CHAPTER-5
SUPPORT SERVICES

CHAPTER 5: SUPPORT SERVICES

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

5.1 Storage and quality 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.

Audit observed that none of the DHs adhered to the prescribed protocols for storage of drugs. However, temperature controls/refrigerators were used for storage of vaccines relating to immunisation programmes in all the test checked Health units and Central Stores. In DH Phek, though there was no separate designated area for controlled, dangerous and restricted medicines, however, it was seen that drugs were stored separately. Such arrangements were not made in other test checked DHs. Deficiencies in storage of drugs in the test checked hospitals is shown in **Table 5.1**.

Table 5.1: Deficiencies in storage of drugs in the test checked hospitals

Sl. No.	Parameters	No. of Hospitals having deficiency	Probable impact of not adhering to parameter
1	Air-conditioned storage/pharmacy	4	Loss of efficacy and shelf life of drugs.
2	Labelled shelves/racks	4	High turnover time in disbursement of drugs.
3	Away from water and heat	4	Loss of efficacy and shelf life of drugs.
4	Drugs stored away from walls	4	-do-
5	24- hour temperature recording of cold storage area	4	-do-
6	Display instructions for storage of vaccines	4	-do-
7	Functional temperature monitoring device in freezers	4	-do-
8	Maintenance of temperature chart of deep freezers	4	-do-
9	Expired drugs stored separately	4	Mixing of expired drugs with usable drugs

Source: Physical verification of test checked hospitals

It can be seen from the above table that major deficiencies were observed in the storage of drugs in all test checked DHs.

Photographs showing deficiency in storage of drugs in DHs are given below:



Photograph 5.1: Storage of medicines & Consumables in DH Phek. Photograph taken on 06/12/2019.


Photograph 5.2: Medicine stored in DH Wokha where medicines are stored near Walls and on floor.

Photograph 5.3: Storage of Ayush and other Medicines in DH Wokha

Photograph 5.4: Storage of medicines in emergency Department of DH Wokha


Photograph 5.5: Storage of Medicines at DH Tuensang. Photograph taken on 01/02/2020

Photograph 5.6: Seepage in an entire wall of storeroom where medicines are stored in DH Kohima

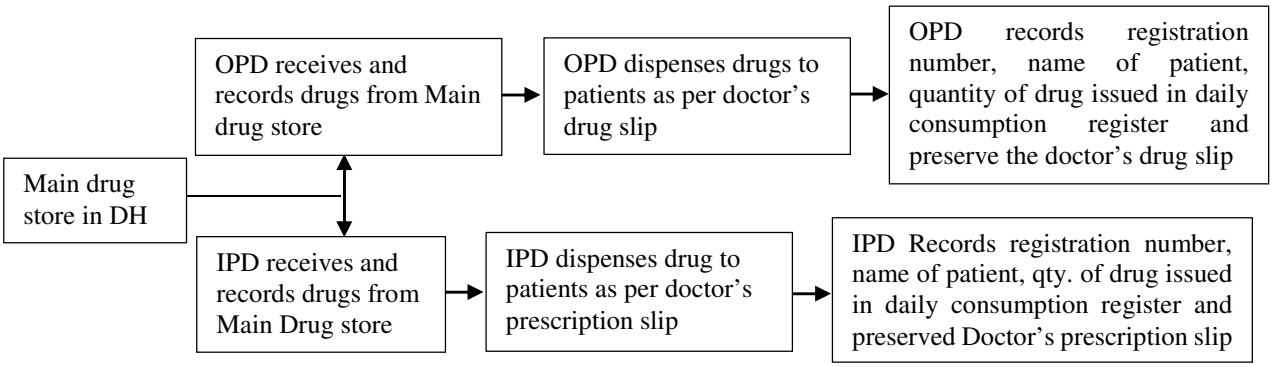
Department replied (October 2020) that all health units would be instructed to make arrangements for storage of drugs as per the guidelines and training would be imparted to pharmacists/ store-keeper and cold chain officers in the districts on store management.

5.2 Utilisation of Drugs by the Health Units

Financial rules stipulate that all items received and issued should be entered in stock account on the date the transaction takes place.

The process of dispensing of drugs in hospitals is shown in the **Chart 5.1**.

Chart 5.1



Audit observed discrepancies in documentation in receipt and dispensing of drugs to patients by OPD and IPD sections of the four selected hospitals as detailed in **Table 5.2**.

Table 5.2: Status on maintenance of record relating to drugs

Sl. No.	Parameters on maintenance of records	No. of DH not documenting	No. of CHCs and PHC not documenting
1	Stock Register of Main drug store countersigned by DDO	2 (DH Kohima, DH Tuensang)	2
2	Maintenance of stock register on drugs received from Main store by IPD and OPD	4	2
3	Documenting dispensing of medicine by OPD	4	2
4	Documenting dispensing of medicine by IPD	4	2
5	Preservation of Drug slip by OPD	4	2
6	Preservation of Doctors prescription slip of IPD	4	2

Source: Records of DHs

It can be seen from the table above that in all the four test checked DHs, neither the OPDs nor the IPD wards maintained records on drugs received by them from main drug store of the hospital. Further, records of dispensing of drugs to the patients were also not maintained by the IPDs and OPDs of all DHs.

In the absence of ward-wise stock register on drugs, patient wise distribution and utilisation of drugs issued from main store to the health facility could not be verified in audit. Thus, pilferage of drugs could not be ruled out in the DHs.

Efficient mechanism needs to be evolved for proper documentation and evidencing of drugs issued from main store of the facility to the inpatient area and OPD patients.

Department replied (October 2020) that store-keepers and pharmacists would be instructed to maintain proper records on receipt and utilisation of drugs.

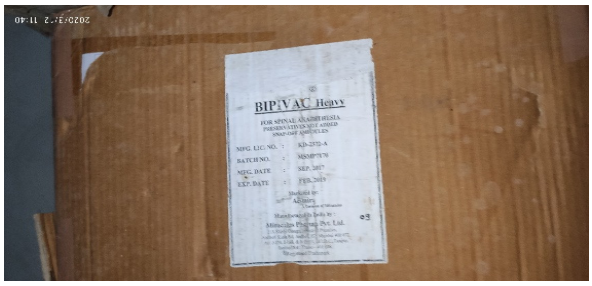
5.3 Management of expired drugs and sub-standard quality drugs

Operational Guidelines for Free Drug Services Initiative issued by the Ministry of H&FW (June 2015), require that an analysis of short expiry drugs would be conducted on a fortnightly basis, based on consumption patterns in all HUs/ facilities. The facility would utilize such drugs on priority. Such a review mechanism if conducted at the warehouse level, such drugs could be redistributed to nearby facilities in need.

Audit scrutiny revealed that fortnightly review of the expiry of drugs was not carried out in any of the test checked DHs. Therefore, quantity and type of medicines expired without usage could not be analysed in audit. There were also no records pertaining to the drugs received and subsequently recalled back due to substandard quality.

Verification of the stores of the test checked facilities revealed that huge quantities of expired drugs were stored and photographs of the same are depicted below.

Photograph 5.7: Expired Medicines stored in Store Room of DH Kohima. Photographs taken on 12/03/2020



(i) Bipivac- Spinal Anastasia, Expiry date February 2019

(ii) Omeputcapsules, Expiry date October 2018

(iii) Expired Ornidazole Tablets at DH Kohima

(iv) Expired Medicines stored at DH Tuensang

Department replied (October 2020) that over indenting leading to expiry of huge quantity of drugs would be resolved once the supply chain management system is implemented. It was also stated that instructions would be issued for fortnightly review of short shelf life drugs.

5.4 Infection Control

As per ICMR Infection Control Guidelines, the emergence of life-threatening infections such as severe acute respiratory syndrome and re-emerging infectious diseases have highlighted the need for efficient infection control programmes in all health care settings.

5.4.1 Formation of Hospital Infection Control Committee

Guidelines issued by National Centre for Disease Control, Ministry of Health and Family welfare, GoI, stipulate that Hospital Infection Control Policies are needed to be framed, practiced and monitored by Hospital Infection Control Team (HICT) and Hospital Infection Control Committee (HICC) in each hospital.

Verification of records in the selected four DHs and one CHC revealed that HICT was not constituted in the four test checked DHs and one CHC, while HICC was not constituted in one DH (Tuensang) and one CHC (Viswema) as shown in **Table 5.3**.

Table 5.3: Formation of HICT and HIC

Particulars	DH Kohima		DH Tuensang		DH Phek		DH Wokha		CHC, Viswema (Kohima Dist.)	
	Yes / No	Date/ year	Yes/ No	Date/ year	Yes/ No	Date/ year	Yes/ No	Date/ year	Yes/ No	Date/ year
HICT	No	-	No	-	No	-	No	-	No	-
HICC	Yes	-	No	-	Yes	Aug, 2015	Yes	2017	No	-

Source: Records from DHs

Absence of Infection Control Committee and team resulted in ineffective assessment of infection prevention and control mechanism which is crucial for providing high quality health care for patients and a safe working environment for healthcare professionals.

Department responded (October 2020) that instructions had already been issued for constitution of HICC/HICT.

5.4.2 Standard Operating Procedure for Infection Control

NHM Assessor's Guidebook requires 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 none of the selected DHs and CHCs had framed SOPs for infection control.

Non-availability of SOPs resulted in lack of structural response to issues of hygiene and infection control in the selected DHs and CHCs which is discussed below:

5.4.2.1 Checklist for hygiene and infection control

NHM Assessor's Guidebook requires that Infection Control policies are to be framed, practised and monitored by HICC. The role of HICC is to implement the infection control programme and polices. Further, for cleaning and disinfection of patient care areas, standard practices be followed through maintenance of a checklist for hygiene and infection control.

Verification of records revealed that only DH Kohima framed checklist for effective monitoring of hygiene and infection control in the hospitals. Details are shown in **Table 5.4**.

Table 5.4: Availability of checklist for effective monitoring of hygiene and infection control in selected DHs

Particulars	DH Kohima	DH, Tuensang	DH, Phek	DH, Wokha
Checklist for Housekeeping (hygiene)	Exists only from December 2019	No	No	No
Checklist for Disinfection	-do	No	No	No

Source: Hospital Records

In the absence of checklist for effective monitoring of hygiene and infection control in various departments of the hospitals, audit could not derive an assurance on the quality of hygiene and infection control mechanism available in these hospitals.

5.4.2.2 Microbiological Sampling

As per National Centre for Disease Control (NCDC) guidelines, routine environment sampling (surface and air sampling) for epidemiologic investigation are to be done in all hospital departments. Verification of records revealed that microbiological sampling for surface was done in two DHs[1] and CHC during the period of audit. None of the DHs had done air sampling during the period of audit. DH Kohima stated to have carried out air sampling in 2020, in Operation Theatres. Further, none of the hospitals could furnish records on epidemiological investigation on air and surface sampling conducted by them.

5.5 Laundry Services

5.5.1 Availability of linen

IPHS prescribed 21 different types[2] of linen that are required to be provided for patient care services of hospitals with 101 beds and more.

Examination of records of the test checked DHs revealed shortage of different types of linen as shown in **Table 5.5.**

[1] DH, Wokha and DH Kohima

[2] Abdominal sheets for OT, Bed sheets, bedspreads, Blankets, Doctor's overcoats, Draw sheets, Hospital worker OT coats, leggings, Macintosh sheets, Mats (Nylon), Mattresses (foam) for adults, Mortuary sheets, Perennial sheets for OT, Pillows, Pillow cover and table cloth.

Table 5.5: Statement showing shortage/non-available of types of linen in the selected hospitals.

Type of linen	51 to 100 bedded sub DHs				201 to 300 bed DHs	
	Norm	Actual available			Norm	Actual available in DH Kohima
		DH Tuensang	DH Wokha*	DH Phek		
Bedsheets	400+ 200 (desirable)	250	90	180	1200	1500
Bedspreads	600	300	34	50	1800	1000
Blankets Red and blue	30	150	81	77	100	300
Draw sheet	75	50	-	0	150	20
Doctor's overcoat	30	30	-	0	90	0
Hospital work over coat	200	200	-	0	400	0
Patients house coat (for female)	300	150	-	5	900	500
Patients Pyjama(for male) Shirt	200	150	-	5	400	500
Over shoes pairs	60	25	-	0	100	0
Pillows	150	200	109	53	450	70
Pillows covers	300	150	340	100	900	300
Mattress(foam)Adult	100	100	15	30	300	250
Paediatric Mattress	16	50	-	0	40	0
Abdominal sheets for OT	50	100	-	0	200	30
Pereneal sheets for OT	50	300	-	0	200	0
Leggings	80	20	-	0	150	0
Mortuary sheet	30	5	-	0	70	0
Mats (Nylon)	50	0	-	0	200	0
Mackintosh sheet (in meters)	150	40	-	0	300	5

Source: Replies to questionnaires

****Complete information on availability of different types of linen in DH Wokha was not furnished to audit.***

It can be seen from the table that out of 19 items of linen, one to 13 items were not available with the DHs and CHC. The shortage was more than 50 *per cent* in 6 to 11 items in the DHs and CHCs.

Department replied (October 2020) that rational indent/ issue of linen would be done as per the hospital strength in future.

5.5.2 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 out of four selected DHs, all hospitals engaged outsourced agencies/dhobi for laundry services up to 2017. However, after 2017 three hospitals[3] commenced in-house laundry services, whereas DH Kohima continued engaging dhobi for laundry service.

[3] DHs Wokha, Phek and Tuensang

However, none of the test checked DHs had formulated guidelines or SOP for handling, washing and disinfecting of linens. Audit further observed that:

- Physical verification of the site for laundry of DHs (including DH Kohima) revealed that linens of the hospital were washed using detergents and sun dried. However, blood stained linens were bleached before washing. Safety measures of persons handling the linen was not ensured.
- Waste water was let out in public drain without any disinfection or treatment.
- None of the test checked DHs pre-treated soiled linen (contaminated with blood and body fluids) before separating them and delivering for laundry service.
- Ward or department wise colour marking of linen was not seen which indicates that linen from all wards (including that of departments handling infectious disease) were washed together with linen of other departments exposing them to contamination.

Photograph 5.8: View inside linen washing room in DH Wokha.

(i) Three types of coloured plastic containers were used for different types of waste management.

(ii) Washing machine was used to clean sluiced linens

(iii) Detergent kept for washing of linen.

Photograph 5.9: Linen washing area of DH Kohima (premises of Dhobi)

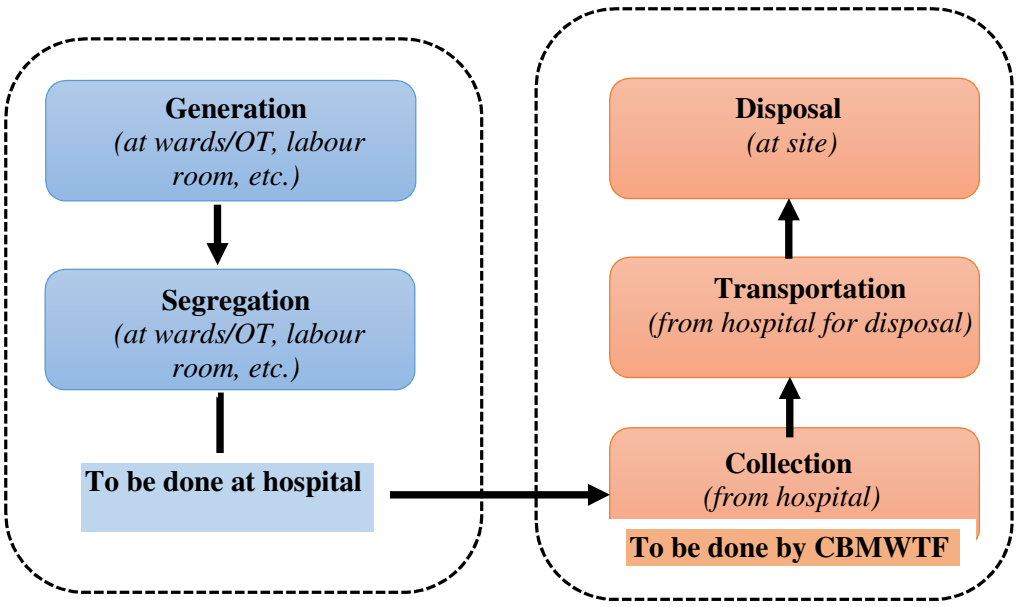
(i) Linen being soaked and hand washed by Dhobi of DH Kohima. Waste water let in public drain

Department replied (October 2020) that based on the audit comments, SOP for handling, washing and disinfecting of linen had been prepared which would be circulated to health units for compliance.

5.6 Bio-Medical Waste Management

GoI framed Bio-Medical Waste (Management and Handling) Rules, 1998 under Environment (Protection) Act, 1986 which was superseded by Bio-Medical Waste Management Rules, 2016 (BMW Rules). The BMW Rules inter alia stipulate the procedures for collection, handling, transportation, disposal and monitoring of the Bio-medical (BM) waste with clear roles for waste generators and Common Bio-Medical Waste Treatment Facilitator (CBMWTF).

Figure 5.1: Stages of bio-medical waste management



5.6.1 Authorisation for generating Bio-Medical waste

BMW Rules required that hospitals generating BM waste should obtain authorisation from the State Pollution Control Board (SPCB). Department replied (October 2020) that authorisation from the State Pollution Control Board had been obtained for all health units in the State. However, Department did not furnish documentary evidence obtained from SPCB to audit for verification.

5.6.2. Segregation and disposal of Bio-Medical waste

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 collected by the CBMWTF.

Audit observed that all test checked DHs, CHC and PHC segregated solid BM waste at the point of generation in colour coded bins. Method of collection and disposal of the BM waste by the four DHs is shown in **Table 5.6**.

Table 5.6: Method of collection and disposal of solid BM waste in the test checked DHs

Sl. No.	Parameters of biomedical waste management	DH Kohima	DH Wokha	DH Phek	DH Tuensang
1.	Segregation of bio waste at the point of generation in colour coded bins	Yes	Yes	Yes	Yes
2	Collection of bio waste from the DHs by CBMWTF	Outsourced	Disposal done by hospital	Disposal done by hospital	Disposal done by hospital
3	Disposal of human anatomical waste and other solid biological waste.	Outsourced but not segregated	Deep burial	Deep burial	Deep burial

4	Disposal of sharps and other hazardous waste	-do-	Deep pit	Deep burial	Deep burial
5	Disposal of liquid biological waste	Discharged into drain, untreated	Disinfected and discharged into drain	Disinfected and discharged into drain	Discharged in drain, untreated
6	Chemical waste	Discharged into drain	Discharged in drain	Discharged into drain	Discharged into drain

Source: Replies furnished by Department and physical verification

It can be seen from the table above that except DH Kohima, all the other three district[4] hospitals did not engage any agency or CBMWTF for disposal of solid BM waste. It was done by the hospital engaging its own staff in the hospital premises, following the methods of solid bio-waste disposal.

However, DH Kohima engaged Kohima Municipal Council (KMC) to collect the BM waste from the hospital site for disposal. Audit observed that segregation of BM waste was done by the wards/departments of hospital as per provisions of the BMW rules. The BM waste was collected from the wards/departments and dumped at a common waste pit of the hospital without segregation or without colour coded bags. This defeated the very purpose of segregation of BM waste at the point of generation. Further, it was also seen that KMC collected the BM waste from the waste pit and dumped in the common public waste dumping site of KMC.

Photographs 5.10: Colour coded plastic containers are used for collecting different types of Hospital waste in DH Wokha

Photograph 5.11: Effluent plant without lids – DH Wokha

Photograph 5.12: Hospital waste burnt in open space at DH Wokha

Photograph 5.13: DH Kohima waste (in black plastic bags) in dump pit. BM waste dumped in the common collection point without segregation for pickup by KMC.

[4] DH Tuensang, Phek and Wokha

Photograph 5.14: KMC picks up unsegregated BM waste from DH Kohima dump pit

Photograph 5.15: KMC dumps the BM waste at the common dumping site of Kohima

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

However, except DH Wokha, other test checked hospitals and CHCs did not establish Effluent Treatment Plants (ETPs) for pre-treatment of the liquid chemical and bio-medical waste, resulting in draining of the waste into public drainage.

Thus, all the four test checked hospitals not only violated the BMW Rules but also created an environment hazardous to public health at large.

Department replied (October 2020) that colour coded bins have been distributed to all the Health Units but colour coded bags are in the process of procurement through Nagaland Health Project (NHP). It was also stated (February 2021) that construction of effluent treatment plant has been completed in DH Phek in January 2021 and is ongoing in DH Tuensang.

5.7 Ambulance Services

IPHS norms prescribes that every DH should have three ambulances if the bed strength is more than 100 and two ambulances if the bed strength is from 51 to 100. In the case of CHCs, round the clock ambulance service with basic life support should be available. It is also desirable to have an ambulance in PHCs to provide emergency services.

Position of availability of Ambulance in the State was as shown in **Table 5.7.**

Table 5.7: Position of availability of Ambulance in the State

Year	Number of Ambulance at the beginning of the year	Number purchased during the year	Total available with the Department	Number of functional Ambulance	Number of Non-functional ambulance
2014-15	75	5	80	77	3
2015-16	80	0	80	77	3
2016-17	80	1	81	78	3
2017-18	81	0	81	75	6
2018-19	81	11	92	70	11

Source: Departmental records

There are 174 facilities[5] (excluding SCs) where pregnant women report for ANC check-ups and delivery is carried out in the State.

Table 5.8 showing requirement of ambulances as per IPHS norms

Type of facility	Number of health units	Norms	Requirement as per norm
DHs with more than 100 bed strength	3	3	9
DHs with bed strength less than 100	8	2	16
CHCs	25	1	25
PHCs	138	1	138
Total			**188**

As can be seen from above table, there was shortage of 118 (62.77 *per cent*) ambulances in the State.

All test checked DHs were providing ambulance services. DHs Tuensang and Kohima have two ambulances each. One of the ambulance (NL 10 3287) attached to DH Tuensang was not used for transport of patients or JSSY beneficiaries due to unreliable condition (registered in the year 2000) of the vehicle. Out of two ambulances available in DH Kohima, one ambulance is retained for protocol duties. DH Wokha and DH Phek had one ambulance each for emergency services.

Photograph 5.16: Ambulance provided to DH Phek.

Photograph 5.17: Inside view of the Ambulance.

Ambulance attached to DH Wokha is off road since November 2019, while ambulance attached to DH Kohima is mainly utilised for carrying patients from DH to a Private Hospital for taking CT scan and back. The State had not implemented 108 Ambulance Services for patients.

Further, an ambulance is supposed to maintain a minimum of 11 (**Appendix III**) items including emergency drugs and equipment. None of the DHs maintained the stock registers of drugs and equipment available in the ambulance. Emergency drugs / first aid kits were not found during physical verification of ambulances. It was stated by all DHs that as and when necessity arises, nurses and medicines from emergency department were provided for ambulance. However, due to non-maintenance of stock register in emergency ward, actual issue of drugs to ambulances could not be ascertained in audit.

[5] 11 DHs, 25 CHCs and 138 PHCs.

Department replied (November 2020) that audit observations were noted for strict compliance and henceforth stock register would be maintained in respect of emergency medicines, equipment etc. However, Department did not offer any comment on shortage of ambulances in the State.

5.8 Availability of sufficient Water in Hospitals

As per IPHS norms, arrangement should be made round the clock for piped water supply along with an overhead water storage tank with a provision to store at least 3 days water requirement and it should have pumping and boosting arrangements. Approximately 450 to 500 litres of water per bed per day is required.

Scrutiny of records followed by physical verification revealed that sufficient water was not available in test checked DHs.

Table 5.9: Status of water availability in the test checked DHs

Name of DH	Functional bed strength	Quantity of water required per day (@450 litres per day per bed)	Capacity of the tanks available (Litre)	Remarks
DH Kohima	252	113400	Not available	Sufficient and reliable water supply not available. Depends on PHED line
DH Wokha[6]	50	22500	5000	Sufficient water not available in bore well. Depends on water harvesting structures.
DH Phek	68	30600	50000	Sufficient water available in Bore/ tube well and PHED line and rain water harvesting.
DH Tuensang	100	45000	Not available	One water harvesting structure of capacity 83250 litres is under construction. Currently water from PHED line is available.

As can be seen from above, except DH Phek, in other DHs sufficient water was not available. At DH Kohima not even overhead tank was provided and the supply depended mainly on PHED line which was not dependable in lean seasons. In Wokha, though there were three water harvesting structures of 71000 litres capacity and 5000 litres of overhead tank, scarcity of water occured during lean season.

Photograph 5.18: Water storage tanks in DH Wokha

[6] DH Wokha – Water Harvesting structures of capacity 22977 litres, main Water Tank - 23000 litres, capacity - 25485 litres capacity and 5000 litre capacity overhead tanks.

Quality of water from ring well in DH Wokha was tested thrice[7] and different parameters were found to be within permissible limits. Quality test in other test checked DHs were not carried out.

Department replied (October 2020) that in DH Tuensang, rain water harvesting tank (80K litres capacity) and tube well were constructed during October 2020. It further stated that construction of rain water harvesting tanks was in progress in all DHs.

Reply of the Department did not fully address the observations raised in Audit such as testing of quality of water and arrangement for water during lean seasons.

5.9 Conclusion

There were deficiencies in proper storage of drugs as none of the test checked DHs followed prescribed protocol for storage of drugs. Neither the OPDs nor the IPD wards maintained records on drugs received by them from main drug store of the hospital. Further, records of dispensing of drugs to the patients were also not maintained by the IPDs and OPDs of all DHs. Fortnightly review of the short expiry of drugs were never carried out in any of the facility. There was also no record to show the quantity and type of medicines expired. There was also no record on drugs received and subsequently called back due to substandard quality. Assessment of infection prevention and control mechanism was ineffective. All types of linens as prescribed by IPHS norms were not available in test checked DHs. The State had 70 functional Ambulances but there was a serious shortage (63 *per cent*) of ambulance services with respect to IPH norms.

All the test checked DHs were segregating bio waste of the hospital as per norms. However, except for Kohima, the collection in other DHs was not outsourced to local authorities. The disposal of bio waste and other hazardous waste was done in drains/deep pit burials by the hospitals themselves. Except DH, Wokha, other test checked hospitals did not have ETP plants for treatment of liquid and bio medical waste resulting in drainage discharge of the waste.

5.10 Recommendation

(i) The DHs needs to take corrective steps to store the drugs as per the labelling conditions prescribed on the packs to maintain their loss of efficacy before being administered to the patients.

(ii) The Department needs to ensure that the infection control mechanism is embedded in hospitals and is thoroughly monitored by adopting all prescribed methods of sterilisation and microbiological sampling etc.

(iii) The Department may ensure that BMW Rules are adhered and followed rigorously by DHs to provide an infection free environment in the hospitals. Deviation from BMW Rules in Procedures for collection, handling, transportation, disposal and monitoring of the Bio-medical waste should be viewed seriously and monitoring mechanism be developed at the Government level needs to be put in place.

[7] August 2017, March 2018, November 2018