department (Department) and other officers wherein the audit objectives, scope, criteria, *etc*. were discussed and the inputs of the Department were obtained and thereafter the field audit was commenced.

The audit scope covered public health facilities of secondary care (District-level Hospitals) and primary care (CHCs) and involved scrutiny of records for the period 2013-18.

The audit examination included records maintained at the office of the Principal Secretary, Medical, Health and Family Welfare Department, office of the Director General of Medical and Health Services (DGMH), office of the Director General of Family Welfare (DGFW[4]), State Project Management Unit (SPMU) of National Health Mission (NHM), offices of the Chief Medical Officers (CMOs), 19 District-level Hospitals and 22 CHCs in eight districts across the four geographical regions[5] of the State.

Audit methodology was in accordance with the CAG's Auditing Standards 2017 and involved scrutiny and analysis of records/data as per the audit objectives, scope and criteria, evidence gathering by scanning records, joint physical inspection of various facilities of the test-checked hospitals and by taking photographs, issuing questionnaires/audit observations and obtaining replies, *etc*.

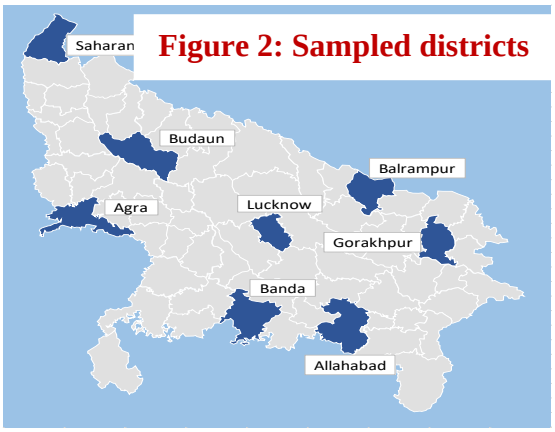
[4] DGFW is responsible for implementation of family welfare schemes, including maternity services in the State.
[5] Bundelkhand Region- Banda, Central Region- Balrampur and Lucknow, Eastern Region- Allahabad (Prayagraj), and Gorakhpur, Western Region- Agra, Budaun and Saharanpur

Further, numerous records vital for efficient and effective management of hospitals and CHCs were not/partially maintained, as detailed in ***Appendix-II***. The non/partial maintenance of essential records was symptomatic of the malaise – a mal-functional system and scant remedial action by the concerned authorities, consequently limiting the scope of audit and inferences thereof.

The draft Report of the Performance Audit was sent to the State Government for its comments on 09 April 2019. Subsequently, an exit conference was held on 03 May 2019 with the Principal Secretary of Medical, Health and Family Welfare Department. The views/replies of the State Government were received on 23 May 2019 and have been duly considered and incorporated in the Report.

1.2.3.1. Sampling methodology

Figure 2: Sampled districts



Sampling was done in two stages. In the first stage, the sample size of eight districts was allocated to the four regions of UP in the proportion of the number of districts in each region and the districts were selected in each region by using Simple Random Sampling Without Replacement (SRSWOR). Thus, geographical representation was factored into the sample. In the second stage, the various district-level hospitals[6] (hospitals) within each selected district were sampled.

To choose hospitals in the selected districts, the sample for regions was further redistributed as per the risk-based classification of the hospitals. Following the sample allocation across regions, the hospitals were selected using SRSWOR in each of the eight chosen districts. For each selected district, two or three CHCs[7] were chosen using SRSWOR as shown in **Table 4**.

Table 4: List of sampled hospitals/CHCs

District	Hospital		CHC
Agra	District Hospital	DH Agra	Baroli Ahir
	District Women Hospital	DWH Agra	Jaitpur Kalan
			Kheragarh
Allahabad	District Hospital	DH Allahabad	Baharia
	District Women Hospital	DWH Allahabad	Handia
	T B Sapru Hospital	DH-II Allahabad	Meja
Balrampur	District Hospital	DH Balrampur	Gaisandi
	District Women Hospital	DWH Balrampur	Pachperwa
	Joint Hospital	JH Balrampur	
Banda	District Hospital	DH Banda	Kamasin

[6] Include District Hospitals (DHs), Joint Hospitals (JHs) and District Women Hospitals (DWHs)
[7] If the number of CHCs in the selected district was less than 10, two CHCs (Balrampur and Banda) were selected using SRSWOR, else three CHCs (Agra, Allahabad, Budaun, Gorakhpur, Lucknow and Saharanpur) were selected.

District	Hospital		CHC
	District Women Hospital	DWH Banda	Naraini
Budaun	District Hospital	DH Budaun	Asafpur
	District Women Hospital	DWH Budaun	Sahaswan
			Samrer
Gorakhpur	District Hospital	DH Gorakhpur	Campiarganj
	District Women Hospital	DWH Gorakhpur	Pali
			Pipraich
Lucknow	District Hospital	DH Lucknow	Gosaiganj
	District Women Hospital	DWH Lucknow	Mall
	LBRN Hospital	JH Lucknow	Sarojini Nagar
Saharanpur	District Hospital	DH Saharanpur	Behat
	District Women Hospital	DWH Saharanpur	Deoband
			Nagal

Keeping in mind the limitation of resources, the sampling strategy was designed to capture and evaluate appropriate amounts of unbiased data to ensure that the Performance Audit was able to pick up variations across the entire audit period. Thus, the questionnaire designed for the audit captured data at different frequencies- yearly, monthly and weekly.

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 for capturing the data for indicators reported at monthly frequency. Following this, to capture weekly frequency, the first week was picked out for the selected months to maintain consistency.

For instance, the data in respect of the patient load and availability of hospital beds was taken on yearly basis; monthly data was captured in respect of essential drugs, equipment, human resources, diagnostics, maternity services including labour room records, laundry and sterilisation services; and weekly data pertaining to Bed Head Tickets for evaluating outcome indicators.

1.2.4. Acknowledgement

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

1.2.5. Structure of the report

This report of the Performance Audit has been structured on the basis of various services and resources available in a hospital and consists of seven themes, *viz.* Out-Patient (OPD) Services, Diagnostic Services, In-Patient (IPD) Services, Maternity Services, Infection Control, Drug Management and Building Infrastructure.

While the above themes discuss in detail the audit findings with respect to the concerned hospital services, the following section covers the policy framework related to the provisioning of resources, *viz.* human resources, drugs, consumables and equipment for the hospitals, and services rendered to patients.

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. Thus, it was incumbent upon the Department of Medical, Health and Family Welfare of the Government of Uttar Pradesh (GoUP), which was responsible for providing and managing the healthcare (primary and secondary care) facilities in UP, to carry out comprehensive and outcome-based planning so that essential resources were provided to the public hospitals as well as resources available utilised optimally in the short, medium and long-term.

Audit, however, observed that the policy framework under which the planning was to be done was significantly inadequate, as discussed in the succeeding paragraphs:

1.3.1. Standardisation of services and resources

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

Audit, however, observed that the Department did not prescribe standards/norms in respect of type and quantum of resources and services for the hospitals as discussed in **Table 5** and detailed in subsequent chapters.

Table 5: Standardisation of services and resources in hospitals/CHCs

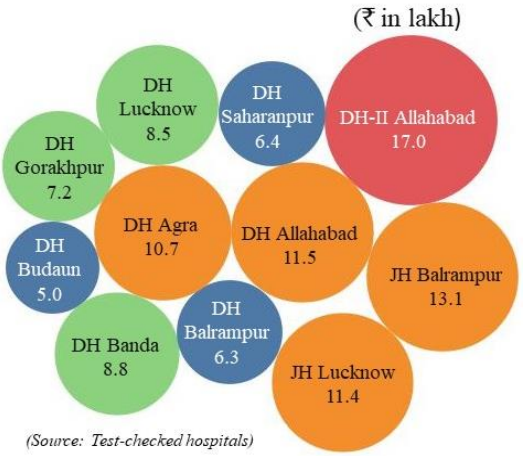
Services/ Resources	Availability of State Government norms	Other norms/standards	Remarks
OPD and IPD services	No	NHM Assessor's Guidebook, IPHS	The State Government did not adopt the standards of various OPD and IPD services prescribed in the GoI guidelines/IPHS.
Diagnostic services	Norms for X-ray and Ultrasonography services available for DHs and CHCs, however, no norms for pathological services	NHM Free Diagnostics Service Initiative, IPHS	The State Government did not adopt the GoI guidelines/IPHS norms/standards for pathology investigations for hospitals and CHCs.
Human resources	No	NHM Assessor's Guidebook, MNH Toolkit IPHS	The State Government did not adopt the norms prescribed in the GoI guidelines/IPHS. Further, the basis of sanctioned strength of human resources for hospitals were not found on records.
Drugs and consumables	Essential Drugs List, Drug Procurement Policy	NHM Assessor's Guidebook, MNH Toolkit, Free Drug Initiative of GoI, IPHS	The Essential Drugs List was not updated regularly as no formularies were prepared in hospitals.
Equipment	Equipment Procurement Policy, however, no standardisation of the types and number of equipment required for hospitals/CHCs.	NHM Assessor's Guidebook, IPHS	The State Government did not adopt the GoI guidelines/IPHS norms/standards for equipment for hospitals and CHCs.
Hospital beds	No	NHM Assessor Guidebook, IPHS	The State Government did not adopt norms of hospital beds prescribed in the GoI guidelines/IPHS.

Further, facility development plans comprising of components such as infrastructure, equipment, human resources, drugs and supplies, quality assurance systems and service provisioning were to be prepared for each hospital[8]. These plans were to be prepared on the basis of analysis of gaps in the health facilities *vis-à-vis* the norms/standards.

[8] As per NHM Framework 2012-17

Audit, however, observed that the gap analysis to ascertain the requirement of resources and service provisioning in the hospitals was not done in the absence of norms/standards as discussed in Table 5 above. Consequently, a meaningful budgetary exercise for ascertaining demands/need of resources and funds requirement from the CMOs and CMSs for consolidation at the State level could not be carried out, and the planning exercise remained limited to allocating the budgeted funds to the CMOs and CMSs on an *ad hoc* basis.

Chart 2: Average annual expenditure per bed in hospitals (2013-18)



This lack of rigour in the planning exercise is exemplified by the inequity in availability of financial resources[9] in the 11 test-checked district hospitals during 2013-18, as shown in **Chart 2**.

The inequity also adversely impacted the availability of various out-patient and in-patient services, and other support services in the test-checked hospitals and CHCs, as discussed in subsequent chapters of the report.

The Government replied (May 2019) that the standardisation of availability of resources and services had been provided by the State Government and efforts were being made to first fulfil the State's own norms and IPHS norms would be adopted depending upon availability of financial resources.

The reply is general in nature, which does not address the issue of non-standardisation of either State specific or IPHS standards/norms in respect of OPD and IPD services, pathological services, human resources and hospital beds.

1.3.2. Policies for acquisition of resources

1.3.2.1. Human resources

Since public hospitals in the State on the whole were suffering from persistent shortage of doctors, ranging between 30 and 40 *per cent* during 2013-18[10]; therefore, structural policy initiatives[11] were required to address the substantial shortages, as suggested in the NHM Framework 2012-17.

Audit observed that to offset the shortage of doctors in the State, in addition to the normal recruitment process through Uttar Pradesh Public Service Commission (UPPSC), the Department in June 2017 took a decision to hire

[9] Provisioning of resources and services in a hospital are done on the basis of number of beds.

[10] As on March 2018, 6,021 posts of doctors were vacant against the sanctioned strength of 18,382 doctors in the Department of Medical, Health & Family Welfare.

[11] Such as expeditious recruitment (e.g. taking recruitment of doctors out of purview of State Public Service Commission); alignment of recruitment rules to the needs of human resources, opportunities for career progression and professional development; effective skills utilization; stability of tenure, *etc*.

1000 doctors on contractual basis through walk-in interviews for a period of one year[12], with differentiated salary structure for different zones of the State. Till March 2018, 247 doctors had been hired under this policy. Also, in May-June 2017 the retirement age of doctors was increased 60 to 62 years, along with re-appointment of 1000 superannuated doctors till the age of 65.

Further, in the test-checked hospitals, Audit noticed that the sanctioned strength of doctors did not correlate with the size of the hospital in terms of number of beds and/or case load, as suggested in NHM Framework 2012-17. The Department, however, did not undertake any exercise to re-work the number of sanctioned posts in the hospitals/CHCs based on current levels of utilization/demand from the public.

The Government replied that to improve the availability of human resources it had taken various initiatives such as increasing the superannuation age of existing doctors, hiring doctors and nurses on contract basis, imparting specialised training to the health personnel, *etc*. and a proposal of providing five *per cent* incentive for the doctors posted in remote areas was under process. It added that to address the needs of an increasing population and morbidity pattern, sanctioned posts would be revised as per the bed strength of the hospitals.

Although these policy initiatives of the Government are expected to lessen the deficit in the availability of doctors in the short term, they need to be buttressed by a more effective and sustainable solution towards building a high-quality workforce with the right skills mix.

1.3.2.2. Drugs and consumables

The patients in the government hospitals in the State were to be provided drugs free of cost[13]. The Department addressed drug management issues through various Government Orders, including the revised Drug Procurement Policy (DPP) in 2012 for procurement of drugs for the hospitals. However, the following important aspects were not addressed in these Government Orders/DPP:

- CMOs and CMSs were authorised by the DPP, in case of non-availability of drugs on Rate Contracts (RCs) of GoUP, to procure drugs and consumables from the firms listed in the RCs of the other State Governments and the GoI but did not have any authority to recommend action against the firms for any defaults.
- The DPP merely stipulated that quality testing may be carried out any time through sampling without specifying sampling norms, criteria and periodicity for quality testing of drugs. Further, provision regarding modalities to be followed by CMOs and CMSs for quality assurance in such local purchases of drugs and consumables was overlooked.
- Prescription audit[14] was not stipulated by the Department.

[12] Extendable by two years on the basis of good performance (GoUP Order, June 2017).
[13] GoUP Order, April 2012.
[14] Prescription audit by each hospital, as required under the NHM framework, is a mechanism to assess the consumption pattern and actual specification of drugs.

The Government responded that in the absence of an agreement with the firms listed in the RCs of other State Governments and GoI, it was unable to undertake any action on default; local purchases of drugs were regulated through the Government Orders issued in 1986 and 2003 and prescription audit could not be initiated due to lack of resources.

The Government, despite accepting the shortcomings, did not provide any details on the corrective measures proposed to be taken in this regard. Further, in respect of local purchase of drugs, Government Orders of 1986 and 2003 did not address the vital issue of quality assurance.

1.3.2.3. Equipment

Availability of essential functional equipment in all hospitals/CHCs, regular needs assessment, timely indenting and procurement, identification of unused/faulty equipment, regular maintenance, competitive and transparent bidding processes are the significant components of equipment management. The State Government promulgated a revised Equipment Procurement Policy (EPP) in 2012 which stipulated procedures for procurement of equipment but did not cover certain key issues as under:

- EPP did not standardise the types of equipment needed in the district-level hospitals to perform various types of surgical and medical interventions in the hospitals.
- There was no forethought in the EPP in respect of maintenance of equipment.

The Government assured that the list of essential equipment as per the need of hospitals of varying bed strength would be standardised. It was also informed that the Department had proposed an increase in the budget provision in the year 2019-20 for procurement of equipment, while a private agency had been engaged (June 2018) for maintenance and calibration of equipment in all hospitals of the State in 2018-19.

The fact remains that the stipulated procedures for the maintenance of equipment should be built into the EPP itself in order to ensure its sustained implementation in the hospitals/CHCs

***To sum up**, the policy framework for hospital management in the State had significant limitations. The Department, for the most part, neither prescribed its own norms nor adopted the norms/standards suggested by the GoI in respect of resources and services for hospitals and CHCs. This was exacerbated by the absence of gap analysis and need assessment in the planning process, with a concomitant adverse impact on the availability of resources and service provisioning as discussed in the subsequent chapters.*

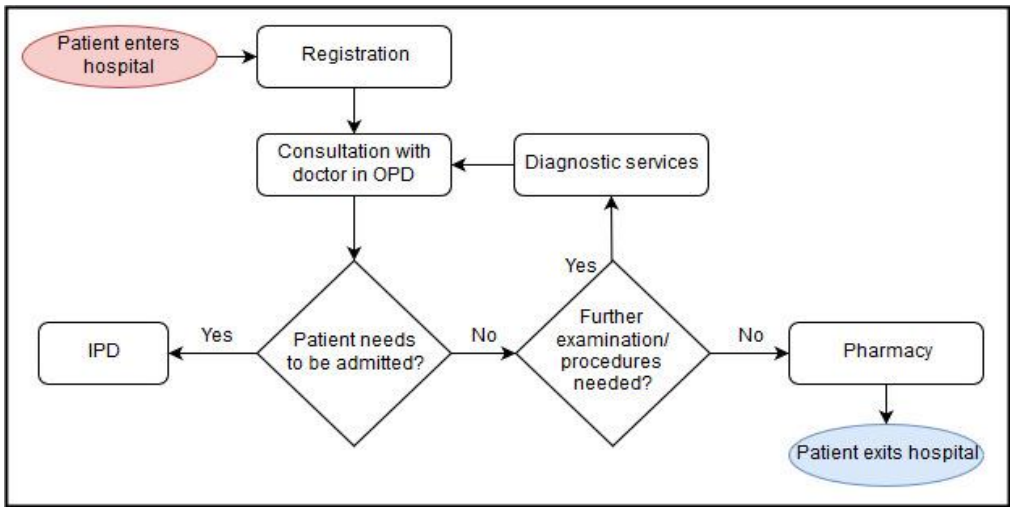
Chapter-2

Out-Patient Services

Chapter 2 Out-Patient Services

To avail Out-Patient Services in the hospitals, out-patients first register at the outdoor patient department (OPD). After registration, the concerned doctors examine the patients and either prescribe diagnostic tests for evidence based diagnosis or drugs, as per the diagnosis done during the consultation process.

Figure 3: Flow of out-patient services



The audit findings pertaining to diagnostic services, IPD and pharmacy are discussed in the Chapters – 3, 4 and 7, respectively. This chapter discusses audit observations in respect of patient load in OPD, signage system, registration facilities, grievance redressal and evaluation of OPD services.

2.1. Patient load in OPD

The number of out-patients attended to in the test-checked hospitals[15] was as shown in **Table 6**.

Table 6: Number of out-patients in test-checked hospitals

(Numbers in lakh)

Year	No. of out-patients in DHs/JHs	Increase (YoY)	No. of out-patients in DWHs	Increase (YoY)	No. of out-patients in CHCs	Increase (YoY)
2013-14	46.35	-	7.85	-	12.68	-
2014-15	51.83	*12%*	8.67	*10%*	13.32	*5%*
2015-16	55.72	*8%*	8.98	*4%*	14.63	*10%*
2016-17	58.16	*4%*	9.67	*8%*	15.82	*8%*
2017-18	61.79	*6%*	10.42	*8%*	16.80	*6%*

(Source: Test-checked hospitals/CHCs)

Thus, there was a substantial increase of 33 *per cent* in out-patient load in the test-checked hospitals/CHCs in 2017-18 as compared to 2013-14. Further,

[15] DH Budaun for 2013-14 did not provide the required information and JH Balrampur was established in 2013-14, hence both hospitals were not included in the Table.

while the average number of doctors available in OPD increased from 22 to 23 for a DH/JH, there was almost no increase in the average number of doctors available for OPD in a DWH and a CHC during 2013-18. Thus, increase in out-patient load in the hospitals and CHCs was not accompanied by a proportional build up in the number of doctors available, resulting in a rise in the number of patients per doctor and a cascading impact in terms of reduction of consultation time per patient, as discussed in paragraph 2.5.

The Government replied (May 2019) that fewer doctors are choosing Government service as a career, hence a huge proportion of sanctioned posts remained vacant, though measures have been taken to address this situation in the form of Walk-in-Interview, Re-employment, On-call consultation and enhancement of the superannuation age of doctors.

The reply of the Government indicates that despite these measures to alleviate the situation, rising patient demand will put immense pressure on the system putting quality of care and patient safety at risk. This necessitates that the gaps in the number of doctors and their retention must be tackled on a longer term and more sustainable basis.

2.2. 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 observed that in 2017-18 in the test-checked hospitals, the average daily patient load on a registration counter was as shown in **Charts 3 and 4.**

Chart 3: Daily patient load per counter in DHs (2017-18)

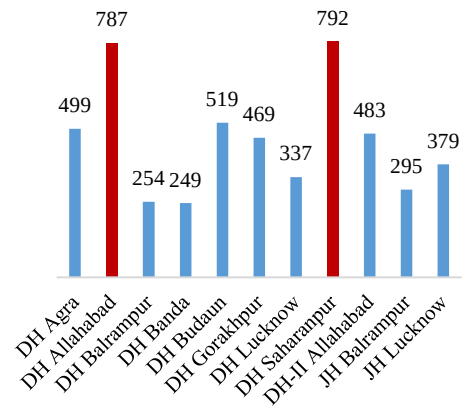
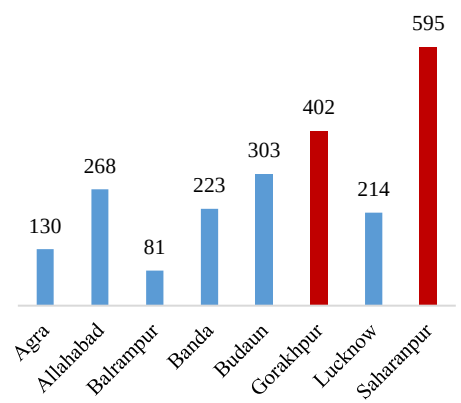


Chart 4: Daily patient load per counter in DWHs (2017-18)



(Source: Test-checked hospitals)

During 2017-18, the average daily patient load on a registration counter was significantly higher in DH Saharanpur (792) and Allahabad (787) than the average (460) for the 11 test-checked DHs/JHs. Similarly, the load was substantially higher in DWHs Saharanpur (595) and Gorakhpur (402) than the average (277) for the 08 test-checked DWHs. Further, in the 22 test-checked CHCs, the average daily patient load on a registration counter varied from 87 to 428 patients, with CHCs in Baharia, Handia and Meja in Allahabad, Sahaswan in Budaun, Pipraich in Gorakhpur, Mall and Gosaiganj in Lucknow

and Deoband in Saharanpur having higher load than the average. Due to heavy load at registration counters, long queues of patients were observed in hospitals.

Positive feature

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. Audit observed that for the out-patient services, signage system regarding OPD timings/working hours and other services were available in all the test-checked hospitals/CHCs. Besides drinking water and electricity facility were available in all test-checked hospitals and CHCs.

The Government replied that the number of registration counters would be increased to reduce waiting time.

2.3. Other basic facilities in OPD

Audit observed the following shortcomings in provisioning of basic facilities such as suitable seating facility and toilets and in the OPD premises of the test-checked 41 hospitals/CHCs, as shown in **Table 7.**

Table 7: Non-availability of basic facilities in OPD premises

Facilities	Hospitals with non-availability of the facility
Suitable seating facility	DH Saharanpur, DWH Saharanpur, CHC Kamasin and Naraini in Banda
Toilets	DH Saharanpur and DWH Gorakhpur
Separate toilets for male and female	DH and DWH, Balrampur, DH and DWH, Budaun, DH and DWH, Saharanpur, DWH Gorakhpur, CHC Pachperwa and Gaisandi in Balrampur, CHC Asafpur, Sahaswan and Samrer in Budaun

(Source: Test-checked hospitals/CHCs)

The Government replied that instructions had been issued for provision of amenities in all hospitals. However, the fact remains that the basic foundations of a satisfactory level of facilities are urgently required to be ensured in the concerned hospitals/CHCs.

2.4. Patient rights and grievance redressal

NHM Assessor's Guidebook prescribes the requirement to display the Citizen's Charter at a suitable place in the hospitals towards facilitating patients *vis-à-vis* their rights. Audit observed that Citizen's Charters were displayed in all the test-checked hospitals/CHCs.

Further, for effective redressal of grievances of patients, NHM Assessor's Guidebook envisaged a mechanism for receipt of complaints, registration of complaints and disposal of complaints on a first-come-first-serve basis, noting of action taken in respect of complaints in a register, periodic monitoring of system of disposals and follow-up by superior authorities as necessary.

The records of grievance redressal, however, were maintained only in DH Agra and JH Lucknow during 2017-18. Thus, in the absence of such records, it could not be verified whether these hospitals properly attended to the complaints of the patients.

The Government in reply stated that the Department had assigned each district to one Joint Director level officer who had to visit an assigned district once in a month to provide feedback on the available health facilities and functionality and submit all the information in the portal designed for this. This review of these reports is done usually on monthly basis by top stakeholders including the Health Minister, Uttar Pradesh. Government further added that the Department was operating a toll free number 1800-180-5145 to address any kind of deficiency in service delivery.

However, the fact remains that there was no record available in the test checked hospitals, except DH Agra and JH Lucknow, to derive assurance regarding redressal of grievances of patients within the hospitals. In this context, the Government replied in the Exit Conference that necessary instruction would be issued to the hospitals/CHCs for maintaining the records of grievance redressal.

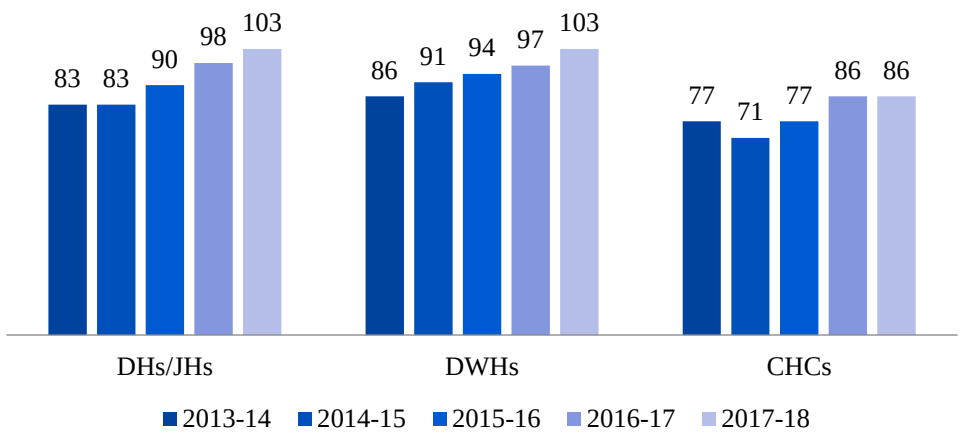
2.5. Evaluation of out-patient services through outcome indicators

NHM Assessor's Guidebook for Quality Assurance provided 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/CHCs using the following outcome indicators:

2.5.1. OPD cases per doctor

OPD cases per doctor is an indicator for measuring efficiency of OPD services in a hospital. Audit observed that due to substantial increase in the number of out-patients during 2013-18, OPD cases per doctor in the test-checked hospitals/CHCs increased significantly during 2013-18 as detailed in **Chart 5**.

Chart 5: Average OPD cases per day per doctor



(Source: Test-checked hospitals/CHCs)

Thus, the average number of OPD cases per day per doctor increased during 2013-18 by 24 *per cent* in DHs/JHs, 20 *per cent* in DWHs and 12 *per cent* in CHCs test-checked. Resultantly, examination of the patients was inadequate as evidenced by less consultation time per patient, which is an indicator for measuring clinical care in OPD.

2.5.2. Consultation time per patient

Audit observed that in the test-checked hospitals/CHCs[16], the average consultation time given to patients during 2013-18 was as shown in **Table 8.**

Table 8: Consultation time taken per case in OPD

Consultation time[17]	Number of patients during 2013-18 (in lakh)		
	DHs/JHs	DWHs	CHCs
Up to 2 minutes	30.0 *(11%)*	5.6 *(12%)*	3.7 *(5%)*
2.1 to 5 minutes	203.8 *(75%)*	26.0 *(57%)*	33.0 *(45%)*
5.1 to 10 minutes	27.2	12.3	29.1
Above 10 minutes	9.3	1.7	7.5

(Source: Test-checked hospitals/CHCs)

As evident from the above, 86 *per cent* patients in DHs/JHs, 69 *per cent* in DWHs and 50 *per cent* in CHCs test-checked got a consultation time of less than five minutes.

The Government accepted the audit observation and stated that due to acute shortage of specialist doctors time given to every patient in OPD was less than 05 minutes. However, Government further stated that every doctor tries his level best to ensure effective and efficient healthcare delivery to visiting patients.

The fact remains that the consultation time of less than five minutes was indicative of inadequate diagnosis/investigation and unsatisfactory clinical care in OPD in the test-checked hospitals/CHCs

2.5.3 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 conducted only in DWH Banda during 2016-18. Thus, the other test-checked hospitals failed to comply with the NHM norms and squandered the opportunity of eliciting the views of patients regarding the out-patient services in their respective hospitals.

The Government replied that patient satisfaction survey of out-patients has been performed in a few hospitals. However, the Department would plan to survey the satisfaction level on a regular basis.

To sum up, *the substantial increase in the number of out-patients was not accompanied by a concomitant increase in the number of doctors in the district hospitals test-checked, leading to high number of OPD cases per doctor. Consequently, the consultation time per patient in the hospitals was less than five minutes for most patients. This coupled with lack of proper grievance redressal mechanism and patient satisfaction survey indicated not only inadequate clinical care in OPD but also absence of possibility of improvement.*

[16] Excluding OPD figures of JH Balrampur for 2013-14 as hospital started functioning in December 2014; also excludes OPD figures for DHs Agra and Budaun for 2013-15 as average no. of doctors in OPD were not available

[17] Assuming that a doctor was in OPD full time for six hours continuously for 308 working days in a year

Chapter-3

Diagnostic Services

Chapter 3

Diagnostic Services

Efficient and effective diagnostic services, both radiological and pathological, are amongst the most essential health care facilities for delivering quality treatment to the public based on accurate diagnosis.

Audit observed that many of the significant radiology and pathology tests were not performed in the test-checked hospitals[18] and Community Health Centres (CHCs) due to lack of required equipment and skilled manpower. Significant audit findings are discussed in the succeeding paragraphs:

3.1. Radiology services

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

Positive feature

District hospitals Gorakhpur and Lucknow had all types of radiology services.

3.1.1. Availability of radiology services

Indian Public Health Standards (IPHS) 2012 prescribed services for the hospitals (X-ray, Ultrasonography and CT scan[19]) and for CHCs (X-ray and Ultrasonography). The Department also prescribed (January 2014 and September 2015) the facilities of X-ray and Ultrasonography (USG), free of cost, in the hospitals and CHCs.

Audit, however, observed that in none of the test-checked hospitals/CHCs except DHs Gorakhpur and Lucknow, all types of prescribed radiology services were available during 2013-18. The position of availability of radiology services is given in **Table 9.**

Table 9: Availability of various types of radiology services

Radiology services	No. of DHs		No. of DWHs		No. of CHCs	
	Service required	Service available	Service required	Service available	Service required	Service available
X-ray	11	11	08	02	22	14
Dental X-ray	11	04	08	00	22	01
Ultrasonography (USG)	11	10	08	05	22	04
CT scan	08	04	05	00	00	00

(Source: Test-checked hospitals/CHCs)

Thus, the DWHs except Agra and Lucknow did not have X-ray facility while most of the CHCs did not have ultrasonography facility. Similarly, CT scan

[18] District Hospitals (DHs), Joint Hospitals (JHs) and District Women Hospitals (DWHs)
[19] Desired for the hospitals having bed strength of more than 100 beds

service was available in only 04 out of the 13 eligible hospitals[20]. Also, analysis indicated that if the required X-ray machines would have been provided in the concerned DWHs/CHCs, approximately 2.50 lakh IPD and OPD patients[21] would not have been left without X-ray investigations during 2013-18.

Absence of radiology services in the above-mentioned hospitals/CHCs was mainly due to non-availability of required radiology equipment and/or skilled human resources, as detailed in **Table 10.**

Table 10: Reasons for non-availability of radiology services

Radiology service	Type of hospital	No. of hospitals/CHCs lacking services		
		Total	For want of equipment	For want of technician
X-ray	DWH	06	06	00
	CHC	08	08	00
Dental X-ray	DH/JH	07	07	00
	DWH	08	08	00
	CHC	21	21	00
Ultrasonography	DH/JH	01	01	00
	DWH	03	02	01
	CHC	18	18	00
CT Scan	DH	04	02	02
	DWH	05	05	00

(Source: Test-checked hospitals/CHCs)

Thus, the CT scan machines in DHs Banda and Saharanpur and Ultrasonography machine in DWH Banda were non-functional for want of technician.

Further, IPHS prescribe two to three types of X-ray machines of varying penetration and radiation levels[22] for different radiological investigations. Audit, however, observed that out of the 13 hospitals having X-ray services, only DHs Agra, Balrampur, Gorakhpur and DH-II Allahabad had all the prescribed X-ray machines available.

Also, 15 radiology equipment, out of the available radiology equipment in the hospitals, were lying unutilised for want of repair, manpower and accessories in the test-checked hospitals/CHCs (***Appendix-III)***. Short availability of the full range of X-ray equipment and non-functionality of the available radiology equipment impacted the efficiency and appropriateness of level of care to be offered in different types of hospitals.

The Government replied (May 2019) that efforts had been made to ensure radiology services through the State Plan as well as through NHM, maintenance of bio-medical equipment was being outsourced under NHM and CT scan in DH Banda and Saharanpur would be made functional.

[20] DHs Agra, Gorakhpur, Lucknow, DH-II Allahabad
[21] Based on the proportion of patients availing X-ray services in 13 test-checked hospitals and 14 CHCs
[22] 100 M.A. X-ray machine, 300 M.A. X-ray machine and 500 M.A. X-ray machine for more than 200 bedded hospitals; 100 M.A. X-ray machine and 300 M.A. X-ray machine for less than 200 bedded hospitals

Notwithstanding the measures taken by Government, the fact remains that serious gaps in the basic provision of radiology services, *viz.* X-ray, Ultrasonography, *etc*., in the test-checked hospitals/CHCs limited the access of patients to evidence based treatment facilities and quality care.

3.1.2. AERB licences for radiology machines

As per Atomic Energy (Radiation Protection) Rules 2004, for establishing X-ray and CT scan unit, a license from the Atomic Energy Regulatory Board (AERB) is necessary.

Contrary to the provisions of the said Rules, in 09 out of the 13 hospitals where X-ray and/or CT scan facilities were available and 14 CHCs where X-ray services were provided, the requisite licence from AERB was not obtained.

The Government stated that the process for obtaining licences in the concerned test-checked hospitals was underway, but did not elucidate the reasons for non- compliance with Rules, which has implications for safety of patients as well as staff *vis-à-vis* potential exposure to excess radiation.

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 pathology services through in-house laboratories. The related audit observations are discussed in the succeeding paragraphs:

3.2.1. Institutional arrangements for pathology services

The pathology services in the hospitals as well as in CHCs were provided through in-house laboratories up to October 2015. However, due to non-availability of facilities in hospitals for providing the full range of pathology services, the Department started (November 2015) engaging private service vendors for providing high-end diagnostic services in the hospitals and CHCs. Under this arrangement, certain high-end pathological services were outsourced[23] in 52 hospitals during November 2015 to October 2016. Further, in February 2017 pathology services in 95 hospitals and 822 CHCs for a period of three years were outsourced[24].

3.2.2. Availability of pathology services

IPHS prescribed 29 to 70 types of pathological investigations under five categories, *viz.*, Clinical pathology (18 to 29 tests), Pathology (01 to 08 tests), Microbiology (02 to 7 tests), Serology (03 to 07 tests) and Biochemistry (05 to 19 tests) to be carried out in the district-level hospitals and CHCs.

[23] Under UP Health System Strengthening Project

[24] The private outsourcing partner provided services only in 210 out of the 822 CHCs during 2017-18 and in none of the earmarked hospitals.

Scrutiny of records disclosed that the full range of desired pathological investigations were not available in any of the test-checked hospitals/CHCs. The position of availability of investigation facility in the hospitals and CHCs is summarised in **Table 11**.

Table 11: Availability of pathology services as on 31 March 2018

Types of pathology services (no. of tests prescribed)	Hospitals without any shortfall	Hospitals with Shortfall (*per cent*)				
		1 to 25%	26 to 50%	51 to 75%	76 to 99%	100 %
DHs						
Clinical pathology (24 to 29)	00	05	04	02	00	00
Pathology (01 to 08)	02	01	00	02	02	04
Microbiology (04 to 07)	00	01	02	03	00	05
Serology (04 to 07)	02	02	05	02	00	00
Biochemistry (06 to 19)	00	04	05	02	00	00
DWHs						
Clinical pathology (24 to 29)	00	00	06	02	00	00
Pathology (01 to 08)	00	00	00	02	01	05
Microbiology (04 to 07)	00	00	00	01	01	06
Serology (04 to 07)	02	01	04	01	00	00
Biochemistry (06 to 19)	00	00	05	02	01	00
CHCs						
Clinical pathology (18)	00	00	12	09	01	00
Pathology (01)	08	00	00	00	00	14
Microbiology (02)	03	00	19	00	00	00
Serology (03)	16	00	04	01	00	01
Biochemistry (05)	01	01	01	01	15	03

(Source: Test-checked hospitals/CHCs)

It can be seen from Table 11 above that every hospital/CHC test-checked lacked investigations under one or more sub-categories. Further, none of the desired investigations under the microbiology and pathology sub-categories were carried out in 11 and 09 hospitals respectively.

Thus, despite engaging private service providers, pathology services were not available as prescribed in IPHS, depriving the public from availing evidence based health care. Non-availability of essential equipment and short deployment of skilled human resources in the test-checked hospitals were amongst the reasons for the absence of desired investigation facilities.

The Government responded that all efforts had been made to ensure all types of pathology services in the hospitals and that in-house pathology of the hospitals was also being strengthened.

Notwithstanding the above, the provision of evidence-based treatment remained largely unachieved, especially in respect of diseases requiring clinical, serological and biochemistry investigations during 2013-18.

3.2.3. Essential resources- equipment and human resources

Equipment: IPHS prescribe 21 to 51 types of pathology equipment for the hospitals[25] depending upon their bed capacity. Besides, the Department prescribed 06 types of equipment for each CHC.

Audit observed that the full range of prescribed pathology equipment was not available in the test-checked hospitals (shortfalls: 19 to 77 *per cent*) and in CHCs (shortfalls: 17 to 83 *per cent*). Shortfall of more than 60 *per cent* in the number of equipment was noticed in DHs Agra, Balrampur, Banda, Budaun, Lucknow, Saharanpur, DH-II Allahabad and DWHs Agra, Banda and Lucknow. Similarly, there was a major shortfall of equipment in CHCs Nagal, Saharanpur (100 *per cent*), Baroli Ahir, Agra (83 *per cent*), Asafpur, Budaun (67 *per cent*) and Campiarganj, Gorakhpur (67 *per cent*).

Audit also observed that in 05 test-checked hospitals, 09 pathological equipment were lying unutilised for a period ranging between 12 and 30 months for want of repair (06 equipment) and for want of reagents (03 haematology analysers). This further aggravated the shortfall in functional equipment in the hospitals ***(Appendix-IV).***

The Government replied that the Department was building in-house capacity of pathological services and budget had been allotted for the same. However, fact remains that test-checked hospitals/CHCs did not have prescribed pathological equipment which affected the quality of patient care offered by these hospitals/CHCs.

Human resources: Lab Technicians (LTs) are the key personnel for in-house laboratories and are responsible for taking samples and carrying out all prescribed pathological investigations. However, out of the 19 test-checked hospitals, 10 hospitals had no shortfall in LT cadre, while in 05 hospitals[26] shortfall in the number of LTs against the sanctioned strength ranged between 11 and 43 *per cent*. In the remaining 04 hospitals[27], LTs were deployed over and above the sanctioned strength.

When compared against the IPHS, the shortfall in the number of LTs ranged between 11 and 89 *per cent* in 15 test-checked hospitals while there was an excess of LTs in the remaining 04 test-checked hospitals[28].

Similarly, out of the 22 test-checked CHCs, in three CHCs[29] no LTs were deployed; in 18 CHCs, LTs were deployed as per sanctioned strength and in CHC Gosaiganj, Lucknow only one LT was deployed against the sanctioned strength of two LTs. Further, as in the case of hospitals, shortages of LTs were higher when compared to the IPHS.

[25] The Department did not prescribe any norms for district hospitals.
[26] DH Agra (43 *per cent*), DH-II Allahabad (11 *per cent*), DH Banda (25 *per cent*), DH Lucknow (11 *per cent*) and DH Saharanpur (40 *per cent*)
[27] DHs Budaun, Gorakhpur, DWH Lucknow and JH Lucknow
[28] DH-II Allahabad, JH Balrampur, DH Gorakhpur and JH Lucknow
[29] CHCs- Jaitpur Kalan and Kheragarh, Agra and Samrer, Budaun

Thus, pathological investigations were hindered in the hospitals and CHCs wherever LTs were not deployed as per sanctioned strength and/or IPHS.

The Government replied that only 56 *per cent* of the sanctioned posts of laboratory technicians were filled due to pendency of recruitment of 729 posts with UPSSSC[30] since 2016. It also stated that for seamless functioning of routine laboratory services, the Department had engaged 403 laboratory technicians on contractual basis all across the State.

The reply of Government underscores the Government's failure to take timely effective action for recruitment of the vacant posts of LTs. Further proactive steps are needed to rationalise the deployment of LTs in the hospitals and CHCs.

3.2.4. Quality assurance of pathology services

Quality testing of in-house pathological services was not done during 2013-18 in any of the test-checked hospitals/CHCs which was in contravention of IPHS.

Further, as discussed in paragraph 3.2.1, private service providers were engaged (November 2015 to October 2016) to provide high-end pathological services in 52 district hospitals. As per the terms of the contracts, one *per cent* pathological test results performed by the service providers were to be validated by an External Quality Agency (EQA).

Scrutiny of records revealed that against 31.14 lakh pathological investigations performed by the service providers in 52 district hospitals (including 12 hospitals test-checked) in the State during December 2015 to March 2018, validation of results through EQA was carried out in respect of 59,511 (1.91 *per cent*) test results. Of these, 3,861 results (6 *per cent*) were found unsatisfactory and 5,792 test results (10 *per cent*) were rejected by EQAs. Hospital-wise details of EQA validation were, however, not furnished to audit. Further, ₹ 5.41 crore penalty was imposed and recovered from the service providers for carrying out sub-standard investigations as per EQA validation.

The Government replied that direction for ensuring quality assurance of the test results through EQA was issued, in-house pathology in all hospitals and CHCs was being strengthened and Standard Operating Procedures were issued to all peripheral offices.

The reply is not acceptable, as Standard Operating Procedures or related directions was not issued by the State Government for EQA validation of in-house pathology services. As a result, none of the test-checked hospitals and CHCs sent sample of test results of in-house pathology services for external assessment and validation during 2013-18. Thus, building minimum quality standards into the health system remains a challenge.

[30] Uttar Pradesh Subordinate Services Selection Commission

3.2.5. Waiting time and turn-around time

Time taken in receiving samples from the patients after being prescribed by the doctors, 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) reflect overall efficiency of the diagnostic services in terms of patient's satisfaction. The doctors issue the test indent forms to the patients prescribing the radiology and pathology investigations after which the patients register themselves in the concerned department/section for giving of the required samples/tests.

Audit observed that the test-checked hospitals/CHCs neither preserved the test indent forms nor recorded the date of issue of test indents in the registration registers during 2013-18. Therefore, the time lag between the two events *viz.* recommendation for investigation by the doctor and taking out of the sample was not ascertainable in audit. Further, in the absence of the test indent forms, it was not ascertainable whether all investigations were performed by the hospitals/CHCs.

Besides, no records were maintained in any of the test-checked hospitals/CHCs regarding TAT in respect of radiological and pathological investigations performed during 2013-18.

The Government assured in reply that necessary instructions would be issued to the hospitals and CHCs for recording the waiting time and turn-around time in the prescribed records.

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. Further, the lack of monitoring of waiting time and turn-around time negatively affected the ability of hospitals to measure and improve the efficiency of diagnostic services.*

Chapter-4

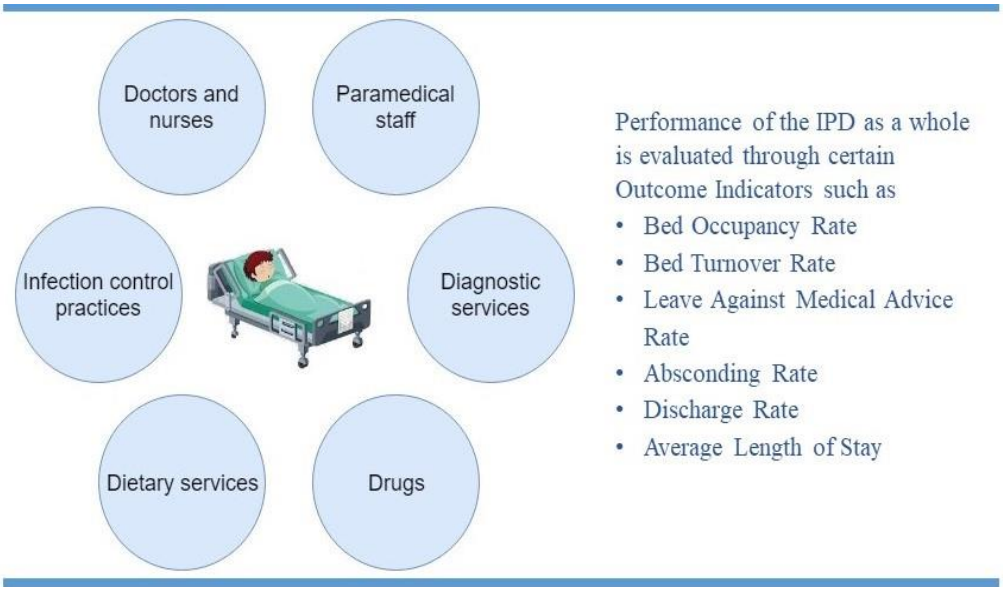
In-Patient Services

Chapter

4 In-Patient Services

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

Figure 4: IPD services in a hospital



While availability of doctors, nurses, essential drugs/equipment, dietary services and patient safety along with performance evaluation are included in this chapter, diagnostic services and drug management are discussed in Chapters 3 and 7 respectively. Similarly, the results of audit scrutiny of infection control practices in the test-checked hospitals are discussed in Chapter 6. Also, Maternity services in DWHs have been commented upon in Chapter 5. The following paragraphs discuss the in-patient services of eleven DHs (including two JHs) and 22 CHCs test-checked in audit.

4.1. Availability of in-patient services

As per NHM Assessor's Guidebook, a DH should provide specialist in-patient services pertaining to General Medicine, General Surgery, Ophthalmology, Orthopaedics, *etc.* Audit observed that the required services were, however, not available in the test-checked DHs as shown in **Table 12.**

Table 12: In-patient services in District Hospitals

Hospital	Act	Bur	Dia	GM	GS	Oph	Orth	Phy	Psy
DH Agra	No	No	No	Yes	Yes	Yes	Yes	Yes	No
DH Allahabad	No	No	No	Yes	Yes	Yes	Yes	No	No
DH Balrampur	No	No	No	Yes	Yes	Yes	Yes	No	No
DH Banda	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
DH Budaun	No	Yes	No	Yes	Yes	Yes	Yes	No	No

Hospital	Act	Bur	Dia	GM	GS	Oph	Orth	Phy	Psy
DH Gorakhpur	No	Yes	No	Yes	Yes	Yes	Yes	No	No
DH Lucknow	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DH Saharanpur	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
DH-II Allahabad	No	No	Yes	Yes	Yes	Yes	Yes	No	No
JH Balrampur	No	No	No	Yes	Yes	Yes	Yes	No	No
JH Lucknow	No	No	No	Yes	Yes	Yes	Yes	Yes	No

*Act: Accident and trauma ward, Bur: Burn ward, Dia: Dialysis, GM: General medicine, GS: General surgery, Oph: Ophthalmology, Orth: Orthopedics, Phy: Physiotherapy, Psy: Psychiatry

(Source: Test-checked hospitals, 2017-18)

Thus, while General medicine, General surgery, Ophthalmology and Orthopaedic services were available in all the test-checked DHs, Accident and trauma ward, Burn ward, Dialysis, Physiotherapy and Psychiatry indoor services were available in less than half of the test-checked DHs/JHs**.**

The Government replied (May 2019) that the Department was implementing Basic Minimum Module to ensure availability of essential medical care specialisation. Further, the District Mental Health Program was running in 45 districts and in these districts, provision of psychiatry indoor facility is available, while there were 31 trauma centres, 29 plastic and burn units, and 30 dialysis units functioning in the State.

The fact, however, remains that the in-patient services as mentioned in the audit observation were not available in the test-checked hospitals.

Table 13: In-patient services in CHCs

Sl. No	In patient service	CHCs with service available (total test-checked 22)
1	General medicine	18
2	Paediatric services	10
3	Maternal health	22

(Source: Test-checked CHCs, 2017-18)

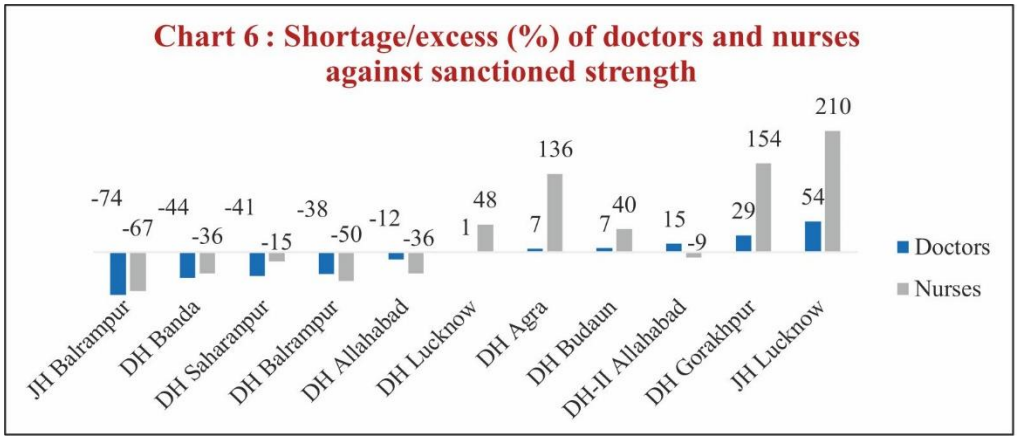
Similarly, as seen from **Table 13**, 12 out of the 22 test-checked CHCs did not have a paediatrician available for providing specialised child healthcare related services, which was inconsistent with the norms stipulated in the NHM Assessor's Guidebook

The Government admitted that due to shortage of specialists, all specialised services could not be ensured at the CHC level.

4.2. Availability of human resources

4.2.1. Doctors and nurses

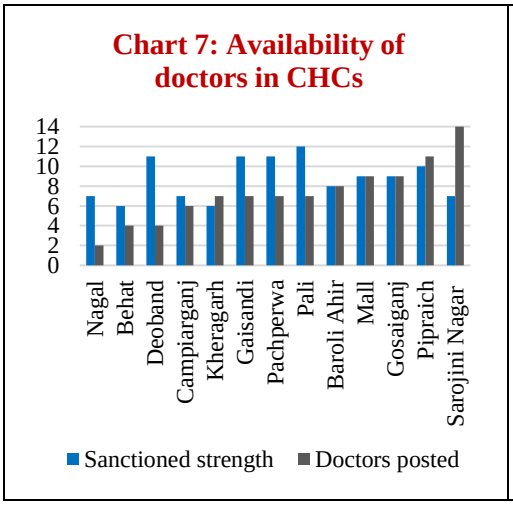
IPHS envisage that doctors and nurses should be available round the clock in IPD to provide due medical care to the in-patients. The availability of doctors and nurses in test checked hospitals/CHCs are detailed in ***Appendix-V***. During 2017-18, there was shortage/excess availability of doctors and nurses in the DHs, as shown in **Chart 6**.

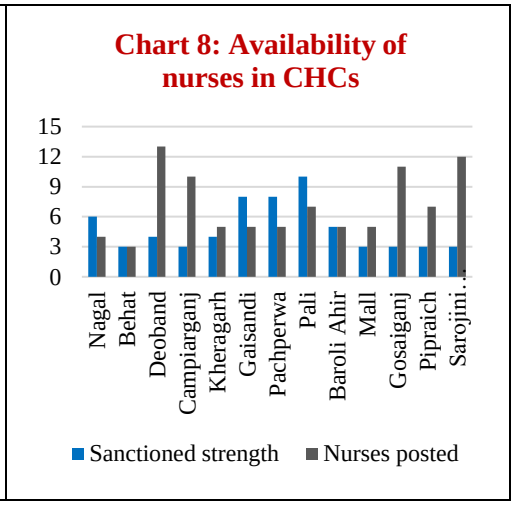


(Source: Test-checked hospitals, 2017-18)

Thus, asymmetric distribution of doctors in the test-checked hospitals was noticed with 54 *per cent* excess doctors in JH Lucknow and a 74 *per cent* shortfall of doctors in JH Balrampur *vis-à-vis* the sanctioned strength. Similarly, the deployment of nurses across the hospitals *vis-à-vis* the sanctioned strength suffered from unevenness with a maximum shortage of 67 *per cent* in JH Balrampur and an excess of 210 *per cent* in JH Lucknow.

In respect of CHCs too, significant variation in the deployment of doctors and nurses *vis-à-vis* the sanctioned strength was observed, as shown below for the 12 test-checked CHCs having 30 sanctioned and functional beds each.





(Source: Test-checked CHCs, 2017-18)

The Government replied that deployment of doctors was made as per the case load and in view of the audit observation, the deployment of doctors would be further rationalised. Audit, however, observed that no documents were available on record regarding deployment of doctors as per the case load in the test-checked hospitals. Further, the Department has also not modified the sanctioned strength of doctors *vis-à-vis* the case load. In respect of nurses, it was stated that the Department had engaged nurses on contractual basis to reduce the vacancy and the deployment of nurses would be reworked and rationalised, if required.

4.2.2. Rosters for doctors and nurses

To ascertain the availability of doctors for providing various indoor health care services in IPD, Audit requisitioned the roster of doctors but none of the hospitals furnished the same. In the absence of the doctors' roster, Audit could not ascertain the availability of doctors for the IPD.

The Government replied that doctors were always available 'on call' in IPD and instructions would be issued to ensure the availability of doctors in IPD as per the requirement.

The reply is not acceptable, as the General Duty doctor was required to be available in the IPD all the time[31].

Further, Audit observed that the test-checked DHs maintained the roster of duty in IPD for nurses, except by the DHs detailed in **Table 14**.

Table 14: Shift-wise non-availability of roster for nurses in IPD in DHs/JHs

Shift	2013-14 (May-2013)	2014-15 (Aug-2014)	2015-16 (Nov-2015)	2016-17 (Feb-2017)	2017-18 (May-2017)
Shift-1 (8 am to 2 pm)	5 (Balrampur, Budaun, Gorakhpur, Saharanpur, JH Balrampur)	4 (Balrampur, Budaun, Gorakhpur, Saharanpur	4 (Balrampur, Budaun, Gorakhpur, Saharanpur)	3 (Budaun, Gorakhpur, Saharanpur)	3 (Budaun, Gorakhpur, Saharanpur)
Shift-2 (2 pm to 8 pm)	5 (Balrampur, Budaun, Gorakhpur, Saharanpur, JH Balrampur)	4 (Balrampur, Budaun, Gorakhpur, Saharanpur)	4 (Balrampur, Budaun, Gorakhpur, Saharanpur)	3 (Budaun, Gorakhpur, Saharanpur)	3 (Budaun, Gorakhpur, Saharanpur)
Shift-3 (8 pm to 8 am)	5 (Balrampur, Budaun, Gorakhpur, Saharanpur, JH Balrampur)	4 (Balrampur, Budaun, Gorakhpur, Saharanpur)	4 (Balrampur, Budaun, Gorakhpur, Saharanpur)	3 (Budaun, Gorakhpur, Saharanpur)	3 (Budaun, Gorakhpur, Saharanpur)

(Source: Test-checked hospitals)

Thus, lack of maintenance of roster of duty for nurses in IPD indicated *ad hocism* in the system of patient care in the concerned test-checked hospitals.

Further, Nursing Council of India (NCI) recommends one nurse per six beds in the general ward of a DH. The details of 8 test-checked DHs where rosters for duty of nurses in IPD were maintained in 2017-18, are given in **Table 15.**

Table 15: Beds against one nurse in IPD in DHs/JHs (2017-18)

Shift	DH Agra	DH Allahabad	DH-II Allahabad	DH Balrampur	JH Balrampur	DH Banda	DH Lucknow	JH Lucknow
Shift-I	21	13	12	25	25	6	15	20
Shift-II	43	38	20	37	25	10	15	25
Shift-III	43	25	20	37	25	10	15	25

(Source: Test-checked hospitals)

[31] Assessor's Guidebook for Quality Assurance in District Hospitals

Thus, except for Shift-I in DH Banda, none of the test-checked hospitals complied with the NCI norms in respect of nursing care.

Further, in the 22 test-checked CHCs, the number of nurses in Shifts-II and III were either one or two for the entire IPD, thus one nurse was available for 15 to 30 beds except in CHC Kamasin (04-bedded) in Banda, CHCs Meja, Handia and Baharia in Allahabad (number of functional beds ranged between 11 to 20) and CHCs – Samrer and Asafpur in Budaun (number of functional beds were 10 in each CHC).

The Government replied that nurses had also been engaged on contractual basis and the deployment of nurses would be reworked and rationalised.

The fact remains that the sub-optimal nurse to bed ratio in all the test-checked DHs and CHCs would have adversely affected the quality of nursing care in these hospitals.

4.2.3. Para-medical staff

The paramedical staff was responsible for implementation and management of the prescribed treatment plan and to deal with the patients in emergent medical situations. Audit observed that there was shortage/excess of para-medical staff in the test-checked DHs/CHCs[32], as shown in **Table 16.**

Table 16: Details of availability of para-medical staff

DHs with shortage of para-medical noticed against the sanctioned strength (in *per cent*)	DHs with excess para-medical staff posted against sanctioned strength (in *per cent*)
Allahabad (7), Balrampur (20), JH Balrampur (26) and Banda (45)	Saharanpur (9), Lucknow (41), DH-II Allahabad (64), Gorakhpur (75), Agra (184), JH Lucknow (356)
CHCs with shortage of staff para-medical staff noticed against the sanctioned strength (in *per cent*)	**CHCs with excess para-medical staff posted against sanctioned strength (in *per cent*)**
11 to 22 *per cent* in Gaisandi and Pachperwa, Balrampur; Naraini, Banda; Campiarganj, Pali and Pipraich, Gorakhpur; Gosaiganj and Sarojini Nagar, Lucknow; Nagal, Saharanpur; Meja and Baharia, Allahabad 60 *per cent* in Jaitpur Kalan, Agra	Mall (14), Lucknow; Deoband (38), Saharanpur; and Baroli Ahir (100), Agra

(Source: Test-checked hospitals/CHCs)

Thus, it was observed that maximum shortage and excess of para-medical staff *vis-à-vis* the sanctioned strength ranged between 45 *per cent* in DH Banda and 356 *per cent* in JH Lucknow, respectively, underscoring the inequitable deployment of para-medical staff, who share with physicians, the direct responsibility of patient care.

The Government stated that the vacancies of para-medical staff are being filled up through regular as well as contractual engagements and recruitments and their deployment would be reworked and rationalised.

[32] DH Budaun and CHCs Asafpur, Samrer and Sahaswan, Budaun; and Behat, Saharanpur did not furnish to audit the sanctioned strength of para-medical staff.

4.3. Availability of essential drugs and equipment

To ascertain the availability of essential drugs in the IPD, Audit examined availability of 14 types of essential drugs[33] prescribed in the NHM Assessor's Guidebook during the sampled months, as shown in **Table 17.**

Table 17: Availability of essential drugs in DHs

Hospital[34]	Number of drugs available out of the 14 test-checked drugs				
	May-2013	Aug-2014	Nov-2015	Feb-2017	May-2017
DH Agra	9	9	9	9	9
DH Allahabad	10	10	10	10	10
DH Budaun	10	10	10	10	10
DH Balrampur	5	4	7	9	7
DH Banda	11	8	10	11	11
DH Gorakhpur	7	10	8	8	8
DH Lucknow	12	12	12	12	12
JH Lucknow	6	3	7	11	11
DH Saharanpur	10	12	11	11	12
DH-II Allahabad	11	11	11	11	11

(Source: Test-checked hospitals)

Thus, non-availability of the essentials drugs such as Adrenaline (used in emergencies to treat very serious allergic reactions to improve breathing, stimulate the heart, raise a dropping blood pressure, *etc*.), Diclofenac Sodium (used to relieve pain, inflammation and joint stiffness), Salbutamol (used to treat asthma, chronic bronchitis, and to prevent exercise-related asthma) *etc*. in the IPD of the test-checked DHs indicated that either the quality of treatment was compromised or the patients were compelled to buy these drugs from outside.

According to NHM Assessor's Guidebook, DHs are required to ensure the availability of equipment and instruments for examination and monitoring of patients. However, Audit observed that during 2017-18, out of the sampled 19 essential equipment[35], DH Balrampur had 9 equipment while DHs Agra and Allahabad had 11 each. The rest of the 08 DHs had 14 to 17 equipment available. Further, none of the test-checked DHs executed an Annual Maintenance Contract for IPD equipment.

Thus, important equipment such as Crash-cart (used for transportation and dispensing of drugs and consumables on site) in DHs Agra, Allahabad, Balrampur and DH-II Allahabad; Defibrillator (used in cardiac arrest) in DHs Agra, Balrampur and Budaun; Doppler (estimation of blood flow) in 07 DHs; and Glucometer (estimation of blood sugar) in DH Balrampur, were not available.

[33] 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 (Phytomenadione)

[34] JH Balrampur did not maintain the relevant records.

[35] Adult Bag and Mask, AED, Baby Bag and Mask, BP Apparatus, Crash-cart, Defibrillator, Doppler, Dressing kit, Dressing material, Dressing trolley, ET Tubes, Foetoscope, Glucometer, Laryngoscope, Oxygen flow meter, Suction machine, Thermometer, Weighing scale for adult and Weighing scale for baby.

The Government responded that the availability of essential drugs and equipment in IPD would be ensured according to the required norms.

4.4. Operation Theatre services

Operation Theatre (OT) is an essential service that is to be provided to the patients. IPHS guidelines prescribe OTs for elective major surgery, emergency services and ophthalmology/ENT (ear, nose and throat) for district hospitals having bed strength of 101 to 500. Availability of OTs required for various services was as shown in **Table 18.**

Table 18: Availability of OTs in DHs (2017-18)

Hospital[36]	OT for elective major surgeries	OT for emergency surgeries	OT for ophthalmology/ENT
DH Agra	Yes	No	Yes
DH Allahabad	Yes	No	Yes
DH Balrampur	Yes	No[37]	Yes
DH Banda	Yes[38]	Yes	Yes
DH Budaun	Yes	Yes	Yes
DH Gorakhpur	Yes	Yes	Yes
DH Lucknow	Yes	Yes	Yes
DH Saharanpur	Yes	Yes	Yes
DH-II Allahabad	Yes	No	Yes
JH Balrampur	Yes	No	Yes
JH Lucknow	Yes	Yes	Yes

(Source: Test-checked hospitals)

Further, Audit observed that Minor OT was not available in 09 CHCs[39] out of the 22 test-checked. This in effect would have denied patients from receiving even minor surgical operations as part of the treatment process, thereby driving them in the direction of private clinics, or referral to DHs which would have further increased the strain on the resources of DHs.

The Government in its response stated that the matter would be examined and necessary directions would be issued to activate emergency surgery services in the district hospitals and CHCs.

As per NHM Assessor's Guidebook, surgeries performed per surgeon is an indicator to measure efficiency of the hospitals. Analysis of the records of surgeries conducted on the basis of a sample of the last quarter of 2017-18 in the test-checked DHs, indicated substantial variation in the number of major and minor surgeries per surgeon in the test-checked hospitals as shown in **Table 19.**

[36] DH and JH Balrampur have less than 100 beds.
[37] Minor OT is available.
[38] Due to non-availability of a surgeon, the OT services were not functional since December 2017
[39] CHCs – Baroli Ahir, Jaitpur Kalan and Kheragarh in Agra, Asafpur, Sahaswan and Samrer in Budaun, Campiarganj, Pali and Pipraich in Gorakhpur

Table 19: Major and minor surgeries per surgeon

Hospital	Major surgeries performed per surgeon			Minor surgeries performed per surgeon			Eye surgeries[40] performed per surgeon
	General	ENT	Ortho	General	ENT	Ortho	
DH Agra	43	29	9	56	57	53	717
DH Allahabad	95	5	29	25	9	9	234
DH-II Allahabad	151	28	64	19	5	13	247
DH Balrampur	8	NA	0	19	NA	5	8
JH Balrampur	14	NA	0	37	NA	2	217
DH Banda	6	17	NA	0	11	NA	72
DH Budaun	8	4	33	2	30	8	201
DH Gorakhpur	95	13	37	23	8	82	177
DH Lucknow	64	43	35	17	9	13	264
JH Lucknow	54	30	57	14	23	11	13
DH Saharanpur	74	17	39	36	22	20	310

(Source: Test-checked hospitals for 4th quarter, 2017-18)

As evident from the above table, DH and JH Balrampur, DH Banda and DH Budaun had considerably less number of major general surgeries performed per surgeon as compared to rest of the DHs. No major orthopaedic surgeries were conducted in DH and JH Balrampur. Further, ENT surgeries in DH and JH Balrampur, and orthopaedic surgeries in DH Banda were not carried out due to non-availability of surgeons.

Thus, the non-availability of surgeon and/or less number of major surgeries performed indicate that patients could have been deprived of treatment in DH and JH Balrampur, DH Banda and DH Budaun.

4.4.1. Availability of equipment and drugs for OTs

Audit checked availability of 23 types of drugs[41] and 29 essential equipment as prescribed in NHM Assessor's Guidebook during 2017-18 for OTs in the 11 test-checked hospitals and observed significant shortages, as shown in **Table 20.**

Table 20: Availability of essential drugs and equipment in OTs

Hospital	Essential drugs (*in per cent*)	Essential equipment (*in per cent*)
DH Agra	43	45
DH Allahabad	52	41
DH Balrampur	39	66
DH Banda	74	42
DH Budaun	39	48
DH Gorakhpur	26	45
DH Lucknow	61	27
DH Saharanpur	70	59
DH-II Allahabad	35	45
JH Balrampur	NA	52
JH Lucknow	57	45

(Source: Test-checked hospitals)

[40] Number of cataract surgeries

[41] Inj Oxytocin, Inj. Ampicillin, Inj. Metronidazole, Gentamycin, Inj. Diclofenac Sodium, IV fluids, Ringer lactate, Plasma expander, Normal saline, Inj Magsulf, Inj Calcium gluconate, Inj Dexamethasone, Inj Hydrocortisone Succinate, Diazepam, Pheneramine maleate, Inj Corboprost, Fortwin, Inj Phenergen, Betameathazon, Inj Hydrazaline, Methyldopa, Nefidepin and Ceftriaxone

As evident from the table given above, the essential drugs and equipment in OT were short in respect of all hospitals. Significant shortage in terms of equipment and drugs was observed in 08 and 05 hospitals respectively. Thus, the resources available for OTs in the test-checked hospitals were insufficient, implying that quality of surgical treatment would have been adversely affected in these test-checked hospitals.

The Government stated that the availability of drugs and equipment would be ensured according to the required norms.

4.4.2. Documentation of OT procedures

NHM Assessor's Guidebook prescribes that surgical safety checklist, pre-surgery evaluation records and post-operative evaluation records for OTs should be prepared for each case. The availability of required records in the 11 test-checked DHs during 2013-18 was as detailed in **Table 21.**

Table 21: Documentation of OT procedures

Hospital	Surgical safety checklist	Pre-surgery evaluation records	Post-operative evaluation records
DH Allahabad	Partially maintained in 2015-18		
Other 10 test-checked DHs	Not maintained		

(Source: Test-checked hospitals)

In the absence of surgical safety checklist, pre-surgery evaluation records and post-operative evaluation records for OTs, it was not ascertainable whether safety procedures in OTs were adhered to in the test-checked DHs.

The Government stated that instructions would be issued to hospitals to prepare required records and follow all safety procedures in OTs.

4.5. 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*.

4.5.1. Availability of ICU services

Intensive care services in a District Hospital are essential for providing minimum assured services as per the IPHS for DHs having more than 100 beds.

Audit observed that only DH Lucknow and Gorakhpur had an ICU. Thus, in the absence of ICU facility, patients approaching district hospitals despite being in an emergent condition were likely to be referred and/or passed on to higher facility public or private hospitals.

The Government stated that ICU services would be provided after conducting a gap analysis.

4.5.1.1. Discrepancies in available intensive care services

- As per IPHS, the number of ICU beds should be 05 to 10 *per cent* of the available number of beds in the hospital. Audit observed that only two *per*

cent beds in DH Lucknow[42] and three *per cent* of the beds in DH Gorakhpur were earmarked for ICU.

- ICU is required to be equipped with essential equipment, *viz.*, High-end Monitor, Ventilator, Defibrillator, Ultrasound for invasive procedures, *etc*. as per NHM Assessor's Guidebook. Audit observed that only six High-end Monitors were available against the requirement of 14, seven Infusion pumps were available against the requirement of 14, while Ventilators, Ultrasound for invasive procedures and Arterial Blood Gas (ABG) analysis machine were not available at all in DH Lucknow. Similarly, in DH Gorakhpur, there were no Ventilators, Infusion Pumps, Ultrasound for invasive procedures and ABG analysis machine.
- Out of the 14 essential drugs for an ICU as prescribed in NHM Assessor's Guidebook, Audit observed that during 2017-18, two drugs (Activated Charcoal and Antiserum Polyvalent Snake Venom) were not available in DH Lucknow, while DH Gorakhpur did not have six[43] drugs.
- As per the norms of the Indian Nursing Council, one nurse is required for each bed in ICU. In DH Lucknow, it was observed that the bed to nurse ratio in Shift-I was 3.5:1 and in Shifts-II and III it was 7:1, indicating significant shortfall in the requisite level of care in ICU. DH Gorakhpur did not furnish specific information in this respect.
- IPHS prescribe that a hospital building should be well maintained with no seepage or cracks in the walls of ICU to preclude infection amongst patients/ attendants/ visitors and hospital staff. In DH Lucknow, during joint physical inspection, heavy seepage in the walls of the ICU was noticed as depicted alongside.

Heavy seepage in the ICU, DH Lucknow (25.09.2018)

The Government replied that the issues would be examined and instructions would be issued to hospitals to take necessary corrective action.

4.6. Emergency services

4.6.1. Availability of emergency services

As per IPHS, emergency OT is required to be available in each DH but as discussed previously, it was not available in DH Agra, DH and DH-II Allahabad, DH and JH Balrampur out of the 11 test-checked DHs. Audit also observed that accident and trauma care services were available in only DH Banda and Saharanpur.

[42] In DH Lucknow, the ICU catered only to cardiac patients.
[43] Activated Charcoal, Salbutamol, Ringer Lactate, Digoxin, Vitamin K (Phytomenadione) and Antiserum Polyvalent Snake Venom

Further, none of the 22 test-checked CHCs attended to all types of emergency care services, except for snake bite and other cases not requiring diagnostic services. For other emergencies, such as cardiac arrest and severe pneumonia *etc*., CHCs effectively served only as referral centres.

The Government replied that proper emergency services would be ensured in all CHCs.

4.6.2. Accident and trauma care services

Government of Uttar Pradesh sanctioned equipment and human resources as per norms fixed in July 2015 in order to operationalise Trauma Centres in the district hospitals.

Audit observed the following in DHs Banda and Saharanpur, wherein Trauma Centres were functioning:

- In DH Banda, due to non-availability of surgeon, surgery services in the Trauma Centre were not available since December 2017 and patients were referred to higher facilities after providing primary treatment.
- In DHs Banda and Saharanpur, 52 *per cent* and 43 *per cent* of Trauma Centre related equipment, such as X-ray machine, Portable USG, Anaesthesia machine, ABG analysis machine and Defibrillator, respectively were not available and the required human resources were also not deployed.

Thus, non-availability of vital equipment jeopardized the quality of medical care administered to the patients in the Trauma Centres in DH Banda and DH Saharanpur.

The Government replied that deployment of a surgeon would be made at the earliest and essential equipment made available to the concerned DHs as per available resources.

4.6.3. Triaging of patients and average turn-around time

Only a limited number of patients admitted in the emergency have life endangering, medically urgent conditions demanding to be identified and given treatment on priority. NHM Assessor's Guidebook prescribes standard treatment protocol for triaging[44] of patients getting admitted in an emergency department. However, there was no evidence of triaging being done during 2013-18 in the test-checked hospitals/CHCs. Further, Audit could not ascertain the average turn-around time of the patients admitted in the emergency department due to non-maintenance of relevant records.

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.

[44] The process of sorting people based on their need for immediate medical treatment as compared to their chance of benefiting from such care.

The Government replied that triaging was done in emergency and instructions would be issued to document the procedure. However, lack of proper records not only limits the ability of audit to provide assurance in this regard but also impairs the ability of the hospitals to monitor and improve emergency services.

4.6.4. Continuity of care during emergency

As per NHM Assessor's Guidebook, hospitals were required to ensure referral services for transfer to other/higher health facilities during emergencies to ensure continuity of care of the patients.

Audit observed that none of the 11 test-checked DHs except DH Allahabad had a system of preparation of referral cards for patients to be referred.

The Government in its response stated that necessary instructions would be issued to all DHs/CHCs to ensure referral linkages and to prepare referral cards.

4.7. Dietary services

IPHS envisage dietary service as an important therapeutic tool. It is, therefore, essential that the quality and quantity of the diet should be of the requisite standard. The Government Order (2011) prescribes six types of diet[45] for in-patients, to be provided free of cost as per the advice of the doctor.

Positive feature

District hospitals Lucknow and Saharanpur provided all six types of prescribed diets to the in-patients.

Scrutiny of records, however, revealed that during 2017-18, the patients were provided six types of diet in DHs Lucknow and Saharanpur, four types in DH Banda and DWH Lucknow, three types in DH Agra and two types in DH Budaun and DH-II Allahabad, while in the rest 12 hospitals and 19 CHCs[46] test-checked, the patients were not provided different diets. Non-provision of the six types of diet indicated that the distinctive dietary requirements of the different categories of patients were ignored in the concerned test-checked hospitals.

The dietary services provided are documented through a Diet Register which records the diets distributed to the patients in the hospital. Audit, however, observed that Diet Registers were not maintained in DH Banda for 2013-16, DWH Gorakhpur for 2013-17 and JH Balrampur for 2013-18 out of the 19 hospitals test-checked. Similarly, Diet Registers were not maintained in 07 to 09 CHCs[47] out of the test-checked 19 CHCs during 2013-18.

[45] Full milk diet, half milk diet, full *atta* diet, half *atta* diet, full *khichdi* diet, and half *khichdi* diet.
[46] CHCs Baharia, Handia and Meja, Allahabad did not furnish records to audit.
[47] Jaitpur Kalan in Agra for 2013-18, Asafpur in Budaun for 2013-18, Gaisandi for 2013-18 and Pachperwa for 2013-17 in Balrampur, Naraini for 2013-16 and Kamasin for 2013-15 in Banda, Campiarganj, Pali and Pipraich in Gorakhpur for 2013-18.

Thus, in the absence of Diet Registers, Audit could not derive an assurance whether diet was provided to in-patients during 2013-18 in the above mentioned hospitals/CHCs.

Further, scrutiny in audit revealed that during 2017-18, the dietary services were provided through in-house arrangement in 12 test-checked hospitals and outsourced in 07 hospitals[48].

Audit compared the expenditure on in-house diet services in five test checked hospitals, which revealed substantial variation ranging between ₹ 29 to ₹ 102 per patient per day. Similarly, in respect of outsourced dietary services, per patient per day expenditure varied between ₹ 71 and ₹ 100 in six test-checked hospitals. The remaining 08 hospitals[49] did not provide the related information.

None of the test-checked hospitals/CHCs had a system of quality testing of the diet provided to the in-patients during 2013-18, except for DH Gorakhpur and JH Lucknow during 2013-18, DH Banda during 2017-18 and CHC Pipraich, Gorakhpur during 2016-18. Resultantly, Audit could not derive an assurance regarding the quality of the diet provided in the test-checked hospitals/CHCs.

The Government replied that the matter would be examined and accordingly necessary directions would be issued to the hospitals/CHCs.

4.8. Patient safety

4.8.1. Disaster management capability of hospitals

Standard Operating Procedures of the Emergency Support Function-Public Health & Sanitation of GoUP[50], 2010 (SOP-ESF) require that a Disaster Management Plan (DMP) be developed for each hospital to trigger mechanism of preparedness in case of signal of a disaster in the hospital and also organise disaster management training for hospital staff and conduct periodic mock drills in the hospitals. Further, NHM Assessor's Guidebook envisages that in each hospital, SOPs should be available and a disaster management committee should be constituted.

Positive feature

District hospitals Allahabad and Gorakhpur had Disaster Management Committee and also prepared Disaster Management Plan.

Audit, however, observed that out of the 19 test-checked hospitals, only DH Gorakhpur and DWH Allahabad[51] had prepared DMP. Both DH Gorakhpur[52] and DWH Allahabad had formed a Disaster Management Committee as well. SOPs for disaster and mass casualty management were available in DWH Allahabad, DH and DWH Banda and DH Gorakhpur. On the other hand, none of the 22 test-checked CHCs had prepared the DMP or SOPs for disaster management.

[48] JH Balrampur, DWHs Agra, Banda, Budaun and Gorakhpur. In DH and DWH Saharanpur, the services were outsourced but the preparation was done in the in-house kitchen.
[49] DH and DH-II Allahabad, DH, DWH and JH Balrampur, DH and DWH Banda and DH Budaun
[50] The High Powered Committee on Disaster Management, 2001 of GoUP identified 14 emergency support functions.
[51] This was reported to Audit by DWH Allahabad but no supporting documents were available.
[52] DH Gorakhpur formed the Committee in January 2018.

Further scrutiny revealed that only DH Banda, DH Gorakhpur, DH Lucknow, DWH Allahabad and DWH Saharanpur had provided training to staff on disaster management and conducted mock drills[53] amongst the test-checked hospitals/CHCs.

The Government did not give a specific reply regarding the instances of non-compliance of the SOP on Disaster Management pointed out by audit and the remedial action proposed to be taken in this regard.

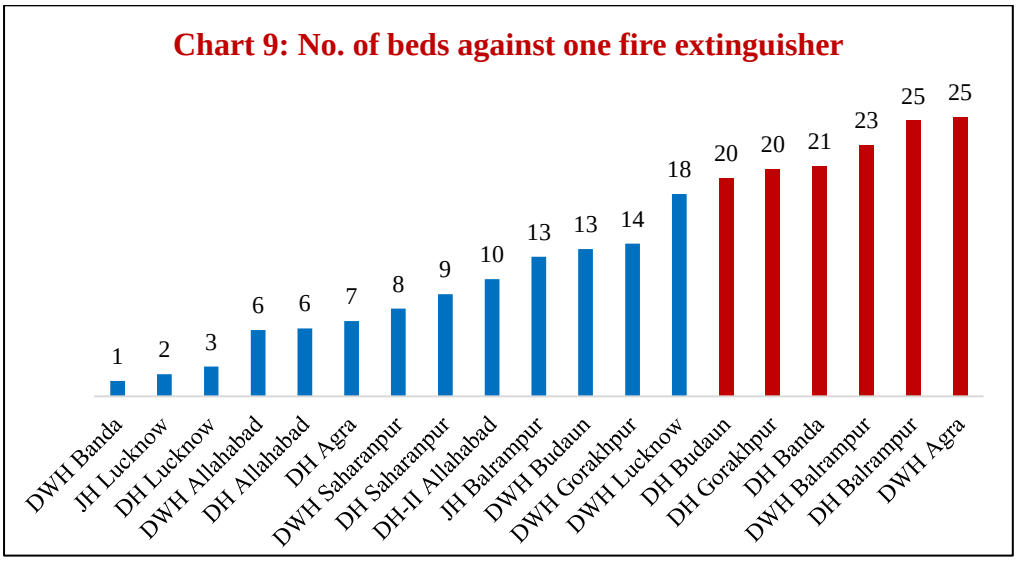
4.8.2. Safety from fire

Uttar Pradesh Manual of Fire Safety Norms 2005 (UP Fire Norms) prescribe standards in respect of safety from fire for the hospital buildings. Audit, however, observed that in the test-checked 19 hospitals and 22 CHCs, fire safety audit was not conducted during 2013-18.

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

Audit observed that during 2017-18, safety of patients, attendants, visitors and the hospital staff from fire was compromised in 07 CHCs[54] out of the 22 test-checked, as no fire extinguishers were available in these CHCs. In respect of hospitals, while fire extinguishers[55] were available in 2017-18 in each hospital, their numbers varied widely, as shown in **Chart 10.**

Chart 9: No. of beds against one fire extinguisher



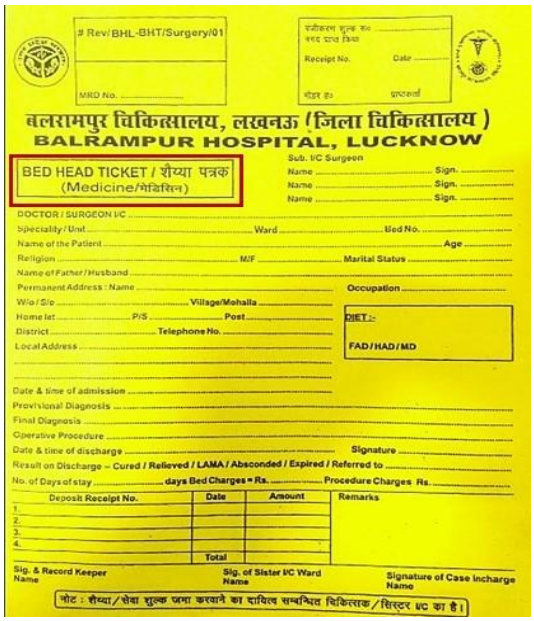
(Source: Test-checked hospitals)

[53] In DH Gorakhpur and DH Lucknow, mock drills were conducted in December 2017 and February 2018, while no supporting documents were provided to Audit in DH Banda, DWH Allahabad and DWH Saharanpur in respect of the mock drills claimed to be conducted.

[54] CHCs – Baroli Ahir, Jaitpur Kalan and Kheragarh in Agra, Baharia, Handia and Meja in Allahabad and Campiarganj in Gorakhpur.

[55] In the absence of any benchmark or fire safety audit, number of fire extinguishers available were compared against the total number of beds.

Thus, one fire extinguisher was available against less than five beds in DWH Banda, JH and DH Lucknow, while in DH Balrampur and DWH Agra one fire extinguisher was available against 25 beds.


बलरामपुर चिकित्सालय, लखनऊ (जिला चिकित्सालय)
BALRAMPUR HOSPITAL, LUCKNOW
BED HEAD TICKET / शैय्या पत्रक
(Medicine/मेडिसिन)

UP Fire Norms also prescribe for an evacuation plan along with photographs of evacuation routes and staircases for evacuating patients and staff during emergency (disaster incidents) situations. Out of the 19 test-checked hospitals, the evacuation plans and photographs of evacuation routes and staircases were available in DH-II Allahabad, JH and DWH Lucknow only, while photographs of evacuation routes and staircases were available in DWH Allahabad also. In respect of CHCs, the evacuation plan was available only in CHC Gosaiganj, Lucknow, while the photographs of evacuation routes and staircases were present in CHCs Gosaiganj, Lucknow and Pipraich, Gorakhpur.

The Government replied that fire safety arrangement has been initiated through the State budget from 2017-18, under which presently 28 hospitals and 232 CHCs are being covered in a phased manner.

4.9. Evaluation of in-patient services through Outcome Indicators

The IPD services provided during 2013-18 in the 10 test-checked DHs[56] were evaluated through certain Outcome Indicators (OIs), *viz*., Bed Occupancy Rate (BOR), Leave Against Medical Advice (LAMA) Rate, Patient Satisfaction Score (PSS), Average Length of Stay (ALoS), Adverse Event Rate (AER), Completeness of Medical Records, Absconding Rate, Referral Out Rate (ROR), Discharge Rate (DR) and Bed Turnover Rate (BTR). The categorisation and methodology of evaluating these OIs are discussed in ***Appendix-VI*.** In the absence of information such as date of discharge, patient status, *etc*. being recorded in the IPD register in several hospitals, BHTs[57] were evaluated for calculating the average outcome for the aforementioned outcome indicators.

Further, Audit observed that 08 out of the 22 test-checked CHCs – Asafpur, Sahaswan and Samrer in Budaun, Gaisandi and Pachperwa in Balrampur, and Campiarganj, Pali and Pipraich in Gorakhpur did not maintain BHTs. Thus, assurance could not be derived by audit with respect to the performance of these CHCs. Besides, in respect of CHCs which were maintaining BHTs, patient status was not recorded on 59 *per cent* of the sampled BHTs[58]

[56] JH Balrampur has not been included in the findings of outcome indicators on account of inconsistent data.
[57] All treatment plan prescription/orders are recorded in the patient records known as BHT.
[58] 1579 BHTs were sampled.

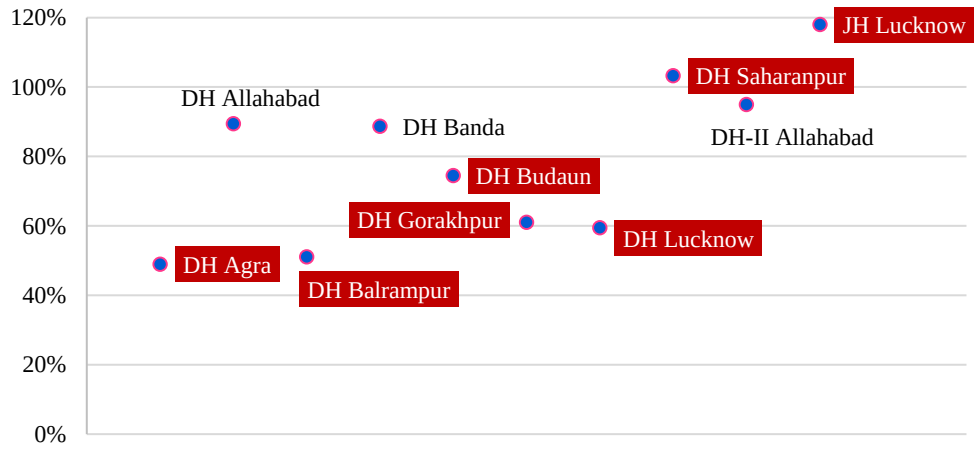
pertaining to 10 CHCs. Thus, Bed Turnover Rates, Discharge Rates and Referral Out Rates could not be evaluated for CHCs.

4.9.1. Evaluating productivity of the hospitals

4.9.1.1. Bed occupancy rate

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. As per IPHS, the BOR of hospitals should be at least 80 *per cent*.

Chart 10: Average Bed Occupancy Rate (2013-18)



(Source: Test-checked hospitals) Benchmark[59]: 80 *per cent*

Thus, the productivity of DHs Agra, Budaun, Balrampur, Gorakhpur and Lucknow was below the norm of 80 *per cent* for the test-checked months. Further, BOR above 100 *per cent* as noticed in DH Saharanpur and JH Lucknow implied strain on resources of the hospital, thus adversely impacting the quality of care provided.

Exaggerated reporting of BOR

Audit observed that DH Lucknow calculated the BOR on the basis of 603 number of beds in place of available 756 beds during 2013-18, resulting in exaggerated reporting of the BOR by 12 to 20 *per cent* during 2013-18. Further, in DH Agra during 2013-18, while the average BOR reported by hospital authorities was more than 80 *per cent*, the corresponding figure in test-check of the records in audit was around 50 *per cent*, thus indicating considerable exaggeration.

BOR in CHCs

Audit observed that in case of the test-checked CHCs, the maintenance of records related to BOR was very poor as only four CHCs Behat, Deoband and Nagal, Saharanpur and Naraini, Banda provided the year-wise information of BOR out of the 22 test-checked CHCs. In the 02 test-checked CHCs in

[59] As per IPHS

Saharanpur, BOR was in the 40 to 50 *per cent* range and in the 02 CHCs in Balrampur, BOR records were available for 2013-14 only.

Thus, in the absence of records related to BOR, it was not possible for Audit to derive an assurance regarding the productivity of the test-checked CHCs.

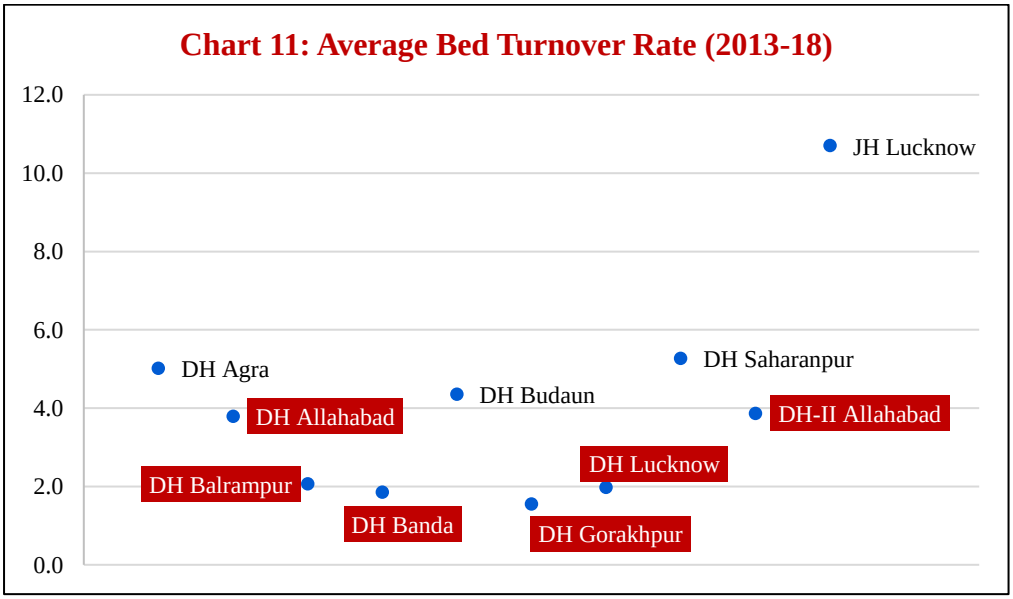
The Government replied that the matter would be examined and instructions issued accordingly.

4.9.2. Evaluating efficiency of the hospitals

4.9.2.1. Bed Turnover Rate

The Bed Turnover Rate (BTR) is the rate of usage of beds in an in-patient department in a given period of time and 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 department while low BTR could be due to fewer patient admissions or longer duration of stay in the departments.

Chart 11: Average Bed Turnover Rate (2013-18)



(Source: Test-checked hospitals) Benchmark[60]: 4.1

Thus, efficiency of the hospital as indicated by BTR was found on the lower side in DH and DH-II Allahabad, Balrampur, Budaun, Gorakhpur, and Lucknow.

The Government replied that the matter would be examined and instructions issued accordingly.

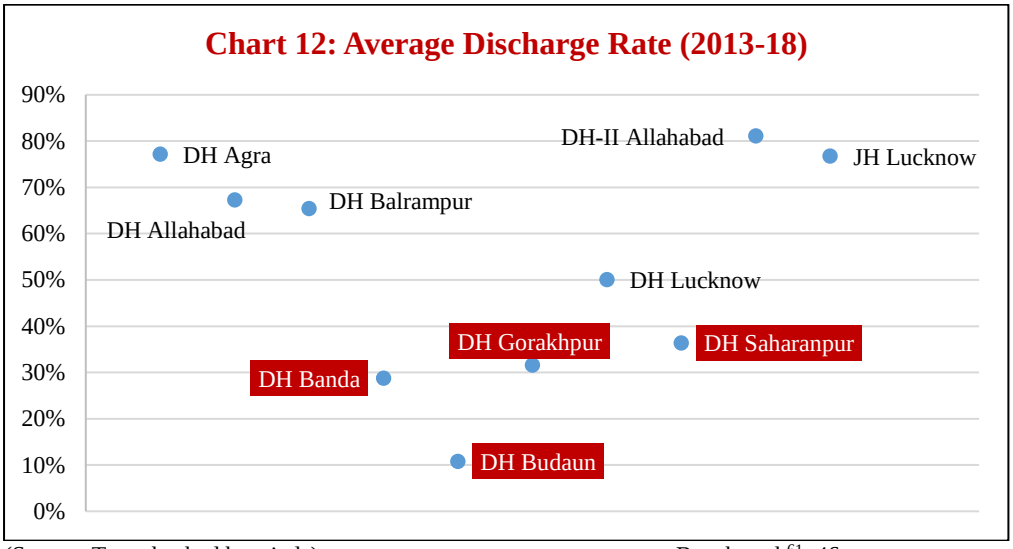
4.9.2.2. Discharge rate

Discharge rate measures the number of patients leaving a hospital after receiving due health care. High discharge rate denotes that the hospital is providing health care facilities to the patients efficiently, on the other hand low rates of discharge means that the health care facilities were not adequate.

[60] Weighted average with average annual IPD load as the weight

Scrutiny of the test-checked Bed Head Tickets (BHTs) in 10 hospitals revealed that the discharge rates were as per **Chart 12**:

Chart 12: Average Discharge Rate (2013-18)



(Source: Test-checked hospitals) Benchmark[61]: 46 *per cent*

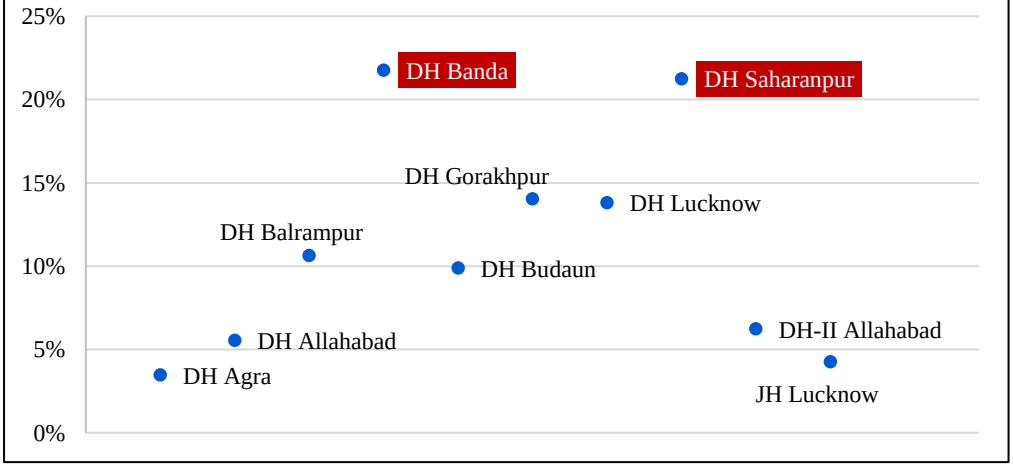
As depicted in the chart 13 above, the lowest discharge rate was in DH Budaun, indicating that this hospital was the most under-performing hospital among the test-checked 10 hospitals. Further, DHs Banda, Gorakhpur and Saharanpur also did not perform well in terms of the discharge rate.

The Government replied that the matter would be examined and instructions issued accordingly.

4.9.2.3. Referral out rate

As per IPHS norms, referral services to higher centres denote that the facilities for treatments were not available in the hospitals. Audit observed that in the 10 test-checked hospitals the Referral Out Rate (ROR) was as per the **Chart 13**.

Chart 13: Average Referral Out Rate (2013-18)



(Source: Test-checked hospitals) Benchmark[62]: 14 *per cent*

[61] Weighted average with average annual IPD load as the weight

Thus, the highest ROR were in DHs Banda and Saharanpur, indicating that health care facilities were not adequate in these hospitals.

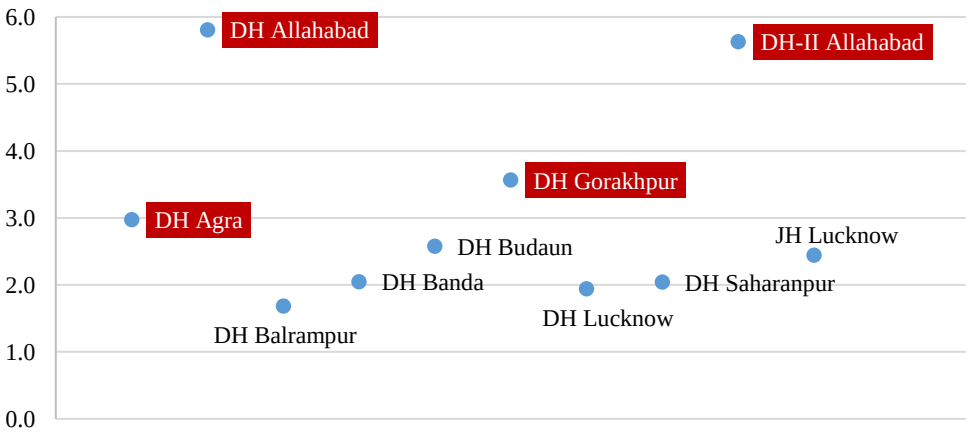
The Government replied that the matter would be examined and instructions issued accordingly.

4.9.3. Evaluating clinical care capability of the hospitals

4.9.3.1. Average Length of Stay

Average Length of Stay (ALoS) 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. The ALoS (in days) in the test-checked hospitals was as depicted in the **Chart 14**.

Chart 14: Average Length of Stay (in days) (2013-18)



(Source: Test-checked hospitals) Benchmark[63]: 2.6

Chart 15 shows that ALoS was significantly higher for DH and DH-II Allahabad, Agra and Gorakhpur. Further, Audit could determine ALoS for four CHCs only based on the BHTs, which revealed that ALoS ranged approximately one day for CHCs – Jaitpur Kalan, Kheragarh and Baroli Ahir in Agra and two days for CHC Kamasin in Banda. Thus, in the absence of availability of a system within the hospitals/CHCs to regularly monitor outcome parameters like ALoS, the ability of the hospitals/CHCs to evaluate the quality of services delivered and optimise outcomes was affected.

The Government stated that efforts would be made to ensure quality healthcare in the hospitals and CHCs.

4.9.3.2. Adverse Event Rate (AER)

Adverse outcomes with respect to healthcare received are known as adverse events (e.g. wrong drug administration, needle stick injury *etc*.) which should be quickly identified and managed to limit their detrimental effects on the patients/staff. Typology of adverse events can also indicate specific problems in the system.

[62] Weighted average with average annual IPD load as the weight
[63] Weighted average with average annual IPD load as the weight

Audit observed that none of the test-checked hospitals maintained records relating to AER except DH Balrampur wherein adverse event cases ranged from 13 to 26 cases during 2013-18 for the sampled months. Thus, non-availability of the adverse event rate impacted the ability of the hospitals to quickly identify and manage the detrimental effects of adverse events.

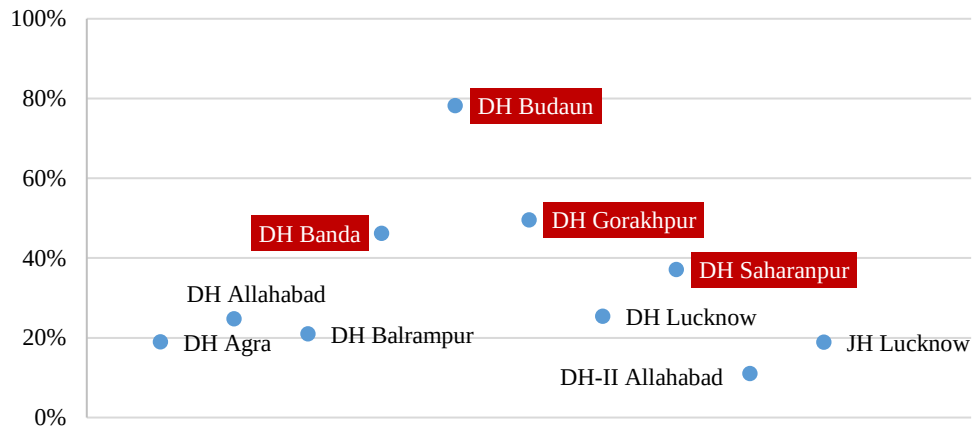
The Government replied that the matter would be examined and instructions would be issued accordingly.

4.9.4. Evaluating service quality of the hospitals

4.9.4.1. LAMA & Absconding Rate in DHs

To measure service quality of a hospital, Leave against Medical Advice (LAMA) Rate & Absconding Rate are evaluated. LAMA is the term used for a patient who leaves the hospital against the advice of the doctor and Absconding Rate refers to patients who leave the hospital without informing the hospital authorities. Since it was observed that the two terms were used interchangeably in the test-checked hospitals, a combined analysis of both LAMA & Absconding Rate is presented in **Chart 15.**

Chart 15: Average LAMA & Absconding Rate (2013-18)



(Source: Test-checked hospitals) Benchmark[64]: 36 *per cent*

Thus, the LAMA and Absconding Rate was alarmingly high in DH Budaun while DHs Banda, Gorakhpur and Saharanpur had substantially higher LAMA and Absconding Rate than the mean value for the 10 test-checked DHs, indicating poor service quality in these hospitals and lack of security arrangements in the hospitals.

LAMA & Absconding Rate in CHCs

Due to improper/non-maintenance of the BHTs in the CHCs where BHTs were available, Audit could ascertain the LAMA and Absconding Rate for one to five CHCs only during the sampled period. It was observed that LAMA and Absconding Rate was alarmingly high (more than 80 *per cent*) in CHC Mall, Lucknow, thus indicating poor service quality of the hospital.

[64] Weighted average with average annual IPD load as the weight

The Government replied that the matter would be examined and instructions issued accordingly.

4.9.4.2. Completeness of medical records

The Regulations on Graduate Medical Education 2012, MCI prescribe maintaining accurate, clear and appropriate record of the patient in conformity with the legal and administrative framework. Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations 2002 contain the 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 *etc*.

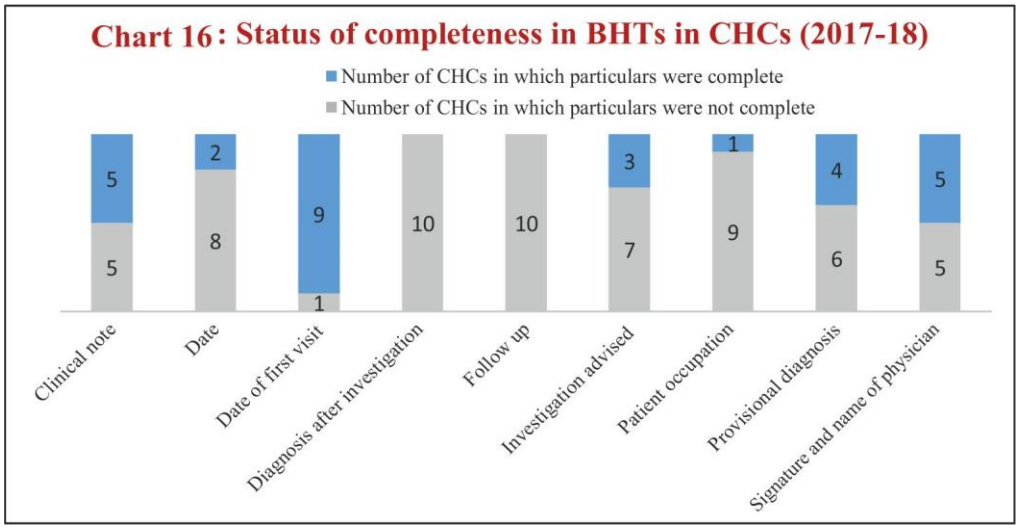
Scrutiny of the 1100 test-checked BHTs of 11 DHs and 356 test-checked BHTs of 10 CHCs[65] pertaining to 2017-18 revealed that the required details were not filled completely, as discussed in **Table 22.**

Table 22: Status of completeness of BHTs in DHs (2017-18)

Particulars	DHs in which particulars were not complete
Diagnosis after investigation	DH Allahabad, DH and JH Balrampur, DH Banda, and DH Saharanpur
Follow up	DH Agra, DH and DH-II Allahabad, DH Budaun, DH and JH Balrampur and DH Banda
Investigation advised	DH Balrampur
Patient occupation	DH Agra, DH and DH-II Allahabad, DH Balrampur, DH Banda, DH Budaun, DH Gorakhpur, DH and JH Lucknow and DH Saharanpur

(Source: Test-checked hospitals)

Similarly, in case of CHCs the status of completeness of BHTs was as under:



(Source: Test-checked CHCs)

The deficiency of properly filled-up BHTs has an impact on the continuity and efficiency of medical care provided to a patient, especially in case of follow-up or referral to higher facilities.

[65] Baroli Ahir, Jaitpur Kalan and Kheragarh (Agra), Kamasin and Naraini (Banda), Gosaiganj and Sarojini Nagar (Lucknow), Behat, Deoband and Nagal (Saharanpur)

The Government replied that the matter would be examined and necessary directions would be issued to the concerned hospitals.

4.9.4.3. Patient Satisfaction Score

Patient satisfaction score (PSS) is an indicator of patient satisfaction and acts as an important monitoring and feedback mechanism for the IPD. It was observed that only two DHs (DH-II Allahabad and Lucknow) conducted survey to evaluate PSS during the period 2016-18 out of the 11 test-checked DHs. Analysis of PSS data[66] revealed that in DH Lucknow 18 to 27 *per cent* of the respondents rating the services poor or average.

Thus, while the 08 DHs and 22 CHCs which did not conduct PSS missed out an opportunity for identifying gaps based on feedback by patients and developing an effective action plan for quality improvement in their respective hospitals, DH Lucknow despite conducting PSS did not prepare action points based on the survey results.

The Government replied that the matter would be examined and action taken accordingly.

4.9.5. Outcomes *vis-à-vis* availability of resources

The relative performance of the test-checked hospitals on the various outcome indicators worked out by audit and the corresponding availability of resources was as shown in **Table 23.**

Table 23: Outcomes *vis-à-vis* availability of resources in District Hospitals

Hospital	Productivity	Efficiency			Service quality	Clinical care	Availability of resources			
	Bed Occupancy Rate (%)	Bed Turnover Rate	Discharge Rate (%)	Referral Out Rate (%)	LAMA & Absconding Rate (%)	Average Length of Stay (in days)	Doctors (%)	Nurses (%)	Essential Drugs (%)	Clinical Pathology Services (%)
DH Agra	49	5.0	77	3	19	3.0	107	236	64	45
DH Allahabad	89	3.8	67	6	25	5.8	88	64	71	59
DH Balrampur	51	2.1	65	11	21	1.7	63	50	46	58
DH Banda	89	1.9	29	22	46	2.1	56	64	73	86
DH Budaun	75	4.4	11	10	78	2.6	107	140	71	90
DH Gorakhpur	61	1.5	32	14	50	3.6	129	254	59	93
DH Lucknow	59	2.0	50	14	25	1.9	101	148	86	97
DH Saharanpur	103	5.3	36	21	37	2.0	59	85	80	59
DH-II Allahabad	95	3.9	81	6	11	5.6	115	91	79	48
JH Lucknow	118	10.7	77	4	19	2.4	154	310	54	79
Benchmark[67]	*80-100%*	*4.1*	*46%*	*14%*	*36%*	*2.6*	*100%*	*100%*	*68%*	*71%*

(Source: Test-checked hospitals

As seen from Table 23 above, every hospital- relative to the other test-checked DHs- underperformed on at least one outcome indicator, with the performance of DHs Banda, Budaun, Gorakhpur and Saharanpur being, in particular, below par. The details in this regard are as follows:

[66] PSS data not provided by DH-II Allahabad

[67] Benchmarks: BOR – as per IPHS, weighted average for rest of the outcome indicators with average annual IPD patients 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

– The combined LAMA & Absconding Rate was alarmingly high in DH Budaun at 78 *per cent*, indicating poor satisfaction with the service quality as experienced by the patients. However, the hospital had an excess availability of both doctors and nurses vis-à-vis their sanctioned strength which is a cause of concern and needs to be investigated further.

– DHs Banda and Saharanpur experienced high bed occupancy but had a high referral out rate of above 20 *per cent* and a low discharge rate of less than 40 *per cent*, indicating that these hospitals struggled to provide quality services.

– DH Gorakhpur had a poor discharge rate despite having an excess of human resources along with a low bed occupancy.

The Government stated that the ineffectual management of resources was due to lack of trained human resources and specialist doctors which could be overcome in the near future when new doctors and specialists join services in the State for which the State Government was opening new medical colleges in a phased manner. Also, the Government stated that the underperformance in DHs Gorakhpur and Budaun was most likely due to shortage of human resources.

The reply of the Government was not satisfactory as the DHs Gorakhpur and Budaun had human resources available in excess of the respective sanctioned strength. Furthermore, the monitoring of outcome indicators during 2013-18 by Director General, Medical and Health Services was restricted only to BOR and omitted other significant indicators pertaining to efficiency, service quality and clinical care capability of the hospitals, which was not in accordance with the NHM Assessor's Guidebook.

The Government needs to adopt an integrated approach, allocate resources in ways which are consistent with patient priorities and needs, improve the monitoring and functioning of the district hospitals towards facilitating a significant change in health outcomes at a high value for money.

***To sum up**, the audit scrutiny of IPD services revealed asymmetric distribution of human resources. Excess posting of doctors and para-medical staff in big cities like Lucknow and Agra needs to be reversed quickly, and a system put in place where such excessive postings/"deputations" (other than for emergency and for a specific period) are impossible at any level of authority. Further, there were significant shortage of drugs and equipment, deficiencies in OT services and substantial gaps in availability of accident and trauma services. Dietary support to patients varied from hospital to hospital, 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 arrangement in the test-checked hospitals. While poor maintenance of records in the CHCs constrained the evaluation of IPD services, the 10 test-checked hospitals were evaluated on six outcome indicators, with four hospitals – DHs Banda, Budaun, Gorakhpur and Saharanpur underperforming the most compared to the other hospitals.*

Chapter-5

Maternity Services

Chapter

5 Maternity Services

Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR)[68] are important indicators of the quality of maternity services available. National Family Health Survey (NFHS)-4 (2015-16) had reported that both MMR and IMR were higher for Uttar Pradesh as compared to the national average. The major causes of maternal deaths have been identified as Anaemia, Haemorrhage (both Ante and Post-Partum), Toxemia (Hypertension during pregnancy), Obstructed Labour, Puerperal Sepsis (Infections after delivery) and unsafe Abortions.

Antenatal care (ANC), Intra-partum care or delivery care (IPC) and Postnatal 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 the mother and newborn after delivery of the child especially during the 48 hours post-delivery, which are considered critical.

Norms for provisioning of various maternal health services and resources, *viz.*, human resources, drugs, consumables and equipment for different levels of hospitals and CHCs have been specified in Maternal and Neonatal Health Toolkit 2013 (MNH Toolkit) and Guidelines of *Janani Shishu Suraksha Karyakram* (JSSK), prescribed by the GoI for delivery of quality maternal health services. Separate norms for the CHCs which were upgraded to First Referral Units (FRU-CHCs) have also been prescribed to equip them for providing delivery of emergency obstetric care to pregnant women with complications.

However, scrutiny of records in the test-checked 10 DWHs/JHs[69] (hospitals) and 22 CHCs, including 10 FRU-CHCs[70], in the Performance Audit disclosed serious deficiencies in resource management and clinical efficiency, as discussed in the succeeding paragraphs:

5.1. Antenatal Care

ANC involves general and abdominal examination[71] and laboratory investigations to monitor pregnancies, management of complications, such as Reproductive Tract Infection (RTI)/Sexually Transmitted Infection (STI) and comprehensive abortion care.

[68] Maternal Mortality Rate (MMR) is the number of deaths per 100,000 live births due to maternal causes. Infant mortality rate (IMR) is the number of deaths of infants (under one year) per 1,000 live births.

[69] DWHs, JHs and CHCs provide maternity services.

[70] Kheragarh, Agra; Handia, Allahabad; Pachperwa, Balrampur; Campiarganj, Pali and Pipraich, Gorakhpur; Gosaiganj, Mall and Sarojini Nagar, Lucknow; Deoband, Saharanpur

[71] Weight measure, blood pressure, respiratory rate, check for pallor and oedema, abdominal palpation for foetal growth, foetal lie and auscultation of Foetal Heart Sound (FHS) *etc*.

5.1.1. ANC check-ups of pregnant women

ANC Guidelines stipulate that every pregnant woman should undergo general and abdominal examinations during each ANC visit. ANC check-ups of pregnant women are primarily conducted by Auxiliary Nurse Midwives (ANMs) and in case of any sign of complication, the pregnant women should be referred to CHC or FRU-CHC, according to the stages of pregnancy and complication, for treatment by the medical officer and gynaecologist respectively.

Audit, however, observed that against the provision of MNH Toolkit, in 09 FRU-CHCs[72] out of the 10 test-checked, a gynaecologist was not deployed during 20 to 100 *per cent* of the sampled period**.** This included three FRU-CHCs[73] where a gynaecologist was not deployed during the entire test-checked period. In the absence/intermittent availability of a gynaecologist at these FRU-CHCs, the pregnant women remained deprived from obtaining specialised ANC care. In view of the high percentage of pregnancy related complications, such as haemorrhage, hypertension or fits and unsafe abortions, ANC by specialist doctors had significance for correct diagnosis and appropriate treatment.

The Government (May 2019) replied that quality ANC services were the first priority of the Department, and measures such as walk in interviews for hiring of specialist doctors, adoption of Bid-Model selection process, *etc*., were being taken to address the problem of non-availability of gynaecologists at FRU-CHCs.

However, despite the efforts stated to have been made by the Government, the test-checked FRU-CHCs suffered due to suboptimal/ non-deployment of a gynaecologist who is the bed rock for delivering quality ANC services.

Pathological investigations

ANC Guidelines prescribe provision of services for conducting six pathological investigations at CHCs. These tests were to be prescribed, depending upon the condition of pregnancy during ANC visits at CHCs to identify pregnancy related complications.

Audit observed that only 06 CHCs out of the 22 test-checked had the facility for conducting all six prescribed pathological investigations but these were available intermittently[74] during 2013-18. Investigations which were not carried out in CHCs and their impact are summarised in **Table 24.**

[72] Gynaecologist was available at FRU-CHC, Handia, Allahabad during the sampled period
[73] Kheragarh, Agra, Pachperwa, Balrampur and Pali, Gorakhpur
[74] CHC: Kheragarh, Agra (60 *per cent*), Gaisandi, Balrampur (20 *per cent*), Pali, Gorakhpur (40 *per cent*), Gosaiganj, Lucknow (60 *per cent*) and Mall, Lucknow (60 *per cent*); figures in per cent shows percentage of test-checked period during which pathological investigation facility was not available.

Table 24: Investigations not carried out in CHCs (2013-18)

Name of pathological investigation	No. of CHCs in which facility was not available (test-checked 22)	Period (in *per cent*) during which facility not available	Possible impact
Blood group (including Rh factor) test	03	80 to 100 %	May lead to delay in blood transfusion in case of haemorrhage and improper management of Rh negative pregnancy.
VDRL[75]/RPR[76] test	09	20 to 100 %	Non-detection of Syphilis, which may lead to miscarriage, stillbirth and neo-natal deaths.
HIV[77] test	13	20 to 100 %	Non-detection of HIV status of mother during ANC may lead to transmission of infection to the foetus.
Rapid malaria test	11	40 to 100 %	May lead to maternal anaemia, foetal loss, premature delivery, intrauterine growth retardation, and delivery of low birth-weight infants.
Blood sugar test	06	20 to 100 %	Non-detection of gestational diabetes, which may lead to adverse pregnancy outcomes.
HBsAg[78] test	15	20 to 100 %	May lead to not providing prescribed vaccine to newborn within 7 hours of birth to save the life of newborn from hepatitis B infection

(Source: Test-checked CHCs)

Thus, pregnant women visiting CHCs for ANCs remained deprived of prompt diagnosis and evidence based treatment.

The Government replied that steps have been taken to conduct the prescribed pathological investigations in the CHCs. However, the situational analysis of poor availability of the facility of prescribed pathology investigations in a large number of test-checked CHCs put into question the effectiveness of the stated measures and underlined the need for high-level action with a sense of urgency to improve pathology services, which are pivotal to maternal and newborn health.

5.1.2. Management of RTI/STI

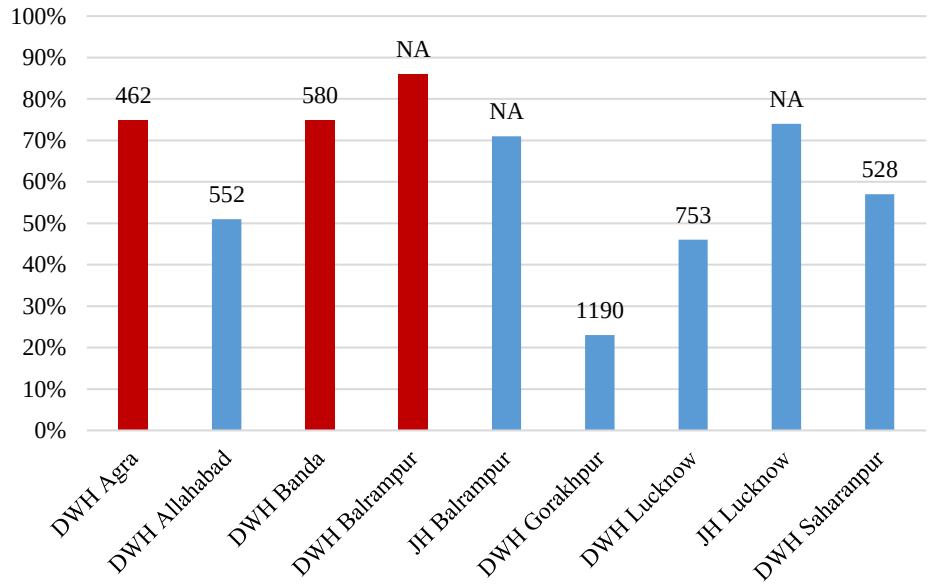
In the hospitals/CHCs, where VDRL/RPR investigation facilities were available to detect RTI/STI, there were shortages of drugs against the prescribed requirement of 13 types of drugs for the treatment of RTI/STI cases.

[75] Venereal Disease Research Laboratory
[76] Rapid Plasma Reagin
[77] Human Immuno deficiency Virus
[78] Hepatitis B Surface Antigen

Audit observed that 4,065 RTI patients were provided treatment during the sampled period in 09 hospitals[79] out of the 10 test-checked, wherein non-availability of RTI/STI drugs was as shown in **Chart 17.**

Chart 17: Shortage of RTI drugs (%) during sampled period

*Number above each column shows the no. of patients treated for RTI



(Source: Test-checked hospitals)

Further, in respect of CHCs, the highest shortages of prescribed drugs during the sampled period were noticed in Gaisandi, Balrampur (97 *per cent*), Nagal, Saharanpur (92 *per cent*), Pachperwa, Balrampur (86 *per cent*), Kheragarh, Agra (85 *per cent*), Kamasin, Banda (78 *per cent*), and Behat, Saharanpur (75 *per cent*). It was also noticed that during the sampled period, 768 patients were provided treatment for RTI in CHC Pipraich, Gorakhpur, while the average shortage of prescribed drugs was 18 *per cent*. The remaining CHCs did not maintain records of RTI/STI cases, due to which the number of patients who suffered for want of required RTI drugs could not be ascertained in audit.

Absence of essential drugs for the management of RTI/STI in the hospitals/CHCs was indicative of poor management of RTI cases, potentially having a serious impact over the pregnancy outcomes leading to miscarriage, stillbirths and neonatal deaths.

The State Government did not furnish a reply in this regard.

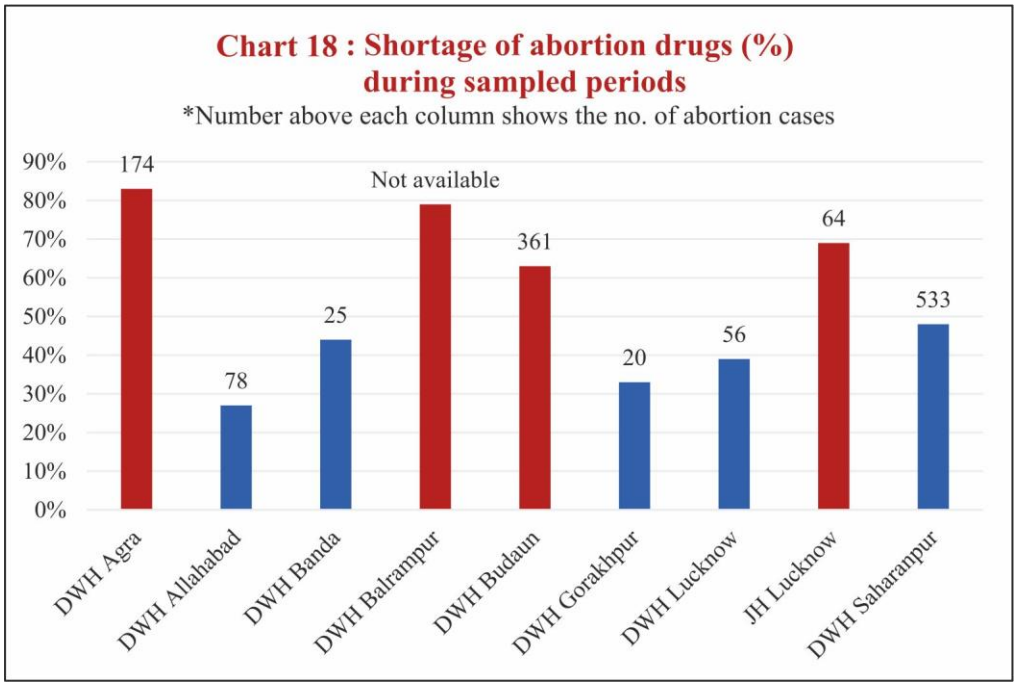
5.1.3. Comprehensive abortion care

Unsafe abortions due to pregnancy complications also contribute to maternal morbidity and mortality. MNH Toolkit prescribes the availability of Comprehensive Abortion Care (CAC) services at each hospital/CHC with

[79] DWH Budaun did not provide information.

deployment of MTP-trained[80] medical officer and availability of essential drugs.

Audit observed that out of the test-checked 10 hospitals and 22 CHCs, CAC facility was not available in JH Balrampur and 19 CHCs for want of medical officers having expertise in providing CAC. In 09 hospitals[81] and 03 CHCs where CAC facility was available, the full range of 15 essential drugs was not available, falling short by 07 to 71 *per cent* in the CHCs[82] and 27 to 83 *per cent* in the hospitals. Audit also observed that 03 CHCs did not maintain the records relating to the number of abortion cases dealt by them. In respect of hospitals, the details are given in **Chart 18.**



(Source: Test-checked hospitals)

Thus, non-availability of CAC services in the 19 test-checked CHCs indicated that access to this important maternity service was not available to the rural public. In respect of hospitals, as shown above, at least 1,311 abortions were done without full availability of essential drugs, implying that either the quality of CAC services was compromised or the patients were compelled to buy the required drugs from outside.

The State Government replied that CAC services were being improved by imparting the required training to the medical officers and efforts were being made to deploy medical officer of having expertise in CAC care to activate CAC services in CHCs and DWHs. Non-availability of CAC services in large number of CHCs (19 out of 22 test-checked), however, indicated the need for a more purposeful approach to ensure CAC services in all hospitals and CHCs.

[80] MTP – Medical Termination of Pregnancy
[81] CAC service was not available in JH Lucknow during May 2013 and November 2015.
[82] Kheragarh, Agra (71 *per cent*), Handia, Allahabad (07 *per cent*) and Deoband, Saharanpur (64 *per cent*)

5.2. Intra-partum care

Intra-partum Care (IPC) includes care of pregnant woman during intra-partum period (the time period spanning childbirth from the onset of labour). 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. Specific audit observations on IPC have been discussed in the succeeding paragraphs:

5.2.1. Availability of resources

MNH Toolkit prescribes 23 drugs, 20 consumables, 15 skilled personnel[83] and 28 equipment[84] for maternity services at CHCs, FRU-CHCs and hospitals. Details of shortages of these essential resources are summarised in **Table 25.**

Positive feature

Community Health Centres Mall, Lucknow and Nagal, Saharanpur had all prescribed seven types of human resources and 20 types of essential consumables respectively for maternity services.

Table 25: Availability of essential resources during 2013-18

Hospital/ CHC	Resources required (in number)	No. of hospitals/CHCs with *per cent* shortfall of					No. of test-checked hospitals not furnishing information
		No shortfall	1 to 25%	26 to 50%	51 to 75%	76 to 100%	
Human resources							
Hospitals	15	0	3	7	0	0	0
FRU-CHCs	15	0	0	5	5	0	0
CHCs	7	1	4	6	1	0	0
Drugs							
Hospitals	23	0	2	0	7	1	0
FRU-CHCs	23	0	0	8	2	0	0
CHCs	23	0	1	4	6	0	1
Consumables[85]							
Hospitals	20	0	6	3	0	0	1
FRU-CHCs	20	1	0	5	4	0	0
CHCs	20	0	3	7	2	0	0
Equipment							
Hospitals	28	0	2	5	3	0	0
FRU-CHCs	28	0	0	5	5	0	0
CHCs	21	0	1	10	0	0	1

(Source: Test-checked hospitals/CHCs)

[83] Seven categories of manpower for CHCs
[84] 21 types of equipment for CHCs
[85] Pertains to 2017-18 only

5.2.1.1. Essential drugs

Audit scrutiny revealed that average non-availability of essential drugs during the sampled period varied from 21 to 88 *per cent* in hospitals and 20 to 69 *per cent* in respect of CHCs. Major shortfalls (more than 50 *per cent*) were in DWHs- Agra, Allahabad, Balrampur, Banda, Budaun, Saharanpur and JHs Balrampur and Lucknow, and CHCs- Baroli Ahir, Jaitpur Kalan and Kheragarh in Agra, Naraini and Kamasin in Banda, Pali in Gorakhpur and Sahaswan and Samrer in Budaun.

Even the vital drugs for maternity care such as Ringer Lactate, Calcium Gluconate, Oxytocin and Misoprostol were out of stock in 04 to 10 hospitals and 09 to 20 CHCs during 20 to 100 *per cent* of the sampled period. It is pertinent to note that Oxytocin and Misoprostol are used as Uterotonic drugs during the process of labour for various indications to induce and/or augment uterine contractions and also to prevent and control postpartum haemorrhage, which is one of the major causes of maternal mortality. Further, Ringer Lactate solution is used for fluid replenishment after blood loss and Calcium Gluconate is used to treat conditions arising from calcium deficiency in pregnancy.

Thus, 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.

The Government replied that funds had been made available to all the concerned health facilities to ensure the availability of essential drugs including Uterotonic drugs as per their demands. Reply of the Government was flawed and glossed over the actual evidence which showed that none of the test-checked hospitals sent the details of consumption and demand of drugs, as was required in the Government Order of October 2006[86], to the DGMH for release of funds.

5.2.1.2. Essential consumables

Scrutiny of records revealed that the following essential consumables were not available: draw sheets (in 04 hospitals and 16 CHCs), cord clamps (in 03 CHCs), baby wrapping sheets (in 05 hospitals and 18 CHCs), Nasogastric tube (in 06 hospitals and 17 CHCs) and chromic catgut "0" (in 03 hospitals and 10 CHCs), which were required for delivery and other maternity services. This adversely impacted the achievement of the objective of providing a clean and safe environment for mother and newborn care in the labour room and wards.

The Government replied that funds were provided to all the districts both under State budget and NHM to ensure availability of all essential consumables. The Government reply was not convincing as none of the test-checked hospitals carried out a gap analysis and sent the demand for allotment of funds according to actual needs.

[86] As order of October 2006, the CMOs and CMSs were to send the details of consumption of drugs to DGMH on the basis of which DGMH was to allocate funds to them.

5.2.1.3 Essential human resources: Analysis of availability of essential human resources disclosed the following:

- Average non-availability of essential human resources required for the delivery of maternity services ranged between 13 and 47 *per cent* in hospitals, 35 and 64 *per cent* in FRU-CHCs, and 14 and 51 *per cent* in CHCs test-checked[87] during the sampled period.
- Major shortfalls were in DWHs Balrampur (44 *per cent*) and Banda (40 *per cent*), JH Balrampur (40 *per cent*), FRU-CHCs Pali, Gorakhpur (64 *per cent*), Kheragarh, Agra (60 *per cent*) and Pachperwa, Balrampur (59 *per cent*), CHCs Kamasin, Banda (51 *per cent*) and Samrer, Budaun (49 *per cent*).
- Gynaecologists for specialised maternity care were not deployed in JH Balrampur and DWH Banda during 20 to 80 *per cent* of the sampled period and in FRU-CHCs Kheragarh, Agra, Pachperwa, Balrampur, Campiarganj Pipraich and Pali, Gorakhpur, Gosaiganj, Sarojini Nagar and Mall, Lucknow and Deoband, Saharanpur during 20 to 100 *per cent* of the sampled period.
- ANMs, whose services are critical for the delivery of maternity services, were not deployed in CHCs Naraini, Banda; Samrer, Budaun and Behat, Saharanpur during the sampled period.
- Deployment of nurses in the test-checked 09 hospitals[88] to deal with delivery cases during the sampled period (2013-18) was as shown in **Table 26.**

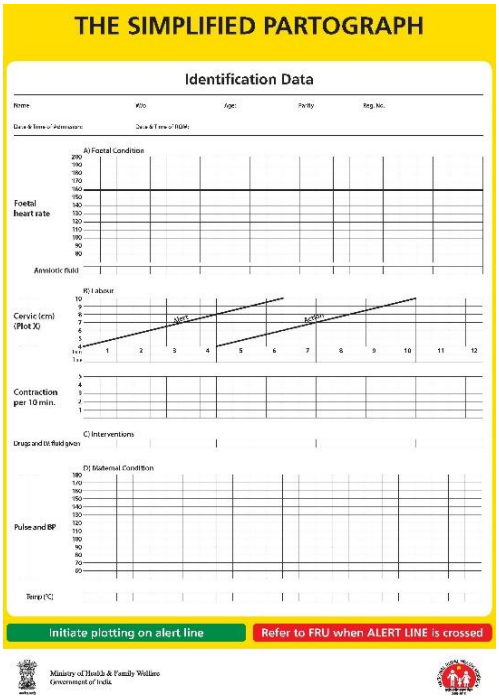
Table 26: Average no. of deliveries dealt by a nurse per shift per day

Hospital	Average number of deliveries dealt by a nurse per day		
	1st shift (8 am to 2 pm)	2nd shift (2 pm to 10 pm)	3rd shift (10 pm to 8 am)
DWH Agra	31	61	61
DWH Allahabad	3	6	6
DWH Balrampur	7	9	9
JH Balrampur	6	6	6
DWH Banda	16	16	16
DWH Gorakhpur	21	21	21
DWH Lucknow	15	35	34
JH Lucknow	7	9	9
DWH Saharanpur	12	12	41

(Source: Test-checked hospitals)

Thus, the situation was particularly grim in DWHs Agra and Lucknow. The corresponding figures for FRU-CHCs ranged between 03 (Sarojini Nagar, Lucknow) and 12 (Campiarganj, Gorakhpur) and in respect of the remaining CHCs[89], on an average a nurse cared for 04 (Behat, Saharanpur) to 15

[87] In CHC Nagal all types of prescribed human resources were available.
[88] DWH Budaun did not provide information.
[89] CHCs Asafpur, Sahaswan and Samrer of Budaun did not provide information.



(Naraini, Banda) delivery cases in a day. It was also observed that the ratio of nurses to delivery cases was higher in second and third shifts as compared to the first shift.

Shortage of key resources in the hospitals was indicative of lack of capability of the hospitals to manage the pregnancy related complications, ensure satisfactory newborn care and manage other maternal health emergencies.

Government replied that efforts were being made to augment the human resources by hiring medical and para-medical staff and/or by imparting special training to the existing staff. However, the stated efforts did not adequately improve the human resource availability with a consequential deficiency in many significant interventions related to maternity services in the hospitals and CHCs during 2013-18.

5.2.2. Clinical efficiency

5.2.2.1. Preparation of partographs

A partograph[90] enables the birth attendant to identify and manage the complication of labour promptly or to take a decision to refer the patient to a higher medical facility, if required for further management. Overall quality of care as provided by the health centres during labour is also monitored through the partograph.

Scrutiny of records, however, revealed that partographs were not plotted during 2013-18 in the 09 out of 10 hospitals and 18 out of 19 CHCs[91] test-checked. DWH Allahabad and CHC Campiarganj, Gorakhpur prepared the partographs partially during 2016-18. This compromised the ability of the hospitals to measure and seek improvement in the quality of service in the labour room to reduce the chances of adverse pregnancy outcomes.

The Government did not furnish a specific reply and stated that skilled birth attendants have been imparted training to make partographs.

The reply is not acceptable, as partographs were not being plotted in almost all the test-checked hospitals and CHCs.

[90] Partograph consists of a graphic representation of the process of labour to analyse cervix, uterine contraction and foetal presentation in relation to time.
[91] CHCs Baharia, Handia and Meja did not provide information.

5.2.2.2. Management of preterm labour

As per NHM Guidelines, babies born before completion of 34 weeks of pregnancy, termed as pre-term babies, have numerous challenges including difficulty in feeding, maintaining body temperature and increased susceptibility to infections also leading to neonatal deaths. The Guidelines also state that these complications can be largely prevented by administering injection of Corticosteroids (Betamethasone Phosphate/Dexamethasone)[92] to a woman as soon as she is diagnosed with preterm labour.

Scrutiny revealed that age of pregnancy (gestation period) at the time of delivery was not recorded in the labour room records in 36 *per cent* cases out of the total 35,515 delivery cases during the sampled period. Out of the remaining, 348 deliveries were recorded as pre-term deliveries, which needed administration of Corticosteroid injection. The injection, however, was not administered in 138 deliveries, while no records regarding administration of the injection were available for the remaining 210 pre-term deliveries, thus constraining audit examination as detailed in **Table 27.**

Table 27: Administering Corticosteroids in pre-term deliveries (2013-18)

Hospital/ CHC	No. of delivery cases test-checked	Deliveries in which age of pregnancy not recorded[93]	Pre-term delivery cases requiring Corticosteroids		
			No. of pre-term delivery cases	Deliveries not administered Corticosteroid	Deliveries with no documentation
Hospitals (10)	20,172	32%	282	30%	70%
CHCs (22)	15,343	42%	66	80%	20%
Total	35,515	36%	348	40%	60%

(Source: Test-checked hospitals/CHCs)

Further, out of the above mentioned 348 pre-term delivery cases, it was observed that Corticosteroid injections were not available in stock during 183 pre-term deliveries in hospitals and 50 pre-term deliveries in CHCs.

Thus, pre-term babies remained at risk of serious post-natal complications and neonatal deaths due to non-administration of Corticosteroid to the mothers.

The Government replied that instructions regarding the use of Corticosteroid injections had been issued to all concerned health units. However, the stated directions of the Government were not adhered to as in at least 36 *per cent* cases even gestation periods were not recorded and in 40 *per cent* of the remaining pre-term delivery cases, the required Corticosteroid injection was not administered to the mothers, putting the life of newborns at risk of serious post-natal complications.

5.2.3. Caesarean deliveries (C-section)

MNH Toolkit designates all FRU-CHCs and hospitals as the central facility for providing Caesarean (C-section) services with the provision of specialised human resources (gynaecologist/obstetrician and anaesthetist) and equipped

[92] Single course consisting of four doses of 4 mg each
[93] Including 3368 deliveries in which hospitals did not provide records

operation theatre to provide Emergency Obstetric Care (EmOC) to pregnant women. In this respect, *Janani Shishu Suraksha Karyakram*[94] (JSSK), entitles all pregnant women to C-section services with provision for free drugs, consumables, diagnostics *etc.*

Examination of records of the test-checked FRU-CHCs and hospitals disclosed that C-section services were either not available or stymied by shortages of essential resources wherever available. Specific audit findings are discussed in the succeeding paragraphs:

5.2.3.1. Inadequate access to C-section services

Audit ascertained the availability of C-section services in the test-checked 10 FRU-CHCs and 10 hospitals during the sampled period for 2013-18. It was noticed that in FRU-CHC Handia, Allahabad, C-section service was available for the entire sampled period, whereas in 04 FRU-CHCs[95] C-section services were available during 40 to 80 *per cent* of the sampled period. In the remaining 05 FRU-CHCs[96], C-section services remained absent. Intermittent/non-availability of C-section services in 09 FRU-CHCs was due to non-deployment of gynaecologist and/or anaesthetist. In respect of hospitals, C-section services were not available in DWH Banda and JH Balrampur during 20 and 80 *per cent* periods respectively for the reasons as stated above.

NHM Guidelines on "Engaging General Surgeons for Performing Caesarean Sections and Managing Obstetric Complications" state that around 8-10 *per cent* of total delivery cases require C-section. However, in respect of the 20,172 delivery cases test-checked in hospitals and 7,551 delivery cases in FRU-CHCs, Audit observed that the proportion of deliveries performed through C-section was much less in FRU-CHCs as compared to hospitals, as shown in **Charts 19 and 20.**

Chart 19: Deliveries in Hospitals

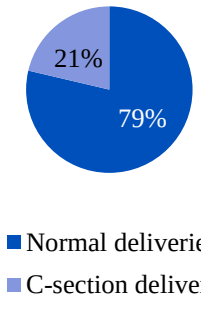
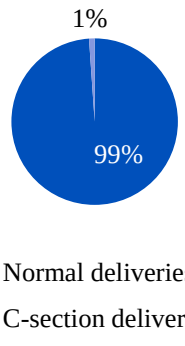


Chart 20: Deliveries in FRU-CHCs



(Source: Test-checked hospitals/CHCs)

[94] GoI-sponsored programme for maternal and child health care under NHM
[95] Pipraich, Gorakhpur (80 *per cent*), Mall (40 *per cent*) and Gosaiganj (40 *per cent*), Lucknow and Deoband, Saharanpur (60 *per cent*)
[96] Kheragarh, Agra; Pachperwa, Balrampur; Sarojini Nagar, Lucknow; Campiarganj and Pali, Gorakhpur

Further, JSSK Guidelines itemize 39 types of drugs and 26 types of consumables for performing C-section deliveries and these drugs and consumables are to be provided to pregnant women free of cost.

Audit, however, observed that all the 39 essential drugs were not available in the test-checked hospitals where C-section services were available. Major shortfalls were in DWHs Balrampur (67 *per cent*), Agra (56 *per cent*), Banda (54 *per cent*), Saharanpur (52 *per cent*), JH Balrampur (62 *per cent*) and JH Lucknow (58 *per cent*). In respect of FRU-CHCs, major shortfalls were noticed in Pipraich, Gorakhpur (67 *per cent*), Deoband, Saharanpur (50 *per cent*), and Mall, Lucknow (47 *per cent*).

Similarly, full range of 26 essential consumables for C-section was also not available in any of the test-checked hospitals[97] and CHCs. Major shortfalls were in DWHs Banda (52 *per cent*), Gorakhpur (46 *per cent*), JH Balrampur (37 *per cent*). In respect of FRU-CHCs, shortfalls in the availability of essential consumables ranged between 18 and 52 *per cent* during the sampled period.

Thus, intermittent/non-availability of C-section services in FRU-CHCs coupled with insufficient availability of resources put the pregnant women residing in rural areas at-risk of pregnancy complications, impelling them to go to DWHs for C-section, if required. Therefore, DWHs became over-burdened in the absence of adequate resources for catering to their usual footfall and additional patient load coming from CHCs. DWHs, however, were also not fully capable of providing quality C-section services in the absence of adequate resources.

The Government did not furnish a specific reply to the audit observations. It merely stated that required training related to surgeries to MBBS doctors was being imparted regularly by the State Institute of Health Family Welfare Training, Lucknow to overcome the shortage of trained doctors at FRUs. In respect of non-availability of essential drugs and consumables it stated that funds for the same were provided to the hospitals. The fact remains that there was a substantial gap in the front-line delivery of C-section services in most of the FRUs.

5.2.3.2. C-section medical records

NHM Assessor's Guidebook stipulates recording patient evaluation before surgery[98], use of surgical safety check-list[99] and writing of post-operative notes during surgery and post-operative monitoring[100] before transferring the patient to the ward. This provides assurance towards observance of all procedures and care required for surgeries of the requisite quality.

[97] DWHs Allahabad did not provide consumable stock register.

[98] Pre-surgery evaluation records of patients are made to ensure that the patient is in a fit state to undergo surgery and there is no adverse indication for the surgery.

[99] It is made before every surgery to ensure there are no errors during the surgery.

[100] Post-surgery evaluation records of patients are made to record and monitor patient's health after surgical procedure.

Audit examined 412 Bed Head Tickets (BHTs) of C-section surgery cases in the test-checked 09 hospitals[101] and 04 FRU-CHCs[102] where C-section services were available. Scrutiny disclosed that records of patient evaluation before surgery, use of surgical safety check-list and post-operative notes were available in only 02, 17 and 17 *per cent* BHTs, respectively. 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.

The Government replied that for proper documentation of pre and post-surgery procedures, comprehensive format of Bed Head Ticket had been provided to all units and the staff was being trained for filling the BHTs. The evidence, however, points to the fact that documentation of the process prescribed in the BHTs was negligible in most of the test-checked hospitals and CHCs.

5.3. Postnatal maternal and newborn care

Prompt postnatal care (PNC) is important for early detection and management of any post-delivery complications such as post-partum haemorrhage and eclampsia, which can lead to maternal death. MNH Toolkit specifies health check-ups of the mother and infant to be monitored and recorded in the PNC register. Audit observed the following:

- None of the CHCs and hospitals maintained the PNC register during the sampled period. Therefore, an assurance could not be derived in audit whether the prescribed post-partum health check-ups of the mother and newborn were carried out by the hospitals/CHCs test-checked; and
- Newborns are to be administered doses of four vaccines *viz.* OPV[103], BCG[104], Hepatitis 'B' and Vitamin 'K' on the day of birth. Test-check of labour room records in respect of 19,634 and 14,821 newborns in hospitals and CHCs respectively during 2013-18 revealed significant lapses in record keeping *vis-à-vis* immunisation, as detailed in **Charts 21 and 22.**

Chart 21: Administration of vaccines to newborns in hospitals (%)

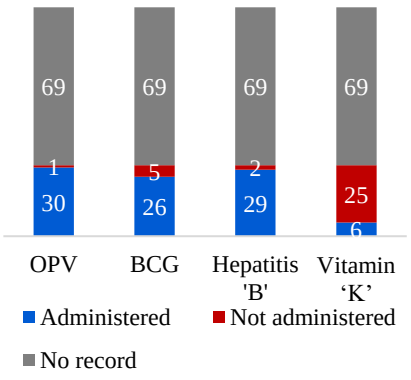
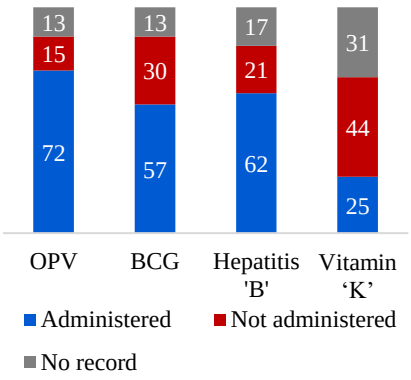


Chart 22: Administration of vaccines to newborns in CHCs (%)



(Source: Test-checked hospitals/CHCs)

[101] DWH Budaun did not provide BHTs.
[102] FRU-CHC Handia did not provide BHTs.
[103] Oral Poliovirus Vaccine
[104] Bacillus Calmette–Guérin (BCG) vaccine, used against tuberculosis

The substantial gap in documentary evidence regarding the immunisation status of newborns compromised the ability of the hospital/CHC to monitor neonatal health.

The Government replied that instructions had been issued to all districts to keep a vaccine carrier daily in the labour room with the requisite vaccines to provide new born vaccination within 24 hours.

However, the lack of critical documentation in respect of the immunisation status of newborns needs to be seriously addressed by the Government and accountability ensured, in view of its ramifications for the vulnerability of infants and the achievement of a reduction in their mortality rate.

5.4. Pregnancy outcomes

With a view to gauge the quality of maternity care provided by the hospitals, Audit test-checked the pregnancy outcomes in terms of live births, stillbirths[105] and neonatal deaths pertaining to 2013-18, as discussed below:

5.4.1. Stillbirths

The stillbirth rate is a key indicator of quality of care during pregnancy and childbirth. Stillbirth and/or intrauterine foetal death is an unfavourable pregnancy outcome and is defined as complete expulsion or extraction of the baby from its mother with no signs of life. As per NFHS-4 (2015-16), the average stillbirth rate of Uttar Pradesh was 1.63 per 100 pregnancy outcomes.

Audit observed that stillbirth rate was between 2.0 and 2.4 *per cent* in the test-checked hospitals and CHCs, as given in **Table 28.**

Table 28: Stillbirths during 2013-18

Hospital/CHC	Total no. of deliveries	Total no. of live births	Stillbirths	Outcomes not recorded
Hospital	20,172	19,634 (97.3%)	475 (2.4%)	0.3%[106]
CHC	15,343	14,821 (96.6%)	308 (2.0%)	1.4%[107]
Total	35,515	34,455 (97.0%)	783 (2.2%)	0.8%

(Source: Test-checked hospitals/CHCs)

High stillbirth rates were observed in DWHs Balrampur (6.9 *per cent*), Saharanpur (4.0 *per cent*), Banda (2.5 *per cent*) and JH Balrampur (3.6 *per cent*). Similarly, out of the 22 test-checked CHCs, 13 CHCs had stillbirth rates above the State average rate of 1.63 *per cent*. CHCs Handia and Meja, Allahabad; Gaisandi, Balrampur; Kamasin and Naraini, Banda; Asafpur, Sahaswan and Samrer, Budaun were amongst the poor performers with average stillbirth rates being above 2.0 during 2013-18. DWH in Balrampur district, which was identified as "High Priority District" in 2015 by GoI on the basis of poor health outcomes, fared the worst in terms of stillbirth rate. The reasons for stillbirths were, however, not available on record.

[105] Mismanaged ANC and delivery process convert a normal delivery into stillbirth.
[106] DWH Budaun did not record delivery outcome in respect of 13 deliveries during February 2017.
[107] CHCs Handia and Baharia did not record delivery outcome in the delivery register.

High stillbirth rates were a sign of badly managed antenatal care and delivery process in the test-checked hospitals/CHCs.

The Government replied that emphasis was being laid on early registration of pregnant women and to conduct all four prescribed ANCs through which high risk pregnancies could be identified. Government further replied that the required measures to reduce the risk of still births were being taken through implementation of specific programmes such as *Pradhan Mantri Surakshit Matratva Abhiyan, Anaemia mukt Bharat Abhiyan, Janani Suraksha Yojana, etc*. However, the fact remains that high stillbirth rate in the test-checked hospitals and CHCs was indicative of poor implementation of these schemes/programmes.

5.4.2. 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 in none of the test-checked CHCs[108], cases of neonatal deaths were recorded in the prescribed labour room register during 2013-18. In 04 out of the test-checked 10 hospitals, 143 neonatal deaths[109] occurred during the sampled period.

Lack of documentation relating to neonatal deaths compromised the ability to seek continuous quality improvement towards neonatal health, impacting neonatal morbidity and mortality.

The Government replied that to gauge the status of stillbirth and neonatal deaths, periodic reports were being obtained from the concerned units. However, scrutiny in audit revealed that the test-checked CHCs were not in a position to report neonatal deaths since they were negligent in maintaining the required records. It underlines the need for concerted efforts towards ensuring the provision of reliable information and actionable feedback *vis-à-vis* neonatal health.

5.5. Outcomes *vis-à-vis* availability of resources

The relative performance of the test-checked DWHs[110] on certain outcome indicators evaluated by audit (***Appendix-VI***) and the corresponding availability of resources was as shown in **Table 29.**

[108] Except CHC Pachperwa, Balrampur where one neonatal death was recorded in May 2017
[109] DWH Banda (11), DWH Budaun (13), DWH Lucknow (72) and DWH Saharanpur (47)
[110] Due to non-maintenance of bed head tickets in DWH Budaun, outcome indicators could not be evaluated.

Table 29: Outcomes *vis-à-vis* availability of resources in DWHs

DWH	Productivity	Efficiency	Clinical care	Service quality	C-section Rate (%)	Availability of resources		
	Bed Occupancy Rate (%)	Discharge Rate (%)	Average Length of Stay (days)	LAMA & Absconding Rate (%)		Human resources[111] (%)	Drugs (%)	Equipment (%)
Agra	98	96	2.4	4	14	69	13	69
Allahabad	94	58	4.7	36	34	80	46	81
Balrampur	114	83	1.2	12	10	56	30	26
Banda	94	14	1.1	82	0	60	44	46
Gorakhpur	57	2	2.4	95	20	61	78	33
Lucknow	97	78	2.5	21	25	87	79	64
Saharanpur	129	86	2.6	13	30	73	41	55
Benchmark[112]	*80-100%*	*67%*	*2.6*	*31%*	*21%*	*69%*	*47%*	*53%*

(Source: Test-checked hospitals)

As seen from above, DWHs Allahabad, Banda and Gorakhpur underperformed the most compared to the other test-checked hospitals, as discussed below:

– DWH Allahabad performed poorly on outcome indicators despite higher than average availability of human resources and equipment compared to the other DWHs, indicating ineffectual management.

– DWH Gorakhpur had the highest combined Leave against Medical Advice (LAMA) & Absconding Rate (95 *per cent*), indicating poor service quality despite the lowest bed occupancy (57 *per cent*).

– In DWH Banda, the combined LAMA & Absconding Rate was at a very high level of 82 *per cent* while the ALoS was the lowest at just more than a day, indicating unsatisfactory clinical care of patients. Pertinently, this hospital was dealing with normal deliveries only; thus, obstetric care level expected of a DWH was not available here.

The Government did not furnish a reply to the audit observation.

To sum up, *varying levels of deficiencies were observed in early identification and management of complications during pregnancy, child birth and the post-partum period. Capability to provide adequate ante-natal care was especially lacking in CHCs including FRUs, with substantial shortage of human resources and investigation facilities. Provision of intra-partum care also suffered from lack of vital drugs and equipment, more so in CHCs. Management of complications during delivery in both hospitals and CHCs showed ad hocism as partographs were not prepared, while DWH Banda and FRU-CHCs did not provide even C-section delivery services. In respect of post-natal care, inadequate documentation of the processes impaired the ability of the hospitals/CHCs to monitor the health of mothers and newborns, potentially impacting maternal and infant mortality rates.*

[111] Refers to percentage of availability out of the 15 categories of skilled personnel as per MNH Toolkit

[112] Benchmarks: BOR – as per IPHS, weighted average for rest of the outcome indicators with average annual IPD patients as the respective weight for each hospital while weight for percent C-Section deliveries was average number of deliveries, and simple mean for availability of human resources, drugs and equipment

Chapter-6

Infection Control

Chapter

6 Infection Control

Infection control practices are important in maintaining a safe environment for both patients and staff in the hospitals by reducing the risk of potential spread of hospital associated infections. This chapter discusses audit findings in respect of various aspects of infection control, as shown in **Figure 5.**

Figure 5: Aspects of infection control

6.1. Standard Operating Procedures

To prevent hospital acquired infections in patients, visitors and staff, it is required under NHM Assessor's Guidebooks for DHs and CHCs to frame a schedule of procedure to be followed by the health care facilities known as Standard Operating Procedures (SOPs). Audit observed that while SOPs for infection control were only available in DH-II Allahabad and DWH Agra out of test-checked hospitals during 2013-16, the situation improved significantly during 2016-18 as shown in **Table 30**.

Positive feature

The improvement in availability of Standard Operating Procedures, documentation pertaining to infection control and formation of Hospital Infection Control Committee coincided with the assignment of Hospital Managers in the test-checked hospitals.

Table 30: Availability of SOPs for infection control

Year	Availability of SOPs in hospitals (Out of 19 hospitals test-checked)		Availability of SOPs in CHCs (out of 22 CHCs test-checked)
	Available	Not Available	
2013-14	2	17	Not available in any of the test-checked CHCs
2014-15	2	17	
2015-16	2	17	
2016-17	9	10	
2017-18	11	08	

(Source: Test-checked hospitals/CHCs)

Non-availability of SOPs resulted in lack of structural response to issues of hygiene and infection control especially in case of CHCs, as discussed in the succeeding paragraphs.

The Government stated (May 2019) that guidelines for preparation of SOPs for infection control had been issued and effective action on these had been started during 2018-19.

Checklist for hygiene and infection control

NHM Assessor's Guidebook requires that for cleaning and disinfection of patient care areas, standard practices be followed through maintenance of a checklist for hygiene and infection control in each hospital. Also, Infection Control Policies are needed to be framed, practiced and monitored by the Hospital Infection Control Committee (HICC). The role of the HICC is to implement the infection control programme and policies.

The availability of a checklist for hygiene and infection control and Infection Control Committee in the test-checked hospitals was as shown in **Table 31.**

Table 31: Availability of checklist for infection control and HICC

Year	Availability of checklist for hygiene and infection control in test-checked hospitals (Out of 19 hospitals)	Presence of Hospital Infection Control Committee in the test-checked hospitals (Out of 19 hospitals)
2013-14	0	0
2014-15	0	0
2015-16	1	2
2016-17	5	8
2017-18	6	10

(Source: Test-checked hospitals)

In all the test-checked CHCs neither was the checklist maintained nor the HICC formed during 2013-18. In the absence of these, Audit could not derive an assurance whether the required processes of hygiene and infection control were followed in the concerned test-checked hospitals/CHCs.

The Government replied that necessary instructions would be issued to the hospitals in this respect.

Pest and rodent control

Controlling spread of infection through rodents and pests in the hospitals is an important component of infection control practices as per NHM Assessor's Guidebook. The availability of the records of pest and rodent control in the test-checked hospitals was as shown in **Table 32.**

Table 32: Availability of records of pest and rodent control

Year	Records in hospitals (Out of 19 hospitals test-checked)		Records in CHCs (Out of 22 CHCs test-checked)	
	Pest control	Rodent control	Pest control	Rodent control
2013-14	01	01	01	01
2014-15	01	01	02	01
2015-16	03	03	02	01
2016-17	06	06	03	02
2017-18	11	08	03	02

(Source: Test-checked hospitals/CHCs)

In the absence of records, Audit could not derive an assurance whether pest and rodent control practices were actually followed in the concerned test-checked hospitals/CHCs.

However, the Government in reply did not provide details of the actual implementation of pest and rodent control practices and merely stated that orders would be issued for maintaining the records of pest and rodent control in each hospital.

It was noticed in audit that the improvement in availability of documentation pertaining to infection control and formation of Hospital Infection Control Committee in certain test-checked hospitals during 2016-18, coincided with the assignment of Hospital Managers. Hence, the standardisation of infection control processes would be the key driver for effectively minimizing hospital acquired infections and creating a culture of infection control in the public hospitals.

Presence of animals in hospital premises

As per GoUP Order (2011), the hospital authorities should prevent animals from entering the premises of the hospitals to control infection among the patients and hospital staff. Audit, however, noticed several instances of presence of stray dogs and other stray animals in the premises of the test-checked hospitals as depicted below:

	
Stray animals in the compound of DH Budaun (17.10.2018)	Stray dogs in ward area of DH Lucknow (30.10.2018)

Thus, hospital authorities did not take sufficient steps to tackle the menace of stray animals in the hospital premises, putting the patients, their attendants and the hospital staff at risk of animal attacks and also potential infections.

In response, the Government stated that cow catchers had been installed and fencing of the hospitals has been done to prevent entry of animals.

The reply of the Government is not satisfactory since the actual evidence is illustrative of the presence of animals in the premises of hospitals, and underlines the need for more effective interventions towards reducing harm to patients and staff from contracting infections.

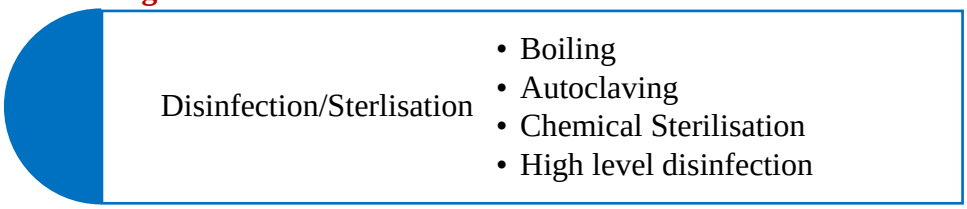
6.2. Disinfection and sterilisation

As per Hospital Infection Control Guidelines of the ICMR[113], disinfection and sterilisation help prevent the build-up of bacteria/viruses, *etc*. on the medical

[113] ICMR - Indian Council of Medical Research.

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 DHs and CHCs.

Figure 6: Various methods of disinfection and sterilisation



Positive feature

DH-II Allahabad, DH Lucknow, DWHs Allahabad, Lucknow and JH Lucknow had all prescribed types of sterlisation procedures.

Generally, critical instruments/equipment (those penetrating skin or mucous membrane) should undergo sterilisation before and after use, *e.g.* surgical instruments. Semi-critical instruments/ equipment (those which come in contact with the intact mucous membrane without penetration) should undergo high level disinfection before use and intermediate level disinfection after use, *e.g.* endotracheal tubes. Availability of the methods of disinfection and sterilisation in the test-checked hospitals was as shown in **Table 33.**

Table 33: Availability of disinfection and sterilisation procedures

Hospital	Boiling	Chemical Sterilisation	Autoclaving	High level disinfection (HLD)
DH Agra	Yes	No	Yes	No
DWH Agra	Yes	Yes	Yes	No
DH Allahabad	Yes	Yes	Yes	No
DWH Allahabad	Yes	Yes	Yes	Yes
DH-II Allahabad	Yes	Yes	Yes	Yes
DH Budaun	Yes	Yes	Yes	No
DWH Budaun	Yes	Yes	Yes	No
DH Balrampur	Yes	Yes	Yes	No
DWH Balrampur	Yes	Yes	Yes	No
JH Balrampur	Yes	Yes	Yes	No
DH Banda	Yes	No	Yes	No
DWH Banda	Yes	No	Yes	No
DH Gorakhpur	Yes	No	Yes	No
DWH Gorakhpur	Yes	No	Yes	No
DH Lucknow	Yes	Yes	Yes	Yes
DWH Lucknow	Yes	Yes	Yes	Yes
JH Lucknow	Yes	Yes	Yes	Yes
DH Saharanpur	Yes	Yes	Yes	No
DWH Saharanpur	Yes	Yes	Yes	No

(Source: Test-checked hospitals for 2017-18)

6.2.1. Boiling and autoclaving

Boiling for 10-15 minutes kills bacteria but not viruses and spores. It is used for sterilisation of syringes, needles, bowls, trays and metallic instruments *etc*. On the other hand, in autoclaving, at 15 lbs pressure for 45 minutes on 121˚C kills even spores and viruses[114]. It is used for blunt metallic instruments, rubber and glass articles, linen and bandages and non-absorbable suture material.

Audit observed that sterilisation through boiling was available in all the test-checked hospitals. Autoclaving was also available in all the test-checked hospitals/CHCs, except in four CHCs – Baharia and Meja of Allahabad and Gaisandi and Pachperwa of Balrampur. The non-availability of autoclaving in these four CHCs increased chances of the spread of various types of infections as only boiling alone of the instruments like bowls, trays and other metallic instruments cannot kill the spores and viruses.

The Government replied that necessary instructions would be issued to the hospitals for the use of proper methods of disinfection and sterilisation and suitable action would be taken for non-compliance.

6.2.1.1. Maintenance of autoclave machine

As per IPHS, there should be an Annual Maintenance Contract (AMC) for all equipment which need special care and preventive maintenance to avoid breakdown and reduce downtime of such equipment.

Audit observed that AMC for autoclave machine was not done in any of the 22 test-checked CHCs and out of the 19 test-checked hospitals, only DH Lucknow during 2013-18, DH-II Allahabad during 2014-18 and JH Lucknow in 2017-18 had the requisite AMC. In the absence of AMC for equipment like autoclave *etc*. in the test-checked hospitals, Audit could not derive an assurance regarding preventive maintenance of sterilisation equipment. Pertinently, Audit observed that in DWH Banda and CHC Baharia and Meja, Allahabad, autoclave machine was non-functional for want of repair.

The Government stated that necessary instructions would be issued for the regular maintenance of sterilisation equipment.

6.2.1.2. Validation of autoclaving process

NHM Assessor's Guidebook requires that biological indicators should be used in all the hospitals to prevent insecticide toxicity due to interactions with the membrane. Such biological indicators are a tool to validate the steam-based sterilisation process in autoclave machine.

Audit observed that this indicator was used only in DWH Allahabad during 2013-18. Non-use of this indicator in any other test-checked hospital resulted in non-validation of the sterilisation process using autoclave machine.

[114] As per the provisions laid down in Manual of Laboratory Techniques, National Institute of Communicable diseases, Directorate General of Health Services, GoI

The Government replied that after examining the issue necessary direction would be issued to the concerned hospitals.

6.2.1.3. Records of sterilisation using autoclave

Audit observed the following discrepancies in the maintenance of records of sterilisation using autoclaves as detailed in **Table 34.**

Table 34: Availability of records of sterilisation using autoclave

Name of the record	Availability of records (Out of 19 hospitals)					Impact of non-maintenance of records
	2013-14	2014-15	2015-16	2016-17	2017-18	
Log for records of date of sterilisation	2	3	4	4	8	Periodicity of sterilisation could not be ascertained
Log for records of date of return of equipment after sterilisation	1	2	3	3	6	As above
Records of number of instruments received per pack	1	1	2	2	3	Weakness in monitoring of the requisite equipment
Records of number of instruments sterilised per pack	1	1	2	2	4	As above

(Source: Test-checked hospitals)

Thus, non-maintenance of the requisite records not only indicated weakness in monitoring of sterilised equipment/instruments but also periodicity of the re-sterilisation of the equipment/instruments could not be ascertained in audit.

The Government replied that necessary directions would be issued to the districts in this respect.

6.2.2. Chemical sterilisation

As per NHM Assessor's Guidebook, chemical sterilisation is needed for instruments like ambu-bag, suction canulae and surgical instruments by soaking in 0.5% chlorine solution, wiping with 0.5% chlorine solution or 70% alcohol, as applicable.

Audit observed that the chemical sterilisation method was available in only 14 out of the 19 test-checked hospitals and 13 out of the 22 test-checked CHCs, putting patients at risk of acquiring secondary infections in the rest of the 05 hospitals and 09 CHCs.

The Government replied that necessary instructions would be issued to the respective hospitals and suitable action would be taken in cases of non-compliance.

6.2.3. High level disinfection

As per Hospital Infection Control Guidelines of the ICMR, 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.

While HLD process was available in 05 out of the 19 test-checked hospitals, in none of the 22 test-checked CHCs this disinfection method was used. Since 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 laryngoscope blades and respiratory therapy equipment, HLD process is required to be available in every hospital/CHC.

The Government replied that necessary instructions would be issued to the respective hospitals and suitable action would be taken in cases of non-compliance.

6.3. Cleaning services

6.3.1. Standard operating procedure for housekeeping

As per IPHS, to provide a clean environment to patients, visitors and staff it is required to frame a Standard Operating Procedure (SOP) for housekeeping, by which hospital authorities would ensure the cleanliness of the hospital premises. Audit observed that SOPs for housekeeping were not available in most of the test-checked hospitals as detailed in **Table 35.**

Table 35: Availability of SOPs for housekeeping

Year	Availability of SOPs (Out of 19 hospitals)	Availability of SOPs in test-checked CHCs (Out of 22 CHCs)
2013-14	01	Not available in any test-checked CHCs during 2013-18.
2014-15	02	
2015-16	02	
2016-17	05	
2017-18	08	

(Source: Test-checked hospitals/CHCs)

The improvement in availability of SOPs in hospitals during 2016-18 coincided with the availability of Hospital Managers.

The Government stated that SOPs had been prepared and implemented since 2018-19.

6.3.2. Hygiene practices

NHM Assessor's Guidebook prescribes that the hospital must have a system to take air and surface samples for microbiological survey to check for infections.

Audit scrutiny of the records of test-checked hospitals for 2013-18 revealed that only DH Banda had prepared the report of microbiological survey in critical care areas (OT, Paediatric ward) for 2017-18. Apart from this, no reports of any surface/air/hand swab tests were prepared in any of the test-checked hospitals during 2013-18. Thus, Audit could not derive an assurance regarding effectiveness of cleaning of surfaces and hands hygiene of hospital staff in the test-checked hospitals.

The Government replied that after examining the issue necessary directions would be issued in this respect.

6.3.3. Outsourcing of cleaning services

NHM Assessor's Guidebook requires that the hospitals should ensure decontamination of functional areas. Audit observed that out of the 19 test-checked hospitals, cleaning services were outsourced to private vendors/firms in 16 hospitals during 2017-18. Audit noticed the following discrepancies in cleaning services in the test-checked hospitals:

- Proper cleaning of operation theatres within the health facility was not done in DWH Balrampur and Budaun.

- Adequate cleaning of toilets was not done in DWH Balrampur, DH and DWH Budaun and DWH Gorakhpur.

- In eight hospitals, the contracts executed with the outsourced firms did not specify the disinfectants/detergents that were to be used for cleaning of floors, table tops, beds, *etc*.

- In 10 hospitals, records of consumables used for cleaning were not available.

- To prevent infections among patients, it is necessary to clean the total area of the hospital. Audit observed that in DH Lucknow during the period 2014-18, the covered area contracted for cleaning ranged between 56 *per cent* and 66 *per cent* of the total area of the hospital required to be cleaned, as some areas were being cleaned by regular staff of hospital. Audit, however, observed that cleaning was not done regularly in the new OPD block, nursing schools, *etc*.

The Government replied that orders would be issued to each hospital in this regard to provide an infection free environment to patients and suitable action would be taken in cases of non-compliance.

6.4. Laundry services

6.4.1. Availability of linen

IPHS prescribe the number of different types of linen[115] that are required for patient care services for hospitals with 101 beds and more.

In 10 test-checked hospitals[116], Audit observed shortage of different types of linen such as bedspreads, hospital worker OT coats, pediatric mattress, table cloths, *etc*. The shortage ranged between 13 and 19 against the requirement of 21 different types of linen during 2017-18 as shown in **Chart 23.**

[115] Abdominal sheets for OT, Bed sheets, Bedspreads, Blankets (Red and Blue), Doctor's overcoats, Draw sheets, Hospital worker OT coats, Leggings, Macintosh 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, Pillow cover and Table cloth

[116] Out of the test-checked 19 hospitals, only 13 hospitals had bed strength of 101 or more beds. DWH Allahabad did not provide information, while DHs Allahabad and Budaun gave incomplete information.

(Source: Test-checked hospitals)

Further, DHs Allahabad and Budaun, which provided incomplete information, had at least 12 types of linen which were available in short quantity, while in DH Budaun at least two types of linen were not available at all.

Table 36 shows the types of linen not available at all in the test-checked hospitals during 2017-18:

Table 36: Linen items not available at all during 2017-18

Hospital	Linen items
DH Agra	Bedspreads, Hospital worker OT coats, Patients house coats (for female), Patients pyjamas (for male) and shirts, Over-shoe pairs, Mattresses (foam), Paediatric mattresses, Abdominal sheets for OT, Perennial sheets for OT, Leggings, Mortuary sheets and Mats (Nylon).
DH Banda	Bedspreads, Leggings, Mats (Nylon), Mortuary sheets, Over-shoe pairs, Paediatric Mattresses, Patients house coats (for female), Patients pyjamas (for male) and shirts, Perennial sheets for OT and Table cloth.
DH Gorakhpur	Bedspreads, Hospital worker OT coats, Mackintosh sheets, Mats (Nylon), Mortuary sheets, Over-shoe pairs, Paediatric mattresses, Patients house coats (for female), Patna towels, Perennial sheets for OT, Pillows and Table cloth.
DH Lucknow	Bedspreads, Leggings, Hospital worker OT coats, Paediatric mattresses, Perennial sheets for OT, Mats (Nylon), Mortuary sheets and Table cloth.
DH Saharanpur	Bedspreads, Leggings, Hospital worker OT coats, Paediatric mattresses, Perennial sheets for OT, Mats (Nylon), Mortuary sheets, Table cloth and Over-shoe pairs.
DH-II Allahabad	Bedspreads, Doctor's overcoats, Leggings, Mackintosh sheets, Mats (Nylon), Mortuary sheets, Over-shoe pairs and Perennial sheets for OT.
DWH Agra	Bedspreads, Doctor's overcoats, Hospital worker OT coats, Leggings, Mats (Nylon), Mortuary sheets, Over-shoe pairs, Paediatric mattresses, Patients pyjamas (for male) and shirts, Perennial sheets for OT and Table cloth.
DWH Gorakhpur	Bedspreads, Hospital worker OT coats, Over-shoe pairs, Patients pyjamas (for male) and shirts, Patna towels and Table cloth
DWH Lucknow	Bedspreads, Hospital worker OT coats, Mortuary sheets and Table cloth.
DWH Saharanpur	Bedspreads, Leggings, Mats (Nylon), Mortuary sheets, Over-shoe pairs, Paediatric mattresses, Patients pyjamas (for male) and shirts, Pillows and Table cloth.

(Source: Test-checked hospitals)

On the other hand, it was also observed that in 09 hospitals[117] bed sheets were available in excess by 12.50 *per cent* to 321.55 *per cent* and in 10 hospitals[118] blankets were in excess by 52 *per cent* to 1100 *per cent*, indicating that these hospitals were procuring bed sheets and blankets in excess while ignoring the requirements of other types of linen.

The Government replied that after examining the matter, necessary directions would be issued in this respect.

6.4.2. Deficiencies in laundry services

As per the State Government Order (2011), a hospital should provide clean and hygienic linen to patients for preventing infection among patients and hospital staff. Audit scrutiny of laundry services in the 19 test-checked hospitals and 22 CHCs revealed the deficiencies as detailed in **Table 37**:

Table 37: Deficiencies in laundry services in hospitals and CHCs

Particulars	2013-14		2014-15		2015-16		2016-17		2017-18	
	DHs	CHCs	DHs	CHCs	DHs	CHCs	DHs	CHCs	DHs	CHCs
Bed sheets not changed on daily basis (with colour code)	12	15	12	15	11	15	9	14	5	12
Daily collection of soiled linen not done[119]	11	16	11	16	11	16	10	16	6	16
Daily delivery of cleaned linen not done[120]	12	16	12	16	12	16	11	16	5	16
Registers of maintenance of linen not available[121]	14	16	14	16	14	16	14	17	11	17
Records of quantity of linen received from laundry not available[122]	11	13	11	13	11	13	10	13	5	13

(Source: Test-checked hospitals/CHCs)

As evident from Table 37, in 05 to 12 hospitals and in 12 to 15 CHCs, bed sheets were not changed on daily basis and in 06 to 11 DHs and in 16 CHCs, daily collection of soiled linen was not done during 2013-18. Thus, the patients were not provided hygienic and clean bed linen in these hospitals, exposing them to the risk of further infection.

[117] DHs - Allahabad (02), Banda, Gorakhpur, Lucknow, Saharanpur and DWHs - Agra, Lucknow, Saharanpur
[118] DHs - Agra, Allahabad (DH-II), Banda, Budaun, Gorakhpur, Lucknow, Saharanpur and DWHs - Agra, Lucknow, Saharanpur
[119] DH Agra for 2013-17 and CHCs - Baroli Ahir and Kheragarh Agra and CHC Pipraich, Gorakhpur did not provide information for 2013-18.
[120] DH Agra for 2013-17 and CHCs - Baroli Ahir and Kheragarh Agra and CHC Pipraich, Gorakhpur did not provide information for 2013-18.
[121] DH and DWH, Agra for 2013-17 and CHCs - Baroli Ahir and Kheragarh Agra and CHC Pipraich, Gorakhpur did not provide information for 2013-18.
[122] DH Agra, CHCs - Baroli Ahir and Kheragarh Agra and CHC Pipraich, Gorakhpur did not provide information for 2013-18.

The Government replied that after examining the matter necessary direction would be issued.

6.4.3. Washing of linen

As per the IPHS, laundry facility should be available in the hospitals to provide well washed and infection free linen to patients. Audit observed that washing of linen was outsourced in 14 test-checked hospitals and seven CHCs.

As per the agreement with the outsourced service providers, washing equipment such as washing machines, hydro extractor and drying tumbler were required to be established in the hospital laundry for providing infection-free washing of linen. In this regard, only 08 hospitals provided information relating to washing equipment maintained by service provider, which revealed the following:

- In six hospitals (DH and DWH Agra, DH Banda, DWH Lucknow, DH and DWH Saharanpur), shortage of washing machines ranged between one-third to two-thirds of the requirement.
- In four hospitals (DH and DWH Agra, DH Banda, DWH Lucknow), shortage of hydro extractors ranged between 33 and 50 *per cent* and in three hospitals (DH-II Allahabad, DH and DWH Saharanpur), they were not available.
- In six hospitals (DH and DWH Agra, DH Banda, DWH Lucknow, DH and DWH Saharanpur), shortage of drying tumblers ranged between one-third and two-thirds of the requirement.

Thus, proper facilities for infection-free washing of linen were not made available by the service providers in the test-checked hospitals.

Further, the agreement provided that the linen should be separated in different coloured bags and transported in covered trolleys from wards to the laundry and preliminary disinfection should be done. After washing, the laundry should be ironed and kept in almirah/racks in the laundry room, from where it would be sent back to wards packed in paper envelops. Audit observed the following discrepancies in the 14 test-checked hospitals in the washing of linen through outsourcing:

- In two hospitals[123], pre- treatment of the soiled linen (contaminated with blood and body fluids) before separating them in colored bags was not done.
- In 11 hospitals, coloured bags were not available to separate the dirty and soiled linen in the wards.
- Covered trolleys were not available to carry the linen from wards to the laundry in 11 hospitals.
- Ironed linen was not packed in paper envelops in 10 hospitals.

[123] Two test-checked hospitals did not provide the information in this regard.

- Almirahs and racks were not available in the laundry to keep the washed linen in seven hospitals.

Thus, lack of pre-treatment of soiled linen and non-availability of coloured bags and covered trolleys to separate and carry the dirty linen from wards to the laundry, increased chances for spread of infection in the hospitals.

The Government replied that after examining the matter, necessary directions would be issued to the concerned hospitals.

6.4.4. Individual discrepancies noticed in washing of linen

During joint physical inspection of wards in DH Budaun, Audit observed that the washed bed sheets were dirty despite the fact that washing of linen was outsourced, as depicted in the photograph.

Dirty bed sheet used in General ward of DH Budaun (17.10.2018)

Further, Audit observed that linen items of CHC Mall, Lucknow[124] were washed in unhygienic conditions, as depicted below:

Unhygienic washing and drying of linen items of CHC Mall, Lucknow (17.11.2018)

Washing and drying of dirty linen items in unhygienic conditions increased chances of spread of infection among the patients. Additionally, cleaning linen items in the flowing rivers and water bodies has the potential to spread infection to the community using the same water for drinking, cooking and bathing.

The Government replied that after examining the matter, necessary directions would be issued in this respect.

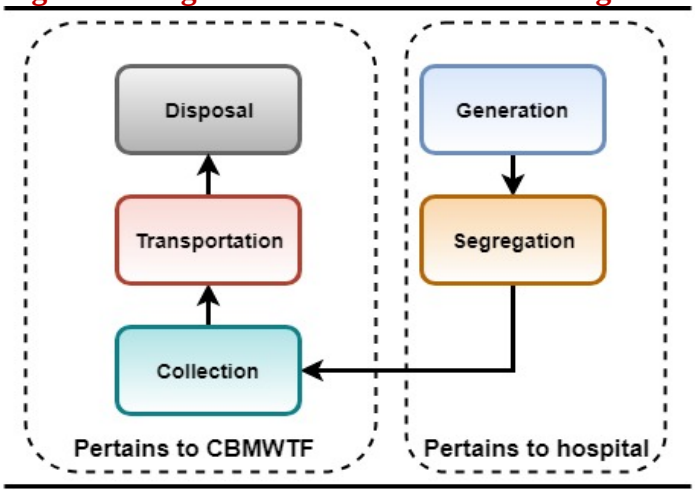
6.5. Bio-medical waste management

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. The GoI framed Bio-Medical Waste (Management and Handling) Rules, 1998 under Environment (Protection) Act, 1986, which were superseded by Bio-Medical Waste Management Rules, 2016 (BMW Rules). The BMW Rules *inter alia* stipulate the procedures for collection, handling, transportation, disposal and

[124] Washing of linen was not outsourced in CHCs in Lucknow.

monitoring of the BM waste with clear roles for waste generators and CBMWTF[125].

Figure 7: Stages of bio-medical waste management



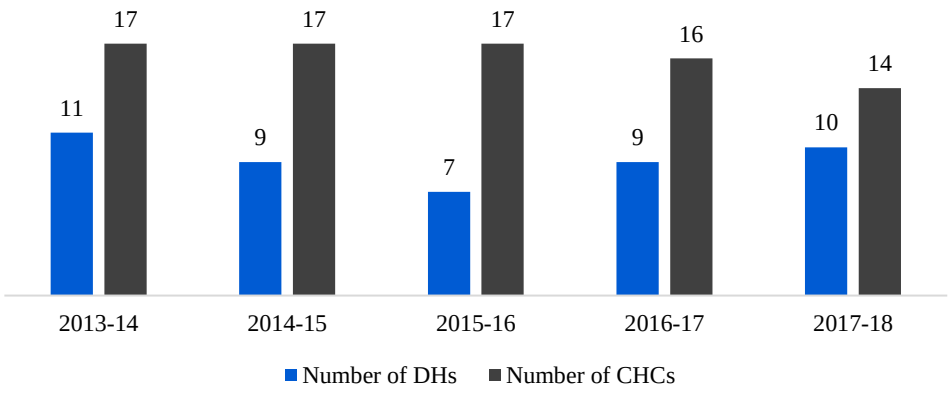
6.5.1. Generation of bio-medical waste

6.5.1.1. Authorisation for generating bio-medical waste

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

Scrutiny of the records of the test-checked hospitals[126] revealed that requisite authorisation from SPCB was not available in the majority of the hospitals as shown in **Chart 24**

Chart 24: Hospitals/CHCs lacking authorisation to generate bio-medical waste



(Source: Test-checked hospitals/CHCs)

[125] CBMWTF – Common Bio-Medical Waste Treatment Facilitator

[126] Out of the test-checked 19 hospitals, five hospitals for 2013-15 and two hospitals for 2015-18 did not provide information. Out of the test-checked 22 CHCs, 05 CHCs (Baharia, Handia, Meja of Allahabad and Campiarganj and Pipraich of Gorakhpur) did not provide information for 2013-18.

Further, it was observed that some of the test-checked hospitals had authorisation for only a part of the year, as given in **Table 38.**

Table 38: Partial authorisation for generating bio-medical waste

Year	No. of test-checked hospitals which had partial authorisation	Range of days for which authorisation was available during the year
2013-14	3	39 to 250
2014-15	5	73 to 293
2015-16	7	44 to 275
2016-17	5	71 to 275
2017-18	7	08 to 253

(Source: Test-checked hospitals/CHCs)

Audit further observed that the annual information related to the generation and disposal of waste as required in the BMW Rules was also not sent to SPCB, as detailed in **Table 39**.

Table 39: Non-submission of annual report to SPCB

Year	Number of hospitals not submitting annual report to SPCB[127]	Number of CHCs not submitting annual report to SPCB[128]
2013-14	14	17
2014-15	14	17
2015-16	16	17
2016-17[129]	15	16
2017-18[130]	12	16

(Source: Test-checked hospitals/CHCs)

Table 39 indicates that the DHs/CHCs were not sending the requisite information to the SPCB in contravention of the BMW rules, leading to poor monitoring of the disposal of bio-medical waste in these hospitals.

The Government did not respond regarding non-compliance with the requirements of obtaining authorisation from SPCB regarding the generation of bio-medical waste in the hospitals, but stated that all DHs and CHCs had submitted their annual reports related to the generation and disposal of waste.

The reply was not acceptable as 12 DHs and 16 CHCs had not submitted the annual reports to SPCB during 2017-18.

6.5.2. Segregation of bio-medical waste

The BMW Rules require hospitals to segregate different categories of BM waste in separate coloured bins at the source of generation. The waste is to be stored in appropriate colour coded bags at the point of generation and

[127] Out of the test-checked 19 hospitals, the information was not provided by five hospitals for 2013-15 and three hospitals for 2015-18.
[128] Out of the test-checked 22 CHCs, five CHCs (Baharia, Handia, Meja of Allahabad and Campiarganj and Pipraich of Gorakhpur) did not provide the information for 2013-18.
[129] JH Lucknow sent the information to SPCB in 2016-17, while CHC Gosaiganj, Lucknow sent the information to SPCB during 2016-18.
[130] Four hospitals (JH, DWH Lucknow and DH, DWH Saharanpur) sent the information to SPCB in 2017-18.

collected by the Common Bio-Medical Waste Treatment Facilitator (CBMWTF).

Audit observed that the segregation of BM waste was done in all the 19 test-checked hospitals and 15 out of the 22 test-checked CHCs[131] in 2017-18 as compared to only 16 hospitals and 10 CHCs in 2013-14.

The Government replied that three checklists have been developed for segregation of bio-medical waste at the generation point but did not clarify the reasons for non-segregation of bio-medical waste in 07 CHCs during 2017-18.

Further, in respect of liquid chemical waste generated in health care facilities, BMW Rules mandate segregation of the waste at source and its pre-treatment or neutralisation prior to mixing with other effluent generated from health care facilities.

Audit observed that in none of the test-checked hospitals an Effluent Treatment Plant (ETPs) was established for pre-treatment of the liquid chemical waste, resulting in drainage of the waste directly into the sewerage system. This was not only a violation of the BMW Rules but also hazardous to public health at large.

The Government replied that 50 DHs have been selected for establishing the ETPs in the first phase.

6.5.3. Collection of bio-medical waste

As per BMW Rules, CBMWTF is responsible for collection and proper disposal of BM waste from the hospitals.

Audit observed that CBMWTF did not collect BM waste throughout the year in 2013-14 in DWH Banda and in 2014-15 in DH and DWH Budaun and DWH Banda. In case of CHCs, BM waste was not collected throughout the year in all the test-checked CHCs of Agra (Baroli Ahir, Jaitpur Kalan and Kheragarh) during 2013-15 as well as CHCs of Budaun (Asafpur, Sahaswan and Samrer) during 2013-16. Further, CBMWTF did not collect BM waste on daily basis in the test-checked hospitals[132] as detailed in **Table 40.**

Table 40: Non-collection of bio-medical waste on daily basis

Year	Number of hospitals and CHCs in which BM waste was not collected on daily basis	Range of days for which BM waste was not collected
2013-14	7	56 to 221
2014-15	7	52 to 249
2015-16	11	58 to 312
2016-17	14	19 to 351
2017-18	13	52 to 275

(Source: Test-checked hospitals/CHCs)

[131] Segregation not done in CHCs – Baroli Ahir, Jaitpur Kalan and Kheragarh in Agra; Baharia and Handia in Allahabad; Asafpur and Samrer in Budaun

[132] Out of the 19 test-checked hospitals, the information was not provided by six DHs for 2013-16 and four DHs for 2016-18. Further, out of the test-checked 22 CHCs, 11 CHCs did not provide the information for 2013-14, nine CHCs not provided information for 2014-17 and eight CHCs for 2017-18.

As seen from above, the collection of BM waste on daily basis saw a worsening trend with the number of such hospitals and CHCs almost doubling in 2017-18 as compared to 2013-14. The non-collection of the BM waste on daily basis violated the BMW Rules and also was a health hazard for the patients and staff in the concerned hospitals.

The Government stated that steps for safe and secure collection of bio-medical waste had been taken. Government further stated that the issue would be examined and necessary directions would be issued.

The fact remains that the serious shortfall in the daily collection of bio-medical waste was indicative of the need for stringent and continuous monitoring of BM waste practices.

6.5.4. Training for management of bio-medical waste

As per the BMW Rules, it is the responsibility of the health care facilities to ensure that all the staff are provided regular training on BM waste handling.

Audit, however, observed that no such training was provided in any of the test-checked CHCs during 2013-18 and in case of hospitals, training was provided only in JH Balrampur (2014-18), DWH Lucknow (2015-18), DWH Allahabad (2016-18), DWH Banda (2016-18) and DH Lucknow (2016-18). This lack of training increased the occupational hazard for the concerned staff in the test-checked hospitals.

The Government stated that training for handling BM waste had been conducted for hospital managers, quality managers, nodal officers and matrons of all DHs.

The reply was not acceptable as training was not provided in 14 test-checked DHs and all the test-checked CHCs.

To sum up, *the test-checked hospitals and CHCs lacked an environment of infection control. The non-availability of even SOPs/checklists for hygiene and infection control in most of the hospitals and all CHCs was indicative of indifference towards the need for instilling infection control practices. Sterilisation and disinfection in the hospitals and CHCs was mostly limited to boiling and autoclaving. Alarmingly, four CHCs did not even have the autoclaving available, while a significant number of hospitals and CHCs lacked chemical sterilisation and high level disinfection facility. Cleaning and laundry services, despite outsourcing, were not of a satisfactory level in several hospitals, signaling lack of oversight on the part of the hospital administration. Similarly, bio-medical waste management was inadequate. While segregation of bio-medical waste was being done in a majority of the test-checked hospitals and CHCs, the collection of the waste on daily basis saw a worsening trend during 2013-18.*

Chapter-7

Drug Management

Chapter 7

Drug Management

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

Audit observations on various components of drug management- availability of drugs, their storage, dispensation to patients and procurement in the hospitals and CHCs are discussed in the succeeding paragraphs:

7.1. Availability of essential drugs

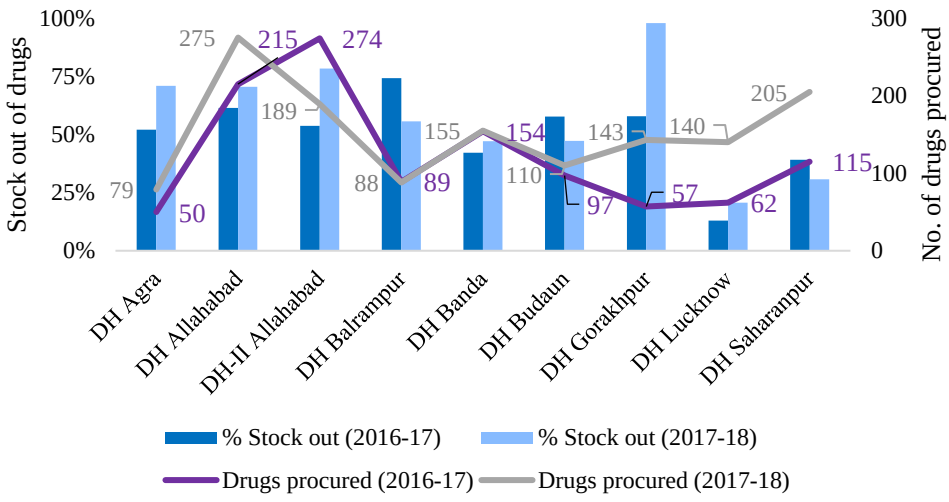
The Department has prepared an Essential Drug List (EDL) prescribing 498 drugs for CHCs and 809 and 859 drugs for the DHs[133] and DWHs/JHs respectively. Procedures for release of funds to the districts for procurement of drugs have also been put in place (October 2006) by the Department, according to which the DGMH is to obtain demands from the CMOs and CMSs based on the pattern of consumption of drugs (drug formulary) during the previous year. Accordingly, the DGMH releases funds to the CMOs and CMSs for procurement so as to ensure unbroken availability of all essential drugs in the hospitals.

Audit, however, observed that CMOs and CMSs in none of the sampled eight districts assessed the requirement of drugs as per EDL and no demands were sent to the DGMH for allotment of funds accordingly. The DGMH also did not monitor the receipt of such demands from the CMOs/CMSs. Therefore, the rationale of allocation of funds to the hospitals by the DGMH could not be ascertained.

Further, the CMOs and CMSs procured only a portion of the drugs under the EDL, ranging between 06 and 34 *per cent*, 03 and 24 *per cent*, 07 and 42 *per cent* in the test-checked DHs, DWHs/JHs and CHCs respectively during 2016-18. Also, the drugs which were procured, were inadequate in quantity due to which several of them remained out of stock for more than 30 days in a year during 2016-18 as shown in **Chart 25.**

[133] 1036 drugs for DH Lucknow

Chart 25: Drugs procured and stock out (%) in DHs



(Source: Test-checked hospitals)

Thus, the number of drugs bought in different test-checked DHs varied significantly and also were substantially less than the number of drugs required to be procured as per EDL. Further, stock out of at least 30 days during 2017-18 was observed for more than 50 *per cent* of the drugs procured in DH Agra, DH Allahabad, DH-II Allahabad, DH Balrampur and DH Gorakhpur.

Similarly, availability of drugs and stock out in DWHs/JHs/CHCs was as given in **Table 41.**

Table 41: Availability of drugs in the test-checked hospitals

Parameters	DWHs/JHs (test-checked: 10)		CHCs (test-checked: 22)	
	2016-17	2017-18	2016-17	2017-18
Number of drugs in EDL	859	859	498	498
Number of drugs not available (*per cent*)	660-835 (77-97)	652-826 (76-96)	350-460 (70-92)	289-464 (58-93)
Stock out of procured drugs				
Number of drugs not available for one to two months	1-24	1-27	1-20	1-18
Number of drugs not available for two to four months	5-36	2-38	3-25	1-22
Number of drugs not available for more than four months	8-47	11-69	2-78	11-92

(Source: Test-checked hospitals/CHCs)

It was also observed that the CMOs and CMSs did not prepare formulary on the basis of disease patterns and inflow of patients in the hospitals to support the selective procurement of drugs by them.

Due to non-procurement of full range of drugs as per EDL, even the vital drugs for IPD, OT, ICU, emergency and maternity services were not available in the hospitals to deliver the assured health services as discussed in Chapters 4 and 5.

The Government replied (May 2019) that drugs were selected by the hospitals as per the need of patients visiting the hospitals. It added that budget was allotted to the hospitals on the basis of demands raised by these hospitals and also in quest of the Government policy of distribution of free medicines to the patients.

The reply of the Government, however, was not acceptable because CMOs and CMSs in none of the test-checked districts/hospitals assessed the requirement of drugs as per EDL and sent the demands for allotment of funds to DGMH accordingly. The weak supply chains for essential medicines also potentially exposed patients to financial hardships and diminished public trust in the health system.

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. The norms and parameters prescribed in the said Rules were, however, not adhered to as observed in audit of the test-checked hospitals as detailed in **Table 42**.

Table 42: Deficiencies in storage of drugs

Sl. No.	Parameters	Hospitals having deficiency (Test-checked: 19)	CHCs having deficiency (Test-checked: 22)	Probable impact of not adhering to parameter
1	Air-conditioned pharmacy	14	22	Loss of efficacy and shelf life of drugs
2	Labeled shelves/racks	5	9	High turnover time in the disbursement of drugs
3	Away from water and heat	0	0	Loss of efficacy and shelf life of drugs
4	Drugs stored above the floor	0	3	-do-
5	Drugs stored away from walls	1	4	-do-
6	24-hour temperature recording of cold storage area	10	8	-do-
7	Display instructions for storage of vaccines	10	7	-do-
8	Functional temperature monitoring device in freezers	1	0	-do-
9	Maintenance of temperature chart of deep freezers	9	5	-do-
10	Drugs kept under lock and key	0	2	Misuse of costly drugs
11	Poisons kept in a locked cupboard	1	2	Unauthorised access to the dangerous drugs
12	Expired drugs stored separately	7	11	Mixing of expired drugs with usable drugs

(Source: Test-checked hospitals/CHCs)

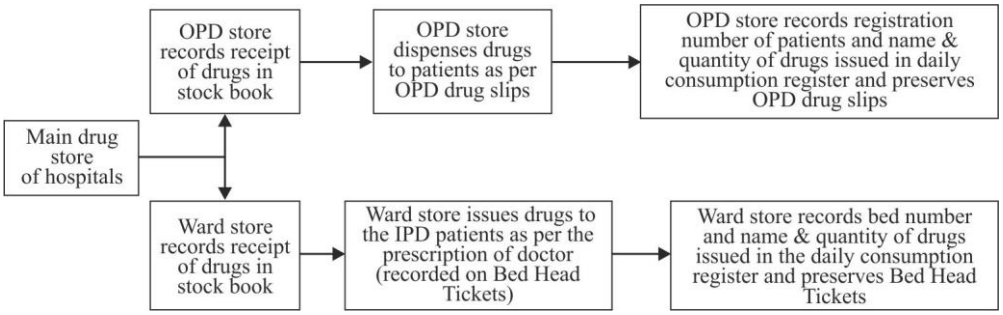
It is evident from above that several major deficiencies were present in the system of drug storage in the test-checked hospitals and CHCs; thus, the efficacy of drugs distributed to the patients could not be assured.

The Government replied that drugs, which were procured during 2013-18 by the head of the institutions, were stored by using available resources. The matter was also discussed in the Exit Conference wherein the Government responded that the deficiencies, noticed by audit in respect of the storage of drugs, would be examined and necessary corrective action taken.

7.3. Dispensing of drugs to the patients

Financial Rules, GoUP stipulate that all items received in or issued from Stores should be entered in the stock account on the dates the transactions take place.

Figure 8: Process of dispensing of drugs in a hospital



Audit observed serious discrepancies in the documentation and evidencing in respect of receipt and distribution of drugs in/from Stores, as detailed in **Table 43.**

Table 43: Documentation related to dispensing of drugs

Sl. No.	Description of records	No. of hospitals (test-checked-19) having no documentation	No. of CHCs (test-checked-22) having no documentation
1.	Section/ward-wise drug stock book	05	21
2.	Records of daily distribution	03	14
3.	OPD drug slips[134]	05	22

(Source: Test-checked hospitals/CHCs)

It is evident from the details given in Table 43 that:

- In the absence of section/ward-wise stock register, the receipt of drugs from the central drug store was not verifiable in 05 out of the 19 test-checked hospitals and 21 of the test-checked CHCs.
- Three out of the 19 test-checked hospitals and 14 out of the 22 test-checked CHCs did not record the patient-wise distribution of drugs from OPD, while 05 out of the 19 hospitals and none of the test-checked CHCs kept the OPD drug slips. Consequently, the distribution of drugs to the

[134] OPD drugs slip contains the list of drugs prescribed by the doctor along with quantity, to be dispensed to the OPD patients by the hospital pharmacy.

patients from OPD *vis-à-vis* prescriptions could not be verified in audit in the concerned hospitals/CHCs. Thus, pilferage of drugs could not be ruled out.

The Government replied that daily consumption register is maintained at the central drug store of the hospital. The reply was not tenable as daily consumption registers maintained at central drug store did not record the patient-wise dispensing of drugs, which was to be maintained at ward/section level.

In respect of non-maintenance of OPD drugs slips in the OPD store, the Government stated that drugs were issued to the patients on the basis of the prescription slips. It added that since prescription slips were retained by the patients after obtaining drugs from the store, the dispensing of drugs *vis-à-vis* prescription slips was not verifiable.

Urgent attention, therefore, requires to be given to strengthening the mechanism in this regard so as to effectively close the gap between the drugs prescribed and their actual issuance to the patients.

7.4. Grievance redressal of patients

The Drug Purchase Policy of June 2012 did not prescribe a mechanism to redress grievances related to free drug supplies to the patients and to recommend action to be undertaken within a stipulated time period. Due to this, the hospitals did not put in place a system of obtaining grievances of patients in respect of distribution of drugs. Besides, as discussed in paragraph 4.9.4.3 only two DHs (DH-II Allahabad and Lucknow) conducted patient satisfaction surveys for in-patient services during the period 2016-18, out of the 11 test-checked DHs, which included responses related to drug availability.

The Government replied that a complaint box was available in the hospitals to receive the grievances of the public. However, none of the test-checked hospitals and CHCs except for DH Agra and JH Lucknow had a system to put the grievances on record and monitor action taken.

7.5. Drug procurement management process

The Department promulgated a revised Drug Purchase Policy (DPP)[135] in June 2012 containing drug purchase procedures. Besides, the Department also issued administrative orders from time to time to regulate procurement processes.

As per DPP, the DGMH is the central procurement authority at the State level for ensuring supply of essential drugs in the hospitals at the district-level and below. The DGMH has the mandate to prepare the list of essential drugs and to conclude Rate Contracts[136] (RCs) with the manufacturing firms for

[135] No-835/five-1-2012-3(14)/04 dated 14 June 2012
[136] Rate Contracts standardise procurement prices of drugs

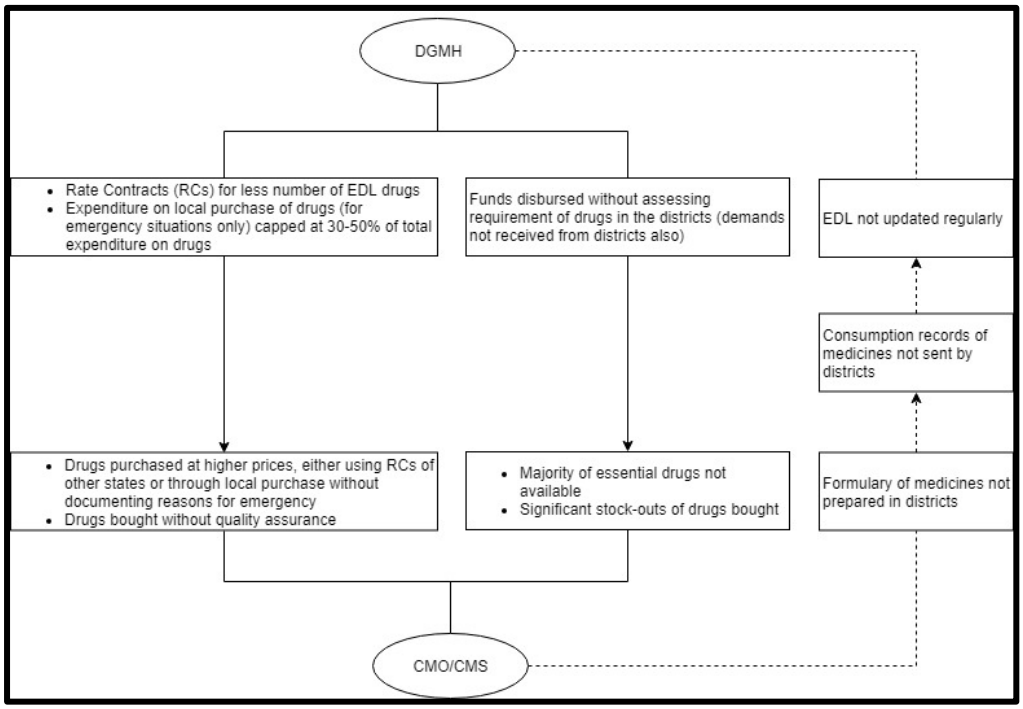
uninterrupted supply of drugs. CMOs and CMSs are to issue supply orders/indents to the contracted firms for supply of drugs as per requirement.

It is also prescribed that a drug, in respect of which RC of the Department is not available, could be procured from the firms contracted by Government of India (DGS&D/ESIC[137]) or other State Governments for supply of drugs in their respective States. Further, as per DPP, if RC is not framed for a drug and procurement is warranted in an emergency situation, the same could be procured from local vendors. A financial ceiling of 30 to 50 *per cent* of the total fund allotment has also been prescribed for CMSs of district hospitals in respect of procurement of drugs through local purchase. However, no such delegation is prescribed for CMOs.

Further, the Department prescribed an online portal 'Drug Procurement and Inventory Control System' in 2015-16 for issue of online indent of drugs to the suppliers. Subsequently, an IT-enabled Drugs and Vaccines Distribution Management System (DVDMS) with the modules for assessment of requirement of the hospitals, preparation of demand, issue of indent to suppliers, receipt of drugs, distribution of drugs to the patients, stock management, and quality control was implemented in 2017-18. However, only one module, *i.e.* online issue of indent to suppliers (under RCs), was in operation as of March 2018. Hence, the critical issues of supply chain management of drugs remained unattended.

Audit observed that the drug procurement process was marred with systemic problems as well as non-adherence to the stipulated procedures, as shown **Figure 9.**

Figure 9: Dysfunctional system of drug procurement



[137] Directorate General of Supplies and Disposals and Employees State Insurance Corporation

Major audit findings in respect of drug procurement are discussed below:

7.5.1. Inadequate coverage of drugs under RCs

The purpose of RC is to procure drugs at a fixed rate over a period of time while minimizing the order processing and inventory carrying costs. As a first step, the Drug Review Committee at the DGMH level has to collect consumption details of drugs from the hospitals and CMOs to ascertain the specifications and required quantity of drugs to be supplied to the districts. The DGMH is required to complete the process of RC for the next financial year in respect of all drugs by the end of the current financial year.

Audit, however, observed that coverage of drugs with RC was dismal because the DGMH concluded RCs in respect of only 08 to 36 *per cent* of the drugs in EDL (1036 drugs) during 2013-18, as shown in **Table 44.**

Table 44: Rate contracts in force during 2013-18

Year	Total no. of drugs in EDL	Number of NITs[138]	Number of drugs included in NITs	Number of drugs covered under RCs *(per cent)*	Shortfall *(per cent)*
2013-14	1036	Data not available		119	917 *(89)*
2014-15	1036	06	446	371	665 *(64)*
2015-16	1036	14	1032	333	703 *(68)*
2016-17	1036	23	958	83	953 *(92)*
2017-18	1036	36	1020	187	849 *(82)*

(Source: O/o DGMH)

Despite repeated requests, the DGMH did not make available the records in respect of technical and financial bidding and other related records, due to which reasons for execution of rate contracts for lesser number of drugs as compared to EDL could not be analysed. However, Audit test-checked 16 Notice Inviting Tenders (NITs) pertaining to 2013-18 and observed that none of the NITs were forwarded to Drug Manufacturing Associations (DMAs) and Drug Controllers of all States as was required in the DPP. Besides, in four cases, only 12 to 28 days were given to submit the NITs as against the minimum requirement of 30 days, thus depriving the prospective bidders of enough time to respond.

Thus, RCs for only 83 drugs (2016-17) to 371 drugs (2014-15) could be concluded during 2013-18 as depicted in **Table 44**.

The Government stated that due to many reasons, possibility of delay was expected. In respect of forwarding the NITs to drug manufacturing associations and drug controllers of all States as envisaged in DPP, it did not furnish a specific reply and stated that NITs were uploaded on the website through NIC[139] and stipulated rules were followed for the advertisement of tender process. Government further contended that desired documents and files related to rate contract were made available to Audit for evidence.

[138] NIT – Notice Inviting Tender
[139] National Informatics Centre

The reply is not acceptable, as despite request up to Principal Secretary, the records in respect of technical and financial bidding related to execution of rate contract were not provided to audit. Further, DGMH failed to adhere to the laid down provision of providing minimum 30 days to submit the bid in response to the NIT. As a result of low level of circulation of NITs and less time given to submit the bids, prospective bidders could not be drawn to participate in the bidding which ultimately led to a low coverage of drugs with RCs.

7.5.2. Capacity of bidder not analysed

DPP provides that while executing the RC, production capacity of manufacturing firms during the last three years is to be assessed.

Scrutiny of records, however, revealed that in all the 79 NITs issued during 2014-18 by DGMH, neither the details of capacity of the bidders were ascertained nor the quantity of drugs to be supplied by the bidders was mentioned. In the absence of these vital parameters, production capacity of the firms was not evaluated. Audit observed that in several cases, the contracted firms failed to supply the drugs to the districts, as discussed in paragraph 7.5.4. This was symptomatic of the distortion of the bidding process and its inability to effectively weed out firms that did not have the requisite production capacity.

The Government replied that certificate on the desired turnover and production capacity issued from the drug controller was obtained from the bidders along with the bids. The reply of the Government was not acceptable as in the 16 NITs, test-checked in audit, certificate regarding the production capacity of the bidders was not available on record. In respect of holding back mention of the quantity of drugs to be supplied by the bidders in the NITs, the Government did not furnish a reply.

7.5.3. Irregular procurement of drugs through local purchase

DPP stipulates that if drugs are not available in any RC and procurement is warranted in an emergency situation, the same could be procured from local vendors within the financial delegation of the indenting officer. To ascertain benchmark prices for local purchases (GoUP Order, 2000), CMOs and CMSs are to obtain wholesale rates from at least five manufacturing firms. The local purchases are to be made based on these benchmark prices.

Audit, however, observed that out of the total expenditure of ₹ 424.81 crore incurred on the procurement of drugs during 2013-18 in the sampled districts, drugs worth ₹ 133.02 crore (31 *per cent*) were procured by CMOs (number: 1790 drugs: cost: ₹ 36.77 crore) and CMSs (number: 4996 drugs; cost: ₹ 96.25 crore) during 2013-18 from local vendors ***(Appendix-VII).*** Local purchases of drugs were to be done in emergency situations only. Audit, however, did not find any evidence in the records of CMOs and CMSs in the sampled districts in respect of emergent requirements warranting such huge local purchases.

Further, CMOs and CMSs did not obtain rates from the five manufacturing firms, as stipulated in the Government Order (April 2000). Instead, they procured the drugs at the prices offered by the local vendors in tenders and/or quotations without ascertaining reasonableness of prices *vis-à-vis* benchmark prices. Besides, CMOs and CMSs in five out of the eight sampled districts procured 364 drugs costing ₹ 2.00 crore during 2014-18 from the local vendors though these drugs were available in the UPRCs or in the RCs of other State Governments at cheaper prices (₹ 1.17 crore).

Thus, drugs were locally purchased in an irregular manner and also without ascertaining reasonable prices.

The Government replied that local purchases are made under the Stores Purchase Rules of GoUP. The reply was not tenable as store purchase rules also stipulate that reasonableness of the quoted prices should be ascertained by the competent authority. However, CMOs and CMSs in the test-checked districts did not adopt the modalities prescribed in the Government order of April 2000 to ascertain the benchmark prices. Further, the Government did not furnish a reply in respect of documentation of requirements justifying such huge local purchases.

7.5.4. Delayed/non-supply of drugs

DPP and contract conditions stipulate that the contracted suppliers would supply the drugs to the concerned CMOs and CMSs within 30 days (15 days extendable) from the date of issue of supply order, failing which the suppliers would be liable to be imposed penalty by DGMH at the prescribed rate[140].

Scrutiny of records in the eight sampled districts[141] revealed that against 11,913 supply orders issued by the CMOs and CMSs of the concerned districts to RC firms, the firms supplied the drugs in respect of only 6,689 supply orders. Besides, in respect of 1261 supply orders, the firms supplied the drugs with delays ranging between 15 and 30 days.

Further, in none of the cases of non-supply/delayed supply of drugs was the DGMH intimated for levying penalty and taking penal action as per terms of the contracts, by the concerned CMOs and CMSs.

As several drugs were life-saving items, it was essential to have alternate suppliers available at all times. Hence, two or three RC firms were to be contracted for every drug so that in case of default of any firm, the supplies could be maintained from the other firms. It was observed in audit that for most of the drugs, only one firm was contracted and in case of default by the firm, there was no alternate firm that could be issued supply orders in order to maintain the supply chain.

[140] If the supply reaches the designated places between 5 PM of the 30th day and up to 60th day from the date of issue of the purchase order, a liquidated damage will be levied at 0.5 *per cent* per day for delayed supply up to a maximum of 15 *per cent* of the cost of supply.

[141] Records related to issue of indents to suppliers for supply of drugs were not maintained in DH Agra (2013-14), DH-II Allahabad (2013-18), DH and DWH Budaun (2013-18), DH Gorakhpur (2016-17), DH Lucknow (2013-18) and CMO Allahabad (2013-15); DH and DWH Allahabad (2013-15), CMO, DH, DWH and JH Balrampur (2013-18) and DWH Gorakhpur (2013-17) did not provide the related records.

The Government replied that delayed/non-supply of drugs against purchase orders were dealt as per the conditions mentioned in the RCs. It added that instances of non-compliance of the prescribed conditions were noticed in certain units and, thus, Divisional Additional Directors were instructed to enquire into the matter and fix responsibility.

7.6. Quality assurance of drugs

Quality control plays a major role in providing high quality drugs to the patients. DPP provides that in case, suppliers produce the quality test report issued by National Accreditation Board for Testing and Calibration Laboratories (NABL) along with the supplies, the same would be accepted. Besides, quality of drugs could also be checked through sampling by the Drug Controller (DC).

Audit observed that no provision for sampling norms, criteria and periodicity for testing of drugs for quality was provided in the DPP in the instance of absence of NABL certificates. The testing of drugs was observed to be minimal in audit given the context of non-existence of specific provisions for quality assurance. Audit examination of drugs costing ₹ 18.44 crore spent on purchase of 853 drugs from the contracted firms of DGMH in the sampled eight districts revealed that NABL certificates from the suppliers were obtained in respect of only 111 drugs (13 *per cent*), costing ₹ 1.58 crore. Accepting the drugs without obtaining the quality test reports from suppliers put patients at risk and was in contravention of the provisions of DPP.

Audit further observed that in the offices of the CMOs and CMSs of eight districts, the DCs took the samples of 429 drugs from the respective drug stores of the test-checked hospitals during 2013-18 for quality testing. It was, however, observed that the DCs submitted the test reports in respect of only 27 out of 429 sampled drugs[142]. Further examination of the test reports of the DCs disclosed that four drugs[143] in CMO Saharanpur, two drugs[144] in DH Gorakhpur, two drugs[145] in CMO Allahabad and two drugs[146] in DH-II Allahabad did not fulfil the labelling criteria rendering them unfit for consumption. However, these drugs were distributed to patients before receiving reports from the DCs.

Obtaining NABL quality test reports in respect of only 13 *per cent* drugs and minimal sampling by DCs indicated that drugs were distributed to patients without ensuring their quality.

Further, audit observed that there was no provision of quality assurance of drugs purchased locally in the DPP. Thus, drugs worth ₹ 133.02 crore were purchased locally without any quality assurance during 2013-18 by the CMOs of the sampled districts and the CMSs of the test-checked hospitals.

[142] DH Agra- 10, CMO Allahabad- 03, DH-II Allahabad- 02, DH Gorakhpur- 02, CMO Lucknow- 03 and CMO Saharanpur- 07
[143] Tab Salbutamol, Tab Chlorpheniramine maleate, Cap vitamin A & D (2014-15), Cap vitamin A & D (2015-16)
[144] Inj. Amikacin, Tab Fluconazole (2015-16)
[145] Tab Metronidazole, Tab Omeprazole 20 mg
[146] Tab Ciprofloxacin (2016-17), Inj Gentamycin (2017-18)

The Government replied that the Uttar Pradesh Medical Supplies Corporation Limited (UPMSCL) was in the process of establishing drug warehouses in every district and empanelment of 11 NABL laboratories for quality testing. After implementation of these initiatives, UPMSCL would effectively implement its drug quality policy. Government further added that the issue reported in the audit observation would be examined and necessary action would be taken to improve the drug management in hospital.

To sum up, *the Government was unsuccessful in providing an unbroken supply of essential drugs to the patients in public health facilities as per its own prescribed Essential Drug List. This would have led to significant out-of-pocket expenditure being forked out by the patients, especially the poor. The drug procurement process was riddled with systemic flaws and numerous instances of non-adherence to the Drug Procurement Policy/orders issued by the Government from time to time, consequently impacting the availability of quality drugs.*

Chapter-8

Building Infrastructure

Chapter 8

Building Infrastructure

To deliver quality health services in the public health facilities, adequate and properly maintained building infrastructure is of critical importance. Examination of records in the Performance Audit disclosed inadequacies and deficiencies in the availability and creation of hospital building infrastructure, as discussed in the succeeding paragraphs:

8.1. Availability of hospital beds

8.1.1. District Hospitals

As per IPHS, one District Hospital (DH) should be created in each district to cater to the secondary health care needs of the public at the district level. IPHS also prescribe that the total beds required for a DH should be based on a district's population, bed days per year and bed occupancy rate.

As discussed in the Paragraph 1.3.1, the Department did not prescribe any standard/criteria for creating hospital beds in the DHs. It also did not adopt IPHS norms in this regard to create adequate number of hospital beds in DHs to provide easy access to quality secondary health care services to the public. Audit observed that in Uttar Pradesh, DHs were established in all 75 districts as of March 2018. However, the number of hospital beds functional in the DHs did not conform to the norms in the seven[147] sampled districts as only 2,299 hospital beds (62 *per cent*) were functional[148] against the requirement of 3,692 hospital beds as of March 2018. District-wise position is given in **Table 45**.

Table 45: Availability of functional hospital beds in the hospitals

District	Population (Lakh)	No. of hospital beds required[149]	District-level Hospitals	2013-14	2017-18	Shortfall of hospital beds
				No. of beds	No. of Beds	
Agra	44.19	630	DH, DWH	328	328	48%
Allahabad	59.54	848	DH, DH-II, DWH	493	493	42%
Balrampur	21.49	306	DH, JH, DWH	154	154	50%
Banda	17.99	256	DH, DWH	135	135	47%
Budaun	36.82	525	DH, DWH	313	313	40%
Gorakhpur	44.41	633	DH, DWH	446	446	30%
Saharanpur	34.66	494	DH, DWH	406	430	13%
Total	**259.1**	**3,692**	**16 hospitals**	**2,275**	**2,299**	**38%**

(Source: Test-checked hospitals)

[147] Lucknow district has 11 district-level hospitals, out of which only three were audited. Thus, requirement of hospital beds could not be evaluated in audit.

[148] Hospitals beds available in the special category hospitals such as TB hospitals, Mental health hospitals, *etc*., have not been taken as these are created for specific diseases and are not district-based.

[149] Taking BOR of 100%, average ALoS as evaluated in Table 23 (2.6 days) and one patient per 50 people, as per IPHS

As can be seen from the above, during 2013-18 there was little or no augmentation in the functional bed capacity in the hospitals in the test-checked seven districts. Pertinently, the number of IPD patients in 14 out of the 19 test-checked district hospitals increased during 2013-18, with substantial jumps in DH Agra (67 *per cent*), DH Banda (56 *per cent*), DWH Allahabad (49 *per cent*) and DH Saharanpur (46 *per cent*).

The Government stated (May 2019) that the availability of hospital beds was significantly higher but this was not supported by the records examined by audit in the concerned hospitals. It further stated that bed capacity would be augmented in the DHs since a large number of projects were either initiated or completed during 2013-18 and 100 bedded Maternity Care Hospitals in five out of 07 test-checked districts were being made functional.

8.1.2. Community Health Centres

As per the norms prescribed by the Department, one CHC (30 beds) for every one lakh population was to be created under the primary level health care services.

Audit observed that against the requirement of 1555 CHCs[150] in the State as per 2011 Population Census, only 821 CHCs were available as of March 2018 leaving a shortfall of 47 *per cent* CHCs, which was much above the national average of 30 *per cent*. The shortage of CHCs would be much higher if current population estimates are taken into account. Pertinently, in 08 CHCs out of the 22 test-checked[151], in-patient load increased by more than 25 *per cent* during 2013-18.

Lack of available functional IPD beds

IPHS prescribe a minimum number of 30 beds for CHCs. However, the number of available functional beds in 2017-18 was below the norm in nine CHCs[152] out of the 22 test-checked. Further, Audit observed that in CHC Kamasin, Banda the treatment of patients was carried out in the open waiting area of the CHC as depicted. Pertinently, CHC Kamasin, Banda was declared as a CHC with only four sanctioned beds.

CHC Kamasin, Banda (25.08.2018)

The Government replied (May 2019) that construction of CHCs is a continuous process and currently 853 CHCs had been operationalised and work of 118 CHCs was in progress. It also stated that in view of shortage of

[150] For rural population of Uttar Pradesh: 15.53 crore (census of 2011)
[151] CHCs Mall, Lucknow and Pachperwa, Balrampur did not furnish patient load records for 2013-14.
[152] Baharia - 11 beds, Handia - 18 beds and Meja - 20 beds, Allahabad; Asafpur - 10 beds, Samrer - 10 beds and Sahaswan - 20 beds, Budaun; Jaitpur Kalan - 23 beds, Agra; and Kamasin - 04 beds, Naraini - 25 beds, Banda.

human resources including doctors, Government has prioritised seamless functioning of constructed and under-construction hospitals only. In respect of less than 30 functional beds in certain CHCs, the Government replied that the matter would be investigated.

The infrastructural deficit of CHCs has a concomitant impact on the availability of primary health facilities at the Block level and access to quality health care.

8.1.3. Hospital space requirements

IPHS for District Hospitals 2012 and Bureau of Indian Standards 2001 prescribe the area requirement for DHs. Audit however, observed that none of the test-checked 19 DHs/JHs conformed fully to the area requirements, as detailed in **Table 46.**

Table 46: Adequacy of space in the operational areas

Operational area	Requirement (Sq. m.) per bed	No shortfall	No. of hospitals with shortfall (*per cent*) of				Hospitals[153] furnishing data
			01- 25%	26- 50%	51- 75%	76- 100%	
Entrance area (main, OPD)	4.2	6	2	2	4	1	15
Ambulatory care clinic areas	9.31	2	2	1	3	2	10
Diagnostic area	5.95	1	1	1	2	9	14
Intermediate care areas (wards)	15.75	-	3	8	3	1	15
Intensive care areas	1.96	3	1	1	5	-	10
Critical care area	4.69	1	-	3	3	5	12
Therapeutic services	8.75	-	-	-	-	6	6
Hospital services	7	1	-	1	2	6	10
Engineering Services	3.92	1	-	1	-	3	5
Admin area	4.48	-	1	2	5	6	14
Circulation Area	40 % of total area	4	1	2	2	-	9

(Source: Test-checked hospitals)

The Government replied that building maps were being prepared adhering to the norms prescribed in IPHS and Bureau of Indian Standards 2001 from March 2015. It, however, did not spell out the action proposed to be taken for enhancing the area requirement in respect of the existing hospitals and CHCs.

8.1.4. Barrier-free access to hospitals

Barrier-free access to the health facility is an important element in ensuring uninterrupted access by both patients and hospital staff.

Out of the 19 hospitals test-checked, ramps were available at the OPD of 12 hospitals[154] only. Similarly, only 11 test-checked hospitals[155] had a ramp

[153] Out of the 19 test-checked hospitals

[154] DHs- Agra, Allahabad (DH and DH-II), Banda and Gorakhpur, DWHs- Agra, Allahabad, Banda, Balrampur and Lucknow, JHs – Balrampur and Lucknow

available at the emergency ward. Further, out of the 22 CHCs test-checked, ramps were available in only 16 CHCs. This was of particular concern for emergency patients requiring immediate care as the lack of timely physical access to the remaining 06 CHCs could lead to adverse outcomes for patients.

The Government stated that gaps in the availability of construction of ramps in the hospitals and CHCs would be addressed.

8.2. Creation of infrastructure

A designated Committee headed by the Principal Secretary, Department of Medical, Health and Family Welfare awards the works of construction and renovation of hospitals buildings to the Government construction agencies. Periodic maintenance and repair of hospitals and CHCs in a district are undertaken by the concerned CMO through the departmental engineering staff. DGMH at the State-level is responsible for overseeing construction and maintenance activities in the State.

Audit observed that despite substantial shortage the pace of augmentation of hospital infrastructure was tardy, as discussed in the succeeding paragraphs:

8.2.1. Physical achievement of works

During 2013-18, 590 works were sanctioned at a cost of ₹ 2,215.79 crore. Besides, 966 works, sanctioned prior to 2013-14, were in progress as of March 2013. Against this, 990 works (64 *per cent*) were completed, leaving 566 works in progress as of March 2018. Year-wise details are given in **Table 47**.

Table 47: Details of works sanctioned during 2013-18

(₹ in crore)

Year	No. of on-going works at the start of the year	Works sanctioned during the year		Total works	Works completed during the year (%)	No. of on-going works at the end of the year
		No. of works	Sanctioned Cost			
2013-14	966	201	320.63	1167	225 (19)	942
2014-15	942	205	404.69	1147	142 (12)	1005
2015-16	1005	71	847.54	1076	212 (20)	864
2016-17	864	107	556.16	971	226 (23)	745
2017-18	745	6	86.77	751	185 (25)	566
Total		**590**	**2,215.79**		**990**	

(Source: O/o DGMH)

The above-mentioned 566 incomplete works included 205 (36 *per cent*) works which were sanctioned and awarded to the Executing Agencies (EAs) prior to 2013. Audit further observed that in the test-checked eight districts, 61 works[156] (Sanctioned cost: ₹ 510.44 crore) were executed[157] during 2013-18. Details of these 61 works[158] have been summarised in **Table 48**.

[155] DHs- Agra, Banda, Allahabad (DH and DH-II), Gorakhpur and Saharanpur, DWHs- Agra, Allahabad and Lucknow, JH Lucknow

[156] 21 works of 30 to 200- bedded Maternal and Child Hospital (MCH) buildings, 04 works of Trauma Centre, 10 works of DH/Specialised hospitals and 26 works of CHCs.

[157] Including those works which were sanctioned prior to 2013-14

[158] 30 works sanctioned during 2013-18 + 31 works in progress as of April 2013

Table 48: Works executed during 2013-18 in the test-checked districts

(₹ in crore)

Year	Works executed during the year				Works completed as of March 2018			
	Sanctioned prior to current year		Sanctioned during the year		Old works (sanctioned prior to 2013-14)		New works	
	Nos.	Cost (in crore)	Nos.	Cost (in crore)	Nos.	Expenditure (in crore)	Nos.	Expenditure (in crore)
2013-14	25	280.93	09	92.67	19	160.27	08	81.33
2014-15	07	113.75	10	41.69	00	00	06	24.87
2015-16	11	130.32	09	41.86	00	00	05	19.68
2016-17	15	152.17	08	53.29	00	00	01	0.19
2017-18	22	205.26	00	00	00	00	00	00

(Source: O/o DGMH and Executing Agencies)

From Table 48, it could be seen that out of 61 works, only 39 works were completed during 2013-18 and the remaining 22 works at a sanctioned cost of ₹ 205.26 crore were still incomplete.

The Government replied that progress of ongoing works was being regularly reviewed to ensure timely completion of the projects. It also added that an online construction monitoring system has been developed to track physical and financial progress of construction works. However, several cases test-checked in audit revealed instances of considerable delay in the completion of works, as elucidated in paragraph 8.2.3.

Records of 16 works involving an expenditure of ₹ 249.58 crore, out of the above mentioned 61 works, were examined in the Performance Audit. The audit findings are discussed in the succeeding paragraphs:

8.2.2. Irregularities in technical sanctions of works

8.2.2.1. Works without Technical Sanction

Financial Rules, GoUP stipulate that Technical Sanction (TS) of the detailed estimates should be obtained from the competent authority[159] before start of the work.

Audit observed that the TS was not accorded in the work of construction of a new OPD block (electrical works) in DH Lucknow, though the work was completed in December 2016 by EA[160] at an expenditure of ₹ 11.31 crore. Besides, the work at TB cum General Hospital, Gorakhpur was in progress and 70 *per cent* of the work had been completed as of March 2018 at an expenditure of ₹ 17.90 crore (Sanctioned cost: ₹ 20.41 crore) but TS had not been obtained.

Execution of work without obtaining TS was against the financial rules and also there was no assurance that architectural drawing and designs of the buildings were sound. Besides, reasonableness of the rates/cost of the works

[159] According to the Government order (February 2013), in case works are awarded to the Government EAs, TS of the detailed estimates is accorded by the officer of a level, not less the Chief Engineer of the concerned EA.
[160] Uttar Pradesh Rajkiya Nirman Nigam

was also not ensured because these were not approved by the competent authority.

The Government replied that the authority had been provided to appropriate officer of construction agency by the Department of Finance for the release of TS and appropriate officer of construction agency was releasing TS as per rule.

The reply is not acceptable, as TS was not accorded in the above works by the competent authority in the EA.

8.2.2.2. Deficiencies in technical sanctions

Work of upgradation of 100-bedded JH Lucknow to a 300-bedded hospital was completed at an expenditure of ₹ 32.21 crore in March 2016. It was, however, observed that the plinth area of the hospital, comprising four floors was only 13,488.58 sq. metre as against the requirement of 24,000 sq. metre[161] according to IPHS. Thus, per bed available plinth area was 44.96 sq. metre against the required plinth area (80 to 85 sq. metre) as per IPHS norms. This aspect was not considered while according the TS.

The Government did not furnish a specific reply in this regard. However, in the Exit Conference it stated that in future, norms and criteria of area requirement as stipulated in IPHS would be adhered to, if required, before approving the estimate.

8.2.3. Delay in execution of works

Audit scrutiny of records of the selected 16 works revealed that two works, which were still incomplete, were abnormally delayed up to 49 months as discussed below:

- Department awarded the work construction of CHC Chargaon, Gorakhpur to the EA in March 2013, but did not execute an MoU with the EA. Audit observed that the Department handed over the required site to the EA for construction of the CHC only in June 2014 and not at the time of award of work. The EA had completed 94 *per cent* of the work by March 2018. Since the Department had not executed an MoU with the EA, the terms and conditions including scheduled date of completion were not agreed upon with the EA. As a result, the delay in construction was not ascertainable despite the fact that 45 months had elapsed from the date of handing over of the site by the Department.

- Construction of a 300-bedded hospital at Banda was awarded to the EA in November 2011 at a cost of ₹ 56.92 crore for completion by February 2014. The EA started the construction work in April 2012 but did not complete the work by the scheduled date of completion. Records revealed that in May 2017, the EA sent a revised cost estimate (₹ 68.63 crore) to the Department for approval in which three new items were added and three existing items were excluded. The approval of the revised estimate was pending at the level of the Department and the work was incomplete although

[161] 80 to 85 sq. metre per bed

₹ 48.64 crore had been spent as of March 2018. The work was delayed by 49 months from the original scheduled date of completion.

The Government did not furnish a specific reply in respect of above works.

8.2.4. Operationalisation of new hospital buildings

The DGMH prescribed that on completion of 50 *per cent* of the civil work, the CMO would send a proposal for deployment of manpower and equipment to the GoUP so that utilisation of the building was not delayed.

Scrutiny of records of the DGMH revealed that up to March 2018, 601 hospital buildings were handed over by the EAs to the Department for operationalisation. The DGMH did not provide details of operationalisation of these hospital buildings despite repeated requests. Test-check of records revealed that 114 Maternal and Child Health wings (MCH wing) were completed in October 2016. Out of these 114 MCH wings, human resources were sanctioned for 90 MCH wings in October 2016 but equipment was not provided to any of these 114 MCH wings as of March 2018. Resultantly, all 114 MCH wings could not be operationalised as of March 2018.

Out of the 16 test-checked works[162] 12 works were completed and transferred to the respective CMOs during 2013-18. Eight out of these 12 completed hospital works[163], however, could not be made functional for want of human resources and equipment even after a lapse of one month to 32 months (as of March 2018) from the date of handover of these buildings by the EAs ***(Appendix-VIII)***.

Thus, on one hand the hospital buildings were not completed and on the other, the completed buildings could not be operationalised.

The Government did not clarify the reasons for not providing human resources and equipment to the completed hospitals. The matter was, however, discussed in the Exit Conference, wherein the Government stated that human resources and equipment in the completed hospital buildings would be provided to ensure their functionality.

8.2.5. Maintenance and repair of hospital buildings

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. Guidelines issued by the DGMH (July 2007) stipulate procedures for taking up works of annual and special maintenance of hospital building works including post-monsoon repairs[164]. As per the guidelines, engineering staff of the CMOs are

[162] CHCs: 04; 30-bedded MCH: 03; 50-bedded MCH: 01; 100 -bedded MCH: 02; 200 bedded MCH: 01; Trauma Centre: 01; OPD Block: 01; TB cum General Hospital: 01 and 300-bedded hospital: 02

[163] CHCs: 02; 30-bedded MCH: 03; 50-bedded MCH: 01; 100-bedded MCH: 01 and 300-bedded hospital: 01

[164] Day to day repairs/services (removing of blockage of drains, restoration of water supply, watering of plants and other surrounding *etc*.); Annual repairs (patch repair of plaster, repair of floors, white washing, colour washing, minor repair/replacement of tiles, repair of electric wiring, replacement of switches, preventive maintenance works, post monsoon works *etc*.); and Special repairs (heavy replacement works and major maintenance work).

responsible for day-to-day and annual repairs as per prescribed cycles, and special repairs as per need assessed through detailed survey.

During 2013-18, against the allotment of ₹ 566.74 crore, ₹ 532.03 crore was spent on the maintenance of hospital buildings in the State. In the test-checked eight districts, against the allotment ranging between ₹ 42.21 crore and ₹ 53.87 crore during 2013-18, expenditure incurred by the eight CMOs and CMSs of the 19 hospitals ranged between ₹ 11.09 crore and ₹ 0.45 crore respectively.

Audit observed the following:

- In contravention of the guidelines for maintenance of hospital buildings, the CMOs and CMSs in the test-checked districts neither prepared building maintenance plans based on the norms and cycles prescribed in the guidelines nor maintained records of building-wise annual maintenance. Due to this, execution of annual repairs *vis-à-vis* prescribed cycles was not verifiable.

- In none of the eight test-checked districts, the prescribed ten activities ***(Appendix-IX)*** to assess the need of repair and to keep regular watch over the upkeep of buildings were carried out by the engineering staff of the CMOs. Thus, the expenditure incurred on the maintenance and repair of hospital buildings in these districts was on *ad hoc* basis without any need assessment.

- During joint physical inspection, Audit observed that many of the hospital buildings were poorly maintained, in-campus service roads were damaged, residential quarters of doctors were in a dilapidated condition, *etc*.

Ward in DH Agra (03.10.2018)

Thus, due to non-adherence to the guidelines prescribed for upkeep of hospital buildings and poor monitoring by the CMOs and CMSs, the created building infrastructure was not maintained as envisaged.

The Government replied that strict directions to adhere to the guidelines would be issued to all concerned and reported abrasions would be examined case by case and necessary action taken.

To sum up, *the objective of providing access to health facilities at primary and secondary level of heath care system remained unachieved for want of adequate number of hospital beds/CHCs. Delay in completion of works and failure of the Department to operationalise the completed buildings only served to aggravate the problem of inadequate access to quality health care.*

Chapter-9

Conclusion and Recommendation

Chapter 9 Conclusion and Recommendation

District hospitals and Community Health Centres are a central component of the public health system in Uttar Pradesh. These hospitals, therefore, profoundly influence the performance of the entire health system.

However, despite a considerable increase in public health expenditure in Uttar Pradesh during 2013-18, the test-checked hospitals at the primary and secondary care level fared woefully on the outcome indicators relating to productivity, efficiency, service quality and clinical care capability of the hospitals, as evaluated by audit.

In order for the current health system at the district and block level to provide the right care at the right place at the right time, the State Government may consider implementing the following recommendations as quickly as practicable:

Policy framework for healthcare services

- Keeping in view the fact that Health is a State subject, it is imperative that the State Government should prescribe/adopt standards and norms for provisioning of services and resources for different levels of hospitals.
- The number of sanctioned posts in public hospitals in the State should be re-worked to address workforce shortages and asymmetric distribution of human resources based on the current levels of patient utilisation/demand.
- A serious policy response is required to address gaps in

- The Drug Procurement Policy by including modalities to be followed in case of emergencies necessitating local purchase of drugs and consumables; sampling norms, criteria and periodicity for quality testing of drugs; and
- The Equipment Procurement Policy by standardising the types of equipment required in the district level hospitals, need analysis in hospitals prior to initiating procurement and also maintenance of equipment.

Out-patient services

- Consultation time per patient in district hospitals and CHCs 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 inequities in the number of registration counters *vis-à-vis* the rising patient demand should be addressed without delay so that wait times for patients are reduced and seating/toilet facilities be increased commensurate to increase in patient load.
- The grievance mechanism should be activated so that hospitals improve performance by tailoring interventions effectively to address the issues related to patient satisfaction.

Diagnostic services

- The availability of essential radiology services *viz.* X-ray and USG and pathology investigations as per IPHS and availability of requisite human resources should be ensured in every hospital/CHC, particularly in view of the increasing reliance on diagnostics for treatment of patients.

- Records pertaining to waiting time and turnaround time in respect of both radiological and pathological investigations should be maintained, so as to monitor the timeliness of the diagnostic services alongside the interpretation and reporting of results for treatment plan and further referral to higher centers.

In-patient services

- Government should proactively synergise availability of specialised in-patient services along with the essential drugs, equipment and human resources in district hospitals and CHCs, so that patients do not face shortages of medical resources and access to quality medical care is boosted.
- The availability of round the clock accident and trauma services in DHs and emergency services in CHCs should be ensured.
- Nutritional care of in-patients, in order to reduce complications and facilitate speedy recovery, should be ensured through availability of the recommended six types of diet in the hospitals.
- The hospitals and CHCs should rigorously adhere to the Uttar Pradesh Manual of Fire Safety Norms 2005.
- The monitoring mechanism- a significant lever for facilitating the responsibility and accountability of the hospitals- should be revamped by including measurement of outcome indicators pertaining to productivity, efficiency, service quality and clinical care capability of the hospitals.

Maternity services

Concerted efforts to reduce the very high infant and maternal mortality rates should focus on achieving a greater level of consistency and performance by

- Strengthening the timeliness, adequacy and quality of Ante Natal Care services in the CHCs;
- Ensuring that all DWHs and CHCs have a well-equipped facility for abortion care, management of RTI/STI, handling C-section deliveries; and intra-partum care is impactful through augmentation of essential resources as well as providing a clinically safe environment; and
- Meticulous monitoring of the delivery of prescribed postpartum care towards minimising adverse pregnancy outcomes, so that women and newborns reach their full potential for health.

Infection control

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

- Strict adherence to National Quality Assurance Standards;
- 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;
- Rigorous conduct of microbiological surveys to monitor air/surface infections; and
- Active surveillance regarding adherence to Bio-Medical Waste Rules 2016 to identify any potential issues for reducing the spread of infectious diseases.

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 (EDL) updated accordingly and the eventuality of stock-out of required drugs forestalled.
- Storage of drugs under conditions prescribed in the Drugs and Cosmetics Rules 1945 to maintain their efficacy should be ensured, before being administered to the patients.
- The free drug distribution initiative of GoUP should be underpinned by the careful maintenance of ward-wise drugs stock book, records of daily distribution of drugs and OPD drugs slips in each hospital, towards ensuring its effective implementation.
- The Department should enter into rate contracts for all drugs under EDL to ensure consistency in prices as well as quality of the drugs supplied.

Building infrastructure

- The Department should as quickly as possible operationalise every newly constructed hospital or a medical facility within its premises, by dovetailing the provision of required human resources and equipment at the planning stage itself.
- Maintenance management of hospitals buildings should be strictly monitored to ensure a conducive environment in the hospitals.

The Government replied that all recommendations were useful and several initiatives in this respect had been taken/proposed. The Government further added that in the light of the recommendations, further necessary action to improve the system would be taken.

(SARI T JAFA)
Principal Accountant General (G&SSA)
Uttar Pradesh

A LLAHABAD
THE 02 AUG 2019

COUNTERSIGNED

(RAJIV MEHRISHI)
Comptroller and Auditor General of India

NEW DELHI
THE 7th August, 2019

Appendices

Appendix I: Sources of criteria

(*Reference: Paragraph no. 1.2.2*)

- Atomic Energy (Radiation Protection) Rules 2004.
- Bio-Medical Waste (Management and Handling) Rules 1998 and Bio-Medical Waste Management Rules 2016.
- Drugs and Cosmetic Rules 1945.
- Financial Rules (FHB Vol. V and VI), GoUP.
- Framework for Implementation of NHM 2012-17.
- Guidance Note on Prevention and Management of Postpartum Haemorrhage, GoI.
- Guidance Note on Use of Uterotonics during Labour 2015, GoI.
- Guidelines for Ante-Natal Care and Skilled Attendance at Birth 2010, GoI.
- Guidelines on Engaging General Surgeons for Performing Caesarean Sections and Managing Obstetric Complications 2014, GoI.
- Guidelines for *Janani Shishu Suraksha Karyakram* 2013, GoI.
- Handbook on Medical Methods of Abortion 2016, GoI.
- Indian Public Health Standards (IPHS) Guidelines for District Hospitals and IPHS Guidelines for Community Health Centres 2012.
- Manual for Laboratory Techniques, National Institute of Communicable Diseases, GoI.
- Maternal and Newborn Health Toolkit (MNH Toolkit) 2013.
- National Disaster Management Guidelines 2014 and National Disaster Management Guidelines for Hospital Safety 2016.
- National Family Health Survey-4 (2014-16), GoI.
- National Health Mission (NHM) Assessor's Guidebook for Quality Assurance in District Hospitals (Vol I & II) 2013 and Assessor's Guidebook for Quality Assurance in Community Health Centres 2014.
- National Quality Assurance Standards for Public Health Facilities 2017, GoI.
- Norms prescribed by Nursing Council of India.
- Operational Guidelines for Programme Managers and Service Providers for Strengthening STI/RTI services 2011, GoI.
- Operational Guidelines for Use of Antenatal Corticosteroids in Preterm Labour 2014, GoI.
- Professional Conduct, Etiquette and Ethics, Regulations 2002, Medical Council of India.
- Regulations on Graduate Medical Education 2012, Medical Council of India.
- Government/Departmental policies, rules, orders, manuals and regulations.

Appendix II: Records not/partially maintained

(*Reference: Paragraph no. 1.2.3*)

Sl. No.	Chapter	Para no.	Records	Hospitals	
				District	Hospitals
1.	2: Out-patient Services	2.4 Patient rights and grievance redressal	Records of grievance redressal	All test-checked DHs/JHs (except DH Agra and JH Lucknow in 2017-18) and CHCs had not maintained.	
2.	3: Diagnostic services	3.2.5 Waiting time and turn-around time	Test indent form and others records related to waiting time and turn-around time of pathology and radiology services	All test-checked DHs/JHs and CHCs had not maintained.	
3.	4: In-patient services	4.2.2 Rosters for doctors and nurses	Roster of the duties of doctors	All test- checked hospitals had not maintained.	
			Roster of the duties of nurses	As per Table 15 in Chapter 4	
		4.4.2 Documentation of OT procedures	Surgical safety checklist, pre-surgery evaluation records and post-operative evaluation records for OTs	All test-checked DHs/JHs had not maintained for the period 2013-18, except DH Allahabad which had partially maintained in 2015-18.	
		4.6.3 Triaging of patients and average turn-around time	Triaging records in emergency departments	All test-checked DHs and CHCs had not maintained.	
		4.7 Dietary Services	Diet Registers	Agra	CHC- Jaitpur Kalan for the period 2013-18
				Balrampur	JH for the period 2013-18, CHC-, Gaisandi for 2013-18 and Pachperwa for 2013-17
				Banda	DH for the period 2013-16, CHC- Naraini for 2013-16 and Kamasin for 2013-15
				Budaun	CHC- Asafpur for 2013-18
				Gorakhpur	DWH for the period 2013-17, CHC- Campiarganj, Pali and Pipraich for 2013-18

Sl. No.	Chapter	Para no.	Records	Hospitals	
				District	Hospitals
		4.8.1 Disaster management capability of hospitals	Disaster Management Plan	All test checked hospitals and CHCs except DH Gorakhpur and DWH Allahabad.	
			SOPs for disaster and mass casualty management	All test checked hospitals and CHCs except DWH Allahabad, DH & DWH Banda and DH Gorakhpur.	
		4.8.2 Safety from fire	Evacuation plan along with photographs of evacuation routes and staircases.	All test-checked hospitals except DH-II Allahabad, JH and DWH Lucknow, while photographs of evacuation routes and staircases were available in DWH Allahabad also.	
		4.9 Evaluation of IPD through Outcome indicators	BHTs[165] in DHs/ JHs and CHCs	Partially maintained in DH Agra, Allahabad, Allahabad-II, Banda, Balrampur, Budaun, Gorakhpur, Lucknow, Saharanpur and JH Balrampur	
				Budaun	CHC- Asafpur, Sahaswan and Samrer
				Balrampur	CHC- Gaisandi and Pachperwa
				Gorakhpur	CHC- Campiarganj, Pali and Pipraich
		4.9.1.1 Bed Occupancy Rate	Bed occupancy records of CHCs	All test checked CHCs had not maintained except Behat, Deoband and Nagal, Saharanpur and Naraini, Banda.	
				Agra	CHC-Baroli Ahir, Jaitpur Kalan & Kairagarh
				Allahabad	CHC-Baharia, Handia & Meja
				Balrampur	CHC- Pachperwa & Gaisandi (Except 2013-14)
				Banda	CHC-Kamasin
				Budaun	CHC-Sahaswan & Samrer
				Gorakhpur	CHC- Pali & Pipraich
				Lucknow	CHC- Sarojini Nagar, Gosaiganj & Mall
			IPD registers	Partially maintained in all the test-checked CHCs	
4.	5: Maternity services	5.1.2 Management of RTI/STI[166]	Details of RTI/STI patients treated by the hospitals	Agra	CHC-Baroli Ahir, Jaitpur Kalan
				Allahabad	CHC-Baharia, Handia & Meja
				Banda	CHC-Naraini

[165] BHTs – Bed Head Tickets
[166] RTI – Reproductive Tract Infection, STI – Sexually Transmitted Infection

Sl. No.	Chapter	Para no.	Records	Hospitals		
				District	Hospitals	
				Budaun	CHC- Asafpur, Sahaswan & Samrer	
				Gorakhpur	CHC- Pali, Campiarganj	
				Lucknow	CHC- Sarojini Nagar, Gosaiganj & Mall	
				Saharanpur	CHC- Deoband	
		5.1.3 Comprehensive abortion care	MTP[167] Register	Agra	CHC-Baroli Ahir,	
				Allahabad	CHC-Handia	
				Balrampur	DWH	
				Saharanpur	CHC- Deoband	
		5.2.2.1 Preparation of partographs	Partographs	All test-checked DWHs/ JHs and CHCs had not maintained except DWH Allahabad & CHC Campiarganj Gorakhpur partially maintained during February and May 2017 and CHCs Baharia, Handia & Meja, Allahabad did not provide the records.		
		5.3 Post-natal maternal (PNC) and new-born care	PNC register	All test-checked DWHs/JHs and CHCs		
		5.4.2 Neonatal deaths	Labour room register (Neonatal deaths)	All the test-checked DWHs/JHs and CHCs had not maintained except DWHs Banda, Budaun, Lucknow and Saharanpur.		
5.	6: Infection control	6.1 Standard Operating Procedures (SOP) for infection control	SOP in DHs/JHs and CHCs	District	Not maintained in DHs/DWHs/JHs (2017-18)	SOPs not maintained in any test-checked CHC
				Balrampur	DH, DWH and JH	
				Budaun	DH and DWH	
				Gorakhpur	DWH	
				Saharanpur	DH and DWH	
		Checklist for hygiene	Checklist for hygiene and infection control in hospitals	District	Not maintained in DHs/DWHs/JHs	Checklist for hygiene and infection control not maintained

[167] MTP – Medical Termination of Pregnancy

Sl. No.	Chapter	Para no.	Records	Hospitals		
				District	Hospitals	
		and infection control	and CHCs		(2017-18)	in any test-checked CHC.
				Allahabad	DH-II	
				Balrampur	DH, DWH and JH	
				Banda	DH and DWH	
				Budaun	DH and DWH	
				Gorakhpur	DH and DWH	
				Lucknow	DWH	
				Saharanpur	DH and DWH	
		Pest and rodent control	Pest control records in hospitals and CHCs	District	Not maintained in following during 2017-18	
				Agra	DH and CHC-Baroli Ahir, Jaitpur Kalan & Kheragarh	
				Allahabad	DH and CHC-Baharia, Handia & Meja	
				Balrampur	DH and CHC- Pachperwa & Gaisandi	
				Banda	DH and CHC- Naraini & Kamasin	
				Budaun	DH, DWH and CHC- Asafpur, Sahaswan & Samrer	
				Gorakhpur	DH and CHC- Pali	
				Lucknow	CHC- Mall and CHC Gosaiganj	
				Saharanpur	DWH and CHC-Behat, Deoband & Nagal	
			Rodent control records in hospitals and CHCs	District	Not maintained in following during 2017-18	
				Agra	CHC-Baroli Ahir, Jaitpur Kalan & Kheragarh	
				Allahabad	DH and CHC-Baharia, Handia & Meja	
				Balrampur	DH, JH and CHC- Pachperwa & Gaisandi	
				Banda	DH, DWH and CHC- Naraini & Kamasin	
				Budaun	DH, DWH and CHC- Asafpur, Sahaswan & Samrer	
				Gorakhpur	DH and CHC- Campiarganj & Pali	
				Lucknow	DWH and CHC -Mall,& Gosaiganj	
				Saharanpur	DH, DWH and CHC-Behat, Deoband & Nagal	
		6.2.1.3 Records of	Records of sterilisation	District	Partially Maintained in	

Sl. No.	Chapter	Para no.	Records	Hospitals	
				District	Hospitals
		sterilisation using autoclave		Agra	DH
				Allahabad	DH, DH-II and DWH
				Balrampur	DH, DWH and JH
				Banda	DH and DWH
				Budaun	DH and DWH
				Gorakhpur	DWH
				Lucknow	DH and JH
				Saharanpur	DH and DWH
		6.3.1 Standard operating procedure for housekeeping.	SoP for housekeeping in DHs/JHs and CHCs	District	Not maintained (2017-18)
				Agra	DH and CHC-Baroli Ahir, Jaitpur Kalan & Kheragarh
				Allahabad	CHC-Baharia, Handia & Meja
				Balrampur	DH, DWH, JH and CHC- Pachperwa & Gaisandi
				Banda	DH,DWH and CHC- Naraini & Kamasin
				Budaun	DH, DWH and CHC- Asafpur, Sahaswan & Samrer
				Gorakhpur	DWH and CHC- Campiarganj, Pali & Pipraich.
				Lucknow	CHC- Mall, Sarojini Nagar & Gosaiganj
				Saharanpur	DH, DWH and CHC-Behat, Deoband & Nagal
		6.3.2 Hygiene practices	Microbiological survey (Reports of any surface/ air/ hand swab tests)	All test-checked DHs/JHs and CHCs had not prepared for the period 2013-18 except DH Banda had prepared the report of microbiological survey in critical care areas (OT, paediatric ward) for 2017-18.	
		6.3.3 Outsourcing of cleaning services	Records of consumables	Agra	DH
				Allahabad	DH
				Balrampur	DH and DWH
				Banda	DH and DWH
				Budaun	DH and DWH
				Gorakhpur	DWH

Sl. No.	Chapter	Para no.	Records	Hospitals		
				District	Hospitals	
				Lucknow	DH	
6.	7: Drug management	7.3 Dispensing of drugs to patients	Section/ward-wise stock registers	Balrampur	DH and JH	Not maintained in any test-checked CHC except Naraini, Banda.
				Banda	DWH	
				Gorakhpur	DH and DWH	
			OPD drug slips[168]	Balrampur	DH, DWH and JH	Not maintained in any test-checked CHC.
				Gorakhpur	DH and DWH	
			Records of daily distribution of drugs	Agra	CHC- Jaitpur Kalan	
				Allahabad	DH-II	
				Banda	CHC Kamasin	
				Balrampur	DH and JH, CHC- Gaisandi, Pachperwa.	
				Budaun	CHC- Asafpur, Sahaswan & Samrer	
				Gorakhpur	CHC- Campiarganj, Pali and Pipraich	
				Lucknow	CHC: Sarojini Nagar	
		7.5.3 Irregular procurement of drugs through local purchase	Records of emergency situations in respect of procurement of drugs through local purchase	All test-checked hospitals and CHCs.		
7.	8. Building Infrastructure	8.2.5 Maintenance and repair of hospital buildings	Records of building maintenance plans based on the norms and cycles and records related to building-wise annual maintenance	All test-checked CMOs and CMSs.		

[168] OPD drugs slip contains the list of drugs prescribed by the doctor along with quantity, to be dispensed to the OPD patients by the hospital pharmacy.

Appendix III: Radiology equipment lying unutilised

(Reference: Paragraph no. 3.1.1)

(as on 31 March 2018)

Hospital	Equipment	Qty.	Cost (₹ lakh)	Period from which lying idle	Reason
DH Saharanpur	X-ray Machine-60 MA	01	0.78	03 months	For want of repair
DWH Saharanpur	Ultrasound machine	01	8.19	01 year	
	Ultrasound machine	01	14.10	01 year	
DWH Banda	Ultrasound machine	01	NRG[169]	NRG	
CHC Deoband, Saharanpur	Ultrasound Machine	01	NRG	06 years	For want of manpower
DH Saharanpur	Ultrasound machine	01	17.10	09 months	
	CT Scan	01	342.65	09 months	
DWH Budaun	Ultrasound Machine	01	NRG	02 years	
DWH Balrampur	Ultrasound Machine	01	NRG	05 years	
DH Banda	CT Scan	01	342.65	09 months	
DWH Banda	Colour Doppler System	01	NRG	04 years	
JH Lucknow	Three D Ultrasonography machine	01	13.91	09 months	
DH Agra	Ortho ultrasound	02	1.58	08 years	
JH Lucknow	Portable digital X-ray machine	01	Free of cost	11 months	For want of accessories

(Source: Test-checked hospitals and CHCs)

[169] NRG – No Record Given

Appendix IV: Pathology equipment lying unutilised

(Reference: Paragraph no. 3.2.3)

(as on 31 March 2018)

Hospital	Equipment	Qty.	Cost (₹ lakh)	Period from which lying idle	Reason
JH Lucknow	Semi Auto analyser	01	0.90	30 months	For want of repair
DH Saharanpur	Fully Automatic computerised Haematology Cell Counter	01	27.25	12 months	
	Fully Automatic Harmonal Analyser	01	NRG	12 months	
	Fully Automatic computerised Blood gas Analyser	01	10.25	12 months	
	Semi-Automatic Analyser	01	1.08	NRG	
	Fully computerised Biochemistry Analyser (TERGA)	01	25.19	12 months	
DH Lucknow	Haematology Analyser five part with 22 parameter	01	9.15	15 months	For want of reagents as equipment was purchased by UPHSSP without execution of RC for reagents, required for functioning of the equipment.
DH Saharanpur	Haematology Analyser five part with 22 parameter	01	9.15	15 months	
DH Gorakhpur	Haematology Analyser five part with 22 parameter	01	9.15	15 months	

(Source: Test-checked hospitals and CHCs)

Appendix V: Human resources in hospitals/CHCs
(Reference: Paragraph no. 4.2.1)

(as on 31 March 2018)

District	Hospital	Sanctioned beds	Doctors		Nurses	
			Sanctioned strength	Persons in position	Sanctioned strength	Persons in position
District Hospitals/Joint Hospitals						
Agra	DH Agra	128	46	49	25	59
Allahabad	DH Allahabad	156	43	38	36	23
	DH-II Allahabad	199	27	31	32	29
Balrampur	JH Balrampur	50	34	9	33	11
Balrampur	DH Balrampur	100	24	15	12	6
Banda	DH Banda	103	27	15	28	18
Budaun	DH Budaun	234	28	30	30	42
Gorakhpur	DH Gorakhpur	305	34	44	39	99
Lucknow	DH Lucknow	756	100	101	130	193
	JH Lucknow	100	28	43	20	62
Saharanpur	DH Saharanpur	326	61	36	92	78
District Women Hospitals						
Agra	DWH Agra	200	23	36	53	53
Allahabad	DWH Allahabad	146	20	18	20	30
Balrampur	DWH Balrampur	45	7	5	4	14
Banda	DWH Banda	32	8	6	5	16
Budaun	DWH Budaun	79	11	16	12	9
Gorakhpur	DWH Gorakhpur	205	15	28	26	50
Lucknow	DWH Lucknow	326	27	39	50	116
Saharanpur	DWH Saharanpur	110	34	20	67	47
Community Health Centers						
Agra	Baroli Ahir	30	8	8	5	5
	Jaitpur Kalan	23	5	3	4	2
	Kheragarh	30	6	7	4	5
Allahabad	Baharia	30	5	2	2	5
	Handia	30	8	6	4	6
	Meja	30	8	4	4	4
Balrampur	Gaisandi	30	11	7	8	5
	Pachperwa	30	11	7	8	5
Banda	Kamasin	04	2	5	0	3
	Naraini	30	8	6	3	8
Budaun	Asafpur	30	14	9	3	5
	Sahaswan	30	7	5	3	6
	Samrer	30	9	8	3	5
Gorakhpur	Campiarganj	30	7	6	3	10

District	Hospital	Sanctioned beds	Doctors		Nurses	
			Sanctioned strength	Persons in position	Sanctioned strength	Persons in position
	Pali	30	12	7	10	7
	Pipraich	30	10	11	3	7
Lucknow	Gosaiganj	30	9	9	3	11
	Mall	30	9	9	3	5
	Sarojini Nagar	30	7	14	3	12
Saharanpur	Behat	30	6	4	3	3
	Deoband	30	11	4	4	13
	Nagal	30	7	2	6	4

(Source: Test-checked hospitals/CHCs)

Appendix VI: Evaluation of Outcome Indicators

(Reference: Paragraph no. 4.9 and 5.5)

Type	Quality Indicator	Numerator	Denominator
Productivity of hospital	BOR (in *per cent*)	Total patient bed days in a month	Total no. of functional beds x No. of days in a month
	C-section rate (in *per cent*)	Total no. of C-sections conducted	Total no. of deliveries
Efficiency of hospital	BTR	Total no. of discharges	Total no. of functional beds
	DR (in *per cent*)	Total no. of discharges	Total no. of admissions
	ROR (in *per cent*)	Total no. of cases referred to higher facility	Total no. of admissions
Clinical care capability of hospital	ALoS (in days)	Total patient bed days	Total no. of admissions
	AER (in *per cent*)	Total no. of adverse events	Total no. of admissions
Service quality of hospital	LAMA (in *per cent*)	Total no. of LAMA & Absconding cases	Total no. of admissions
	Patient satisfaction score	Sum of average satisfaction score of each respondent	Total no. of respondents

(Source: NHM Assessor's Guidebook)

Appendix VII: Local purchase of drugs

(Reference: Paragraph no. 7.5.3)

(₹ In lakh)

Sl. No	District	Hospital/CMO	Period	No. of drugs	Cost
1	Agra	CMO	2013-18	102	17.29
		DH	2013-18	691	68.08
		DWH	2013-18	583	65.49
2	Allahabad	CMO	2014-18	69	226.18
		DH	2016-18	160	83.8
		DWH	2015-18	223	67.59
		DH-II	2013-18	666	4178.04
3	Balrampur	CMO	2013-18	No Record Given	1652.49
		DH	2013-18	No Record Given	33.72
		DWH	2013-18	No Record Given	95.79
		JH	2013-18	No Record Given	670.37
4	Banda	CMO	2013-18	622	542.28
		DH	2013-18	1187	66.73
		DWH	2013-18	409	83.61
5	Budaun	CMO	2013-18	165	338
		DH	2013-18	No Recored Maintained	294.08
		DWH	2013-18	No Recored Maintained	18.09
6	Gorakhpur	CMO	2013-18	No Recored Maintained	137.71
		DH	2013-18	No Recored Maintained	305.48
		DWH	2013-18	No Recored Maintained	127.98
7	Lucknow	CMO	2017-18	202	0.68
		DH	2013-18	No Recored Maintained	3104.43
		DWH	2013-18	149	34.62
		JH	2013-18	No Recored Maintained	50.75
8	Saharanpur	CMO	2013-18	630	762.33
		DH	2013-18	388	153.25
		DWH	2013-18	540	122.66
		Total		**6786**	**13302.32**
	Total (CMOs)			1790	3676.96
	Total (DHs/DWHs)			4996	9625.36

(Source: Test-checked hospitals/CHCs)

Appendix VIII: Handover of completed works

(*Reference: Paragraph 8.2.4*)

Sl. No	Name of work	Name of district	Date of completion as per the records of Executing Agency	Date of taking over the facility from the Executing Agency
1	50 Bedded MCH, Chinhat	Lucknow	02/2016	02/2018
2	30 Bedded MCH, Mohanlalganj	Lucknow	01/2016	05/2017
3	300 bedded Hospital, Kanpur Road	Lucknow	06/2016	06/2016
4	CHC Sadholi Kadeem	Saharanpur	01/2017	02/2017
5	30 Bedded MCH at Fathepur, Saharanpur	Saharanpur	09/2017	11/2017
6	CHC Kamasin, Banda	Banda	03/2013	07/2015
7	30 Bedded MCH, Phoolpur	Allahabad	03/2015	01/2016
8	100 bedded MCH, Budaun	Budaun	03/2016	09/2017

(Source: Executing Agencies)

Appendix IX: Maintenance and repair of hospital buildings

(*Reference: Paragraph no. 8.2.5*)

Following activities were to be performed by the engineering staff of the CMOs in each district:

(i) Inspection of all buildings at district headquarter once a month and other buildings in his charge at least once a quarter;

(ii) Review complaints entered in the complaint register daily in case of district hospital, at least once a week for CHC and once in a fortnight for other hospitals;

(iii) Summarize the complaints and divide them into day-to-day repair, periodical repair and special repair as per nature of complaints;

(iv) Attend to complaints received on order of priority;

(v) Prepare estimates for all types of repair separately and send them to Assistant Engineer.

(vi) Prepare tender notices and bill of quantities for proposed works;

(vii) Examine tenders received, prepare engineering appreciation and recommend valid tender for acceptance to Assistance Engineer;

(viii) Supervise all types of repair works in his/her charge at regular intervals and prepare bills for the same;

(ix) Ensure smooth functioning of services and supply of water and electricity in the district hospitals;

(x) Examine general maintenance of buildings during visits and advise on proper maintenance.

List of Abbreviations

ABG	Arterial Blood Gas
AES	Acute Encephalitis Syndrome
AED	Automated External Defibrillator
AER	Adverse Event Rate
AERB	Atomic Energy Registration Board
AHAP	Annual Health Action Plan
AIDS	Acquired Immune Deficiency Syndrome
ALoS	Average Length of Stay
AMC	Annual Maintenance Contract
ANC	Antenatal Care
ANM	Auxiliary Nursing Midwife
BCC	Behavioural Change Communication
BCG	Bacillus Calmette Guerin
BHT	Bed Head Ticket
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
C&DS	Construction and Design Services
CHC	Community Health Centre
CMO	Chief Medical Officer
CMS	Chief Medical Superintendent
CT Scan	Computed Tomography Scan
DC	Drug Controller
DGFW	Director General, Family Welfare
DGMH	Director General, Medical Health
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
DVDMS	Drugs and Vaccines Distribution Management System
DWH	District Women Hospital
EA	Executing Agency
EDL	Essential Drug List
EmOC	Emergency Obstetric Care
EMTS	Emergency Medical Transport Service

ENT	Ear, Nose and Throat
EPP	Equipment Procurement Policy
EQA	External Quality Agency
ESF	Emergency Support Function
ESIC	Employees State Insurance Corporation
EtO	Ethylene Oxide
ETP	Effluent Treatment Plant
FHB	Financial Hand Book
FHS	Foetal Heart Sound
FRU	First Referral Unit
GoI	Government of India
GoUP	Government of Uttar Pradesh
HBsAG	Hepatitis B Surface Antigen
HICC	Hospital Infection Control Committee
HIV	Human Immunodeficiency Virus
HLD	High Level Disinfection
HR	Human Resource
ICCU	Intensive Cardiac Care Unit
ICU	Intensive Care Unit
IEC	Information, Education and Communication
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
LAMA	Leave Against Medical Advice
LD	Liquidated Damage
LT	Lab Technician
MCH	Maternal and Child Health
MMR	Maternal Mortality Rate
MNH Toolkit	Maternal and Neonatal Health Toolkit
MOIC	Medical Officer in Charge
MoU	Memorandum of Understanding
MTP	Medical Termination of Pregnancy
NABL	National Accreditation Board for Testing and Calibration Laboratories
NCI	Nursing Council of India
NFHS	National Family Health Survey
NHM	National Health Mission

NICU	Neonatal Intensive Care Unit
NIT	Notice Inviting Tender
OI	Outcome Indicators
OPD	Outdoor Patient Department
OPV	Oral Polio Vaccine
OT	Operation Theatre
PIP	Project Implementation Plan
PNC	Post Natal Care
PP	Perspective Plan
PSS	Patient Satisfaction Survey
PSU	Public Sector Undertaking
RC	Rate Contract
ROR	Referral Out Rate
RPR	Rapid Plasma Reagin
RTI	Reproductive Tract Infection
SDG	Sustainable Development Goal
SHS	State Health Society
SIC	Superintendent in Chief
SOP	Standard Operating Procedure
SPCB	State Pollution Control Board
SPMU	State Programme Management Unit
SRSWOR	Simple Random Sampling Without Replacement
STI	Sexually Transmitted Infection
TAT	Turn-around Time
TB	Tuberculosis
TFR	Total Fertility Rate
TS	Technical Sanction
UPAVP	Uttar Pradesh Avas Vikas Parishad
UPHSSP	Uttar Pradesh Health System Strengthening Project
UPPCL	Uttar Pradesh Project Corporation Limited
UPRNN	Uttar Pradesh Rajkiya Nirman Nigam
USG	Ultrasonography
VDRL	Venereal Disease Research Laboratory
WT	Waiting Time