



CHAPTER IV

AVAILABILITY OF DRUGS, MEDICINE, EQUIPMENT AND OTHER CONSUMABLES



CHAPTER IV

AVAILABILITY OF DRUGS, MEDICINE, EQUIPMENT AND OTHER CONSUMABLES

Tamil Nadu Medical Services Corporation Limited (TNMSC) is involved in procurement, testing, storage and distribution of drugs, medicine, surgical items, consumables, equipment, etc., to all Government HCFs in the State.

Several essential drugs and medicines were not procured by TNMSC, leading to non-availability of adequate treatment options in Government HCFs. Disruptions in supply chain management of Drugs and Medicines of TNMSC had impacted the availability of some medicines in sampled hospitals. Deficiencies continued to plague the Drug Distribution Management System (DDMS) of TNMSC, despite being pointed out in earlier Audit Reports. Large numbers of equipment were under disrepair despite availability of a system for Annual Maintenance Contract. Several newly procured medical equipment were not installed and commissioned for more than two years due to procurement without assessing the requirement.

4.1 Availability of essential drugs and consumables

IPHS Guidelines lists out the Drugs/lab reagents/other consumables that secondary care Hospitals⁶¹ should stock to provide for delivery of minimum assured services.

The overall percentage of availability of drugs and consumables in the sampled Secondary care hospitals is given in **Table 4.1**.

Table 4.1: Percentage of availability of drugs and consumables in sampled Secondary Care Hospitals

Sampled Secondary Care Hospitals		Percentage of availability of Drugs and Consumables (In per cent)			
Type	Number of HCFs sampled	Below 25 per cent	26 to 50 per cent	51 to 75 per cent	Above 75 per cent
District Hospitals	5	0	3	1	1
Taluk Hospitals	6	0	6	0	0
Non-Taluk Hospitals	5	0	5	0	0
Total	16	0	14	1	1

(Source: Details furnished by the respective DHQs/TKHs/NTKHs)

⁶¹ District Hospitals and Sub-District/Sub-Divisional Hospitals.

While the category-wise details of the availability of Drugs, Lab Reagents, Consumables and Disposables in the sampled DHQs⁶² are given in **Appendix 4.1**, the details in respect of the sampled Sub-District/Sub-Divisional Hospitals (TKHs and NTKHs)⁶³ is given in **Appendix 4.2**.

Audit observed the following:

- Out of 16 secondary care hospitals sampled, only two⁶⁴ DHQs had 75 per cent or above of the drugs and consumables listed in the IPHS guidelines.
- The remaining 14 hospitals had drugs and consumables ranging from 26 per cent to 49 per cent as per IPHS Guidelines.

4.2 Availability of AYUSH essential medicines in sampled HCFs

The Tamil Nadu Medicinal Plant Farms and Herbal Medicine Corporation Limited (TAMPCOL) manufactures, procures and supplies AYUSH medicines to all Institutions functioning under the Directorate of Indian Medicine and Homoeopathy, besides other Government Institutions and TAMPCOL's own sales outlets.

As of January 2024, Audit observed that while 14 sampled HCFs⁶⁵ (30 per cent) did not have any AYUSH drugs, 13 sampled HCFs⁶⁶ (28 per cent) had stock of Ayurvedic drugs. However, 19 sampled HCFs had stock of Siddha drugs.

4.3 Availability of Equipment in Secondary care Hospitals

IPHS Guidelines, 2012, provides detailed information on service norms for equipment⁶⁷ for District Hospitals⁶⁸ and Sub-District/Sub-Divisional Hospitals⁶⁹. The Equipment Norms are worked out keeping in mind the recommended assured services the secondary care hospitals are expected to provide.

⁶² As per IPHS Guidelines for District Hospitals (100-500 bedded), 2012.

⁶³ As per IPHS Guidelines for Sub-District/Sub-Divisional Hospitals (31-100 bedded), 2012.

⁶⁴ Cheyyar (75 per cent) and Perambalur (77 per cent).

⁶⁵ (i) GMCH, Erode; (ii) DHQH, Cheyyar; (iii) Block PHC, Naducauvery; PHCs at (iv) Chakkarapalli, (v) Kaikalathur, (vi) Kurangani, (vii) Poondi, (viii) Sandavasal; Urban PHCs at (ix) Gobichettipalayam, (x) Karur Town, (xi) Kumbakonam (EVRM), (xii) Thanjavur (Kallukulam), (xiii) Theni (Bommayagoundanpatti), (xiv) Tiruvannamalai (Central).

⁶⁶ DHQs at (i) Kumbakonam, (ii) Perambalur, (iii) Periyakulam; (iv) TKH, Andipatti; NTKHs at (v) Chinnamanaur, (vi) Thanipadi; Block PHCs at (vii) Chennimalai, (viii) Chinnadharapuram, (ix) Modakuruchi, (x) Vettavalam; (xi) UPHC, Kadamalaigundu; (xii) PHC, Kadavur and (xiii) Urban PHC, Erode (Gandhiji Road).

⁶⁷ For Imaging/X-ray, Maternity care, ENT, Eye, Dental, OT, Laboratory etc.

⁶⁸ Separate norms for District Hospitals having bed strength of 100-200, 201-300 and 301-500.

⁶⁹ Separate norms for Sub-District/Sub-Divisional Hospitals having bed strength of 31-50 and 51-100.

The overall percentage of availability of Equipment in the sampled Secondary care hospitals is given in **Table 4.2**.

Table 4.2: Percentage of availability of Equipment in sampled Secondary care Hospitals

Sampled Secondary care Hospitals		Percentage of availability of Equipment				
Type	Number of HCFs sampled	Below 25 per cent	26 to 50 per cent	51 to 75 per cent	Above 75 per cent	More than 100 per cent
District Hospitals	5	-	1	-	3	1
Taluk Hospitals	6	1	2	2	1	-
Non-Taluk Hospitals	3 ⁷⁰	1	2	-	-	-
Total	14	2	5	2	4	1

(Source: Details furnished by the respective DHQHs/TKHs/NTKHs)

While the category-wise details of the availability of Equipment in the sampled DHQHs⁷¹ are given in **Appendix 4.3**, the details in respect of the sampled⁷² Sub-District/Sub-Divisional Hospitals (TKHs and NTKHs) is given in **Appendix 4.4**.

Audit observed that out of 14 sampled secondary care hospitals, the availability of equipment, as stipulated by IPHS norms, was below 50 per cent in seven⁷³ HCFs. The severe shortage of equipment could result in hampering of the assured services to the patients in various critical services like imaging, laboratory, obstetrics and gynecology, operation theatre etc.

4.4 Procurement of Drugs and Medicines

4.4.1 Non-procurement of Essential Drugs

TNMSC maintains a list of Essential Drugs, which must be kept in stock at its warehouses for supply to needy HCFs. The process of procurement and distribution of Essential Drugs is detailed in **Exhibit 4.1**.

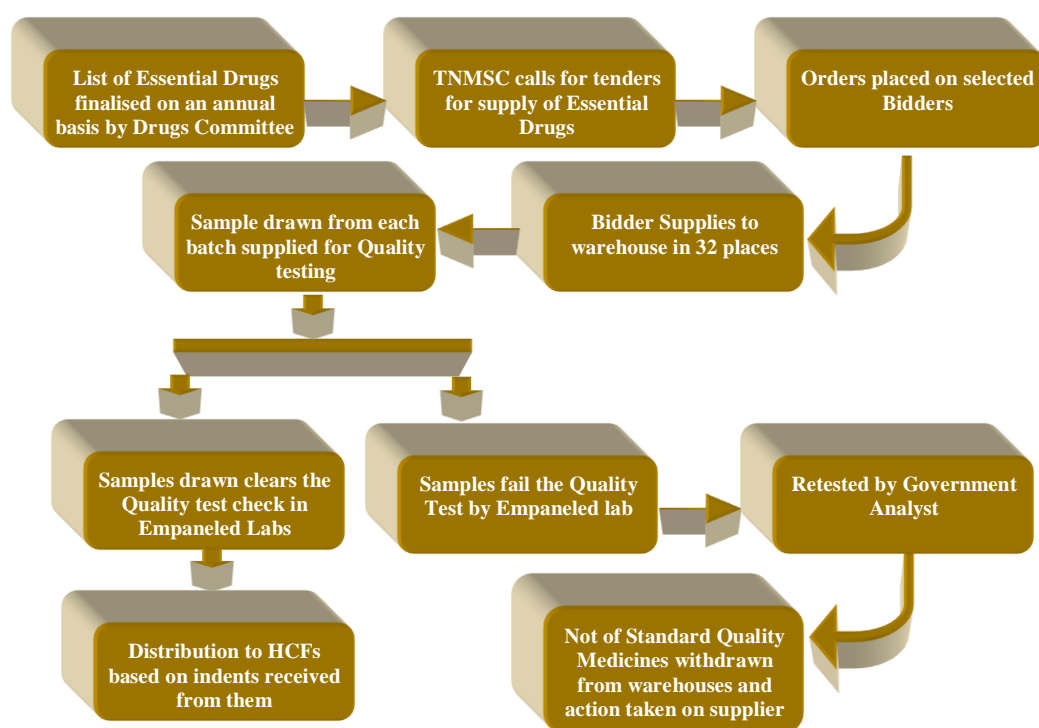
⁷⁰ As the bed strength of NTKHs at Kavandapadi and Thirukkattupalli are only 30 and 26 respectively, the details of equipment in the two NTKHs have not been included.

⁷¹ As per IPHS Guidelines for District Hospitals (100-500 bedded), 2012.

⁷² As per IPHS Guidelines for Sub-District/Sub-Divisional Hospitals (31-100 bedded), 2012.

⁷³ (i) DHQH, Kumbakonam (42 per cent); TKHs at (ii) Andipatti (9 per cent), (iii) Karai (46 per cent) and (iv) Thandarampattu (35 per cent); NTKHs at (v) Chinnamanur (50 per cent), (vi) Thanipadi (35 per cent) and (vii) Velayuthapalayam (17 per cent).

Exhibit 4.1 Process flow for procurement and distribution of Essential Drugs



(Source: TNMSC records)

It was seen that TNMSC was not procuring all the Essential Drugs as given in Table 4.3.

Table 4.3: Year-wise essential drugs procured by TNMSC

Year	Total number of Drugs in Essential Drug List	Total number of Essential Drugs procured	Percentage of procurement
2016-17	305	281	92
2017-18	314	307	98
2018-19	314	296	94
2019-20	315	305	97
2020-21	326	294	90

(Source: TNMSC data)

TNMSC had not procured certain important drugs like Rifampicin Cap IP 150 mg (procured only during 2017-18) used to treat tuberculosis, Adrenochrome Monosemicarbozonate Tab (not procured during 2019-20 and 2020-21) for treating bleeding and Benzyl Penicillin Inj IP (procured only during 2019-20) used for treating most wound infections. Chlorothalidone Tab 12.5 mg and 25 mg, used to treat Hypertension and Vildagliptin Tab 50 mg, used to treat Type 2 Diabetes Mellitus, were procured only during 2020-21.

Further analysis revealed that four of the above five drugs were indented by HCFs during the period and were not issued by TNMSC on account of non-availability. Also, in three instances relating to supply of Benzyl Penicillin

Inj IP 600 mg to HCFs, TNMSC issued no objection certificate to enable the HCFs to go for local procurement.

GoTN replied (August 2022) that all the drugs figuring in Essential Drug list need not be/could not be procured due to various reasons such as non-participation of the drug manufacturer, obsolete drugs, drugs not preferred by treating Physicians, banned by Central Licensing Authority etc. It was also stated that the HCFs could go for local procurement if needed. Even when the drugs were considered essential and the same were demanded by HCFs, TNMSC failed to procure all the drugs.

4.4.2 Non-supply and short-supply of drugs and medicines to hospitals

Drugs and medicines required for the HCFs were to be periodically indented to TNMSC warehouses. It was noticed that in MCH Thanjavur and DHQs, Erode and Perambalur, indents were placed to TNMSC warehouses and the same were returned stating that those medicines were not available. During 2016-21, 95, 61 and 93 medicines indented by MCH Thanjavur and DHQs, Erode and Perambalur respectively, were not supplied.

The TNMSC warehouse, Tiruvannamalai did not supply the full indented quantity of five⁷⁴ tablets to MCH, Tiruvannamalai. The quantity supplied fell short of the indent by 200 to 5,00,000 tablets, which resulted in local purchase of those medicines by the hospital. Similar issues were noticed in TKH, Karai, where there was short-supply of 26 drugs in 2020-21.

GoTN admitted (August 2022) that disruptions happen due to supply failures and replied that 10 *per cent* of the drug budget is retained at the institutional level for local purchase and alternate medicines were available with the HCFs.

The reply only exposed the overall inefficiency of the procurement process of TNMSC.

4.5 Drug Distribution Management System

TNMSC uses 'Drug Distribution Management System (DDMS)' for processing tenders, managing contracts and distribution of drugs, medicines, and other consumables. An IT Audit⁷⁵ of DDMS highlighted issues in the system-based controls in awarding contracts, quality control of procured store, issues in distribution, etc. Audit noticed that many of the issues already pointed were not addressed/resolved.

4.5.1 Deficiencies in tender processing system in DDMS

As per Drug Procurement Policy of TNMSC, the tender processing officers should ensure that the bids meet the tender requirements. Even though TNMSC used DDMS for processing tenders, procurements were also made manually as

⁷⁴ Amoxicillin 250 mg, Enalapril 250 mg, Glimipride, Griseofulvin and Metformin.

⁷⁵ Included in CAG's Audit Report on Public Sector Undertakings, Government of Tamil Nadu - Report No. 05 of 2017 (Paragraph Number 2.2).

the automation was incomplete which led to difficulty in monitoring as discussed below:

- In 26 out of the sampled 72 tenders, involving 353 tenderers, data pertaining to one or more mandatory documents such as proof of production capacity, turnover data, etc., were not captured in DDMS.
- In 274 instances, involving 38 tenders and 218 tenderers, the price bids were opened even though the remarks column indicated that the document submitted was incomplete.
- In 351 instances, involving 113 tenders and 170 tenderers, details of the Earnest Money Deposit were not captured.
- In 24 instances, involving 5 tenders and 14 tenderers, details of Security Deposit collected were not captured.

Thus, the data held in the system was incomplete and unreliable.

GoTN replied (August 2022) that the main purpose of DDMS module was drug stock distribution and monitoring only. It further stated that TNMSC is actively engaging with National Informatics Centre for switching over to online tenders.

The reply confirms the fact that DDMS is used partially and not used as a monitoring tool despite having provisions for capturing procurement process.

4.5.2 Discrepancies in data capture of 'Manufacturing Date'

Manufacturing date is an important field that must be captured in the system as the suppliers are expected to supply drugs and medicines within 30 days of manufacturing to have longer shelf life. Analysis of DDMS data disclosed that the manufacturing date of same batch of drugs was captured by different Warehouses erroneously as in 1,061 instances where the manufacturing date captured for the same batch of drugs was not the same. The difference ranged from (-) 1,248 days to (+) 7,305 days.

These wrong entries by the Warehouse Managers disabled the provision to check whether the supplier effected the supply within 30 days of manufacturing.

GoTN replied (August 2022) that such discrepancy will not occur in future and necessary validations will be incorporated at the input stage.

4.5.3 Supply of drugs with lesser shelf life

As per tender conditions, the tenderer should supply the product within 30/40 days⁷⁶ from the date of manufacture. In case the product is received after 30 days from date of manufacture and the product is not consumed before its expiry date, the supplier should replace the short expiry or expired quantity with fresh stock having longer shelf-life, otherwise the expired product will be returned to the supplier and the value equal to the cost of expired quantity will be recovered.

⁷⁶ 30/40 days of manufacturing in respect of Category 'A'/'B' drugs.

During 2016-21, 185 suppliers supplied 1,447 drugs which were manufactured much earlier than 30 days before the date of supply. Audit scrutiny revealed that such drugs and medicines costing ₹11.12 crore had expired while in stock, during 2016-21. Audit noticed that the suppliers had replaced the expired items only in 13 instances, of which 10 instances relate to period 2020-21 or later only. Thus, Audit observed that TNMSC failed to fix responsibility on the suppliers for belated supply.

GoTN replied (August 2022) that the condition could not be strictly adhered to owing to various reasons. Government further stated that TNMSC was proactively monitoring the incidents from 2021- 22 onwards.

4.5.4 Suppliers not blacklisted by system for less supply

As per Clause 13.4 (i) and (ii) of the tender, the supplier should supply at least 50 *per cent* of the ordered quantity within 45/60 days from date of Purchase Order (PO) and the balance quantity within 60/70 days from date of PO at the destinations mentioned in the PO for Category 'A'/Category 'B' drugs respectively. The order stands cancelled at the end of 90th/100th day from the issue of PO after levying of penalty on the value of unexecuted order as specified under Clause 18.3. Further, the tenderer shall also be liable to pay other penalties as specified under Clause 19. However, if such default occurs for three or more POs placed during the tender period, penal action like blacklisting should be enforced. Analysis of DDMS data disclosed that:

- A total of 123 suppliers, who did not supply 70 *per cent* of PO quantity even after 90 days of the PO and had defaulted more than twice, were not blacklisted.
- Suppliers of 2,144 POs did not supply goods, but the POs were not cancelled.
- A total of 845 POs were cancelled belatedly, up to 885 days from PO date.
- TNMSC makes emergency open market procurements if the supplier failed to fulfill the conditions of the PO. In such cases, the excess expenditure on emergency procurement will be recovered from the defaulting suppliers. During 2016-21, TNMSC incurred an additional expenditure of ₹1.47 crore due to suppliers' failure. DDMS did not capture details of recovery from the supplier.

Thus, it was observed that DDMS was not being used effectively to deal with defaulting suppliers, as all the features of DDMS were not being used.

GoTN stated (August 2022) that any drastic action of blacklisting the defaulting suppliers on non-delivery will affect availability of drugs to the institutions. The reply was untenable as such relaxation of tender conditions could lead to selective misuse and adversely impact transparency in the process.

4.6 Quality control

As per TNMSC's Quality Control (QC) procedures, samples of all batches of drugs and medicines are drawn and sent to accredited laboratories for testing and distribution of stock to HCFs start only after they pass the QC. Items that do not pass QC at the first analysis were to be frozen, and if the second analysis also prove that the item is sub-standard, then the item would be returned to the supplier.

4.6.1 Delay in drug distribution due to delayed QC tests

Scrutiny of DDMS data on QC, disclosed delay in distribution of medicines during 2016-21 due to the following reasons:

- As against the Manual provision to draw samples from warehouses within two days, in 3,332 out of 87,495 instances (3.8 *per cent*), the samples were sent with a delay of more than 10 days.
- Analytical Laboratories should furnish the test reports within eight days of receipt of the samples for Category-A⁷⁷ drugs. However, in 20,895 out of 1,24,596 instances during 2016-21, lab reports of such samples were delayed beyond eight days *plus* transit time.
- The delayed lifting of samples and delayed testing had cascading effects on supply of these drugs and medicines to HCFs.

GoTN replied (August 2022) that TNMSC regularly monitors this issue.

4.6.2 Analysis not done for stocks lying in the warehouse

With a view to ensure the quality of the drugs during the storage period, the QC Policy and Procedures provides for quality testing of samples drawn from the lots which are lying in the warehouse for more than six months.

Audit found that during 2016-21, in 13,922 cases, drugs lying in the warehouses for more than six months were not sent for quality testing. DDMS did not have a feature to alert the warehouse managers on this QC issue.

Thus, Audit observed that the Quality Control system was deficient.

GoTN replied (August 2022) that suitable provision in the software application will be created to sort this issue and to adhere with the QC Policy.

4.6.3 Non-blacklisting of suppliers of poor quality drugs and medicines

As per the QC Policy and tender conditions, if the drugs and medicines supplied by a particular supplier did not pass QC repeatedly, the drug supplied by the supplier should be blacklisted. During 2016-21, in 19 instances, drugs supplied by different suppliers failed in Government laboratories more than two times. Out of these 19 instances, the suppliers were not blacklisted in 14 instances (relating to 14 suppliers and 13 drugs), as given in **Appendix 4.5**.

⁷⁷ Category A - tablets, capsules, pessaries, ointments, powder, liquid oral preparations and other items.

It was also seen that the drugs supplied by several suppliers were returned from hospitals due to quality issues/complaints as given in **Table 4.4**.

Table 4.4: Quantity and value of drugs which failed in quality testing but not black listed

Sl. No.	Failed more than two times	Number of instances drugs returned from hospitals	Quantity	Amount (₹ in lakh)
1	Same Supplier, Same Drug	1,244	50,67,494	72.11
2	Same Tender, Same Supplier	4,048	1,80,27,784	260.91

(Source: Analysis of DDMS data)

TNMSC replied that suppliers were not blacklisted as penalty was imposed instead of blacklisting. GoTN replied (August 2022) that blacklisting is resorted only to penalise grave deficiencies. The blacklisting of any company without due consideration of their market share and supply channels will restrict procurement agency's capacity to seamlessly procure drugs and hence, is done based on case-to-case basis.

The fact, however, remained that the QC policy was not implemented scrupulously and the instances of failures in quality testing were very high in numbers.

4.6.4 Non-blacklisting of laboratories

As per tender conditions, the empanelled laboratories should be blacklisted for two years if there were variations between their analytical reports and the reports furnished by the Government Laboratory.

Although 46 empanelled laboratories had variations between their reports and the reports furnished by Government laboratories or other empanelled labs in 1,292 instances, it was seen that only two⁷⁸ laboratories were blacklisted. Periodical reviews were not conducted by TNMSC in respect of the above mentioned cases where results differed.

Audit observed that non-ensuring the quality of test reports of private empanelled laboratories could lead to supply of sub-standard drugs and medicines.

GoTN replied (August 2022) that two empanelled laboratories were blacklisted, and penalty was levied on one for furnishing deviated test reports.

4.6.5 Distribution of drugs after 'Stop Issue' order

If a drug fails in the quality test of the empanelled analytical Lab/Government Lab, 'Stop Issue' order is issued to all warehouses to stop issue of the drug to HCFs and to retrieve the quantity already issued to HCFs.

⁷⁸ (i) Edward Food Research and Analysis Centre, Hyderabad and (ii) M/s Shagun Testing Laboratories, Gurgaon, Haryana.

During 2016-21, the warehouses issued 15.92 lakh quantity of 17 drugs⁷⁹ worth ₹16.02 lakh in 520 instances to various HCFs across the State. Further scrutiny revealed that one drug viz., Inj Dexamethasone Sodium Phosphate alone was issued in 330 instances out of 520 instances.

Thus, lapses on the part of TNMSC had resulted in lifting of non-standard quality drugs for issue to the patients by HCFs.

GoTN replied (August 2022) that in cases where drugs are distributed even after stop order, disciplinary actions are taken against the concerned warehouses in-charge personnel.

Recommendation 5:

Government should direct TNMSC to ensure that drugs that fail the quality tests are not issued to HCFs/should be retrieved back from the HCFs. Further, the Suppliers of such drugs should be blacklisted as per the existing provisions.

4.7 Deficiencies in availability and utilisation of medical equipment

Based on the requirements furnished by the respective Directorates, TNMSC procures medical equipment using funds from the State as well as NHM. TNMSC also arranges for Annual Maintenance Contract (AMC) of the medical equipment.

4.7.1 Medical equipment under repair

In the sampled hospitals large number of medical equipment were kept unutilised due to repair, as given in **Appendix 4.6**.

TNMSC should arrange for AMC for medical equipment after the warranty period, based on list of such equipment furnished by the heads of HCFs. The Bio-Medical Engineer, appointed by TNMSC on contract basis in every district, must monitor the maintenance of medical equipment.

Audit found that the equipment did not have a subsisting AMC. The Heads of the sampled hospitals did not monitor the performance of Bio-Medical Engineers and failed to furnish the list of equipment to TNMSC for arranging AMC.

GoTN furnished (August 2022) a detailed reply indicating the action taken/proposed to be taken in respect of the equipment pointed out by Audit. The fact, however, remained that the system of AMC and the work of Bio-Medical Engineers needed careful monitoring.

⁷⁹ (i) Symp Ambroxil; (ii) Tab Amitriptyline (25 mg); (iii) Cap Amoxycillin 250 mg; (iv) Black Disinfectant Fluid (Phenyl); (v) Tab Calcium Lactate 300 mg; (vi) Tab Carbimazole 5 mg; (vii) Inj Cefotaxime Sodium 2.5 mg; (viii) Tab Clopidogrel 75 mg; (ix) Cap Cyclosporin 50 mg; (x) Inj Dexamethasone Sodium Phosphate; (xi) Tab Dexamethasone 0.5 mg; (xii) Symp Iron and Folic Acid; (xiii) Inj Paracetamol 150 mg/ml; (xiv) Povidone Iodine Ointment; (xv) Inj Sodium Chloride 500 ml; (xvi) Inj Thiopentone Sodium 500 mg and (xvii) Tab Verapamil 40 mg.

4.7.2 Unnecessary procurement and idling of medical equipment for OT/ICU

In two sampled hospitals, medical equipment costing ₹23.04 lakh, were kept idle: some in unpacked conditions for long periods, as given in **Table 4.5**.

Table 4.5: Major items of equipment kept idle in sampled hospitals

Name of HCF	Name of equipment	Year of procurement	Cost (₹)	Status
GMCH, Tiruvannamalai	Fibre Optic Bronchoscope	2017	7,64,500	Kept in Main Store
	Cystoscope (Paed)	2019	6,79,396	
	Sigmoidoscope	2019	8,35,520	
TKH, Andipatti	Cryotherapy unit ⁸⁰	2012	24,331	Not used since it needs trained technician and liquid nitrogen which is not available.

(Source: Stock Register and JPV report)

Thus, Audit observed that there were serious disconnect between the HCFs and the TNMSC in assessing the requirement and procuring only the required equipment resulting in procurement of unnecessary equipment.

Recommendation 6:

Government should ensure that TNMSC takes ownership of maintenance activity of all medical equipment supplied to all healthcare facilities and update the inventory based on annual physical verification.

4.8 Deficiencies in diagnostic equipment

As per IPHS norms, ECG, X-ray and Ultrasonogram (USG) are essential services for Sub District/Sub Divisional Hospitals and District Hospitals. These equipment were supplied to all class of Government HCFs, right from PHC level. Audit of availability and utilisation of these equipment disclosed the following lapses.

4.8.1 Non-installation and commissioning of new X-ray machine

In DHQH, Perambalur, four X-ray machines⁸¹ procured between 2003 and 2012 were not installed for several years. It was reported that they were not installed for want of space and services were rendered with the available digital X-ray unit. Audit observed that the Hospital authorities failed to install and commission these X-ray units or to transfer them to other needy hospitals.

Similarly, in six of the nine sampled PHCs in Erode and Tiruvannamalai Districts, the X-ray units supplied between 2011 and 2020 were not installed

⁸⁰ Used to destroy precancerous conditions/lesions.

⁸¹ Two conventional X-ray-Philips make (2012), one Allenger Fixed X-ray 100 MA and one Stallion Mobile X-ray 520 MA.

and commissioned. The Medical Officers of the PHCs informed that these equipment were not commissioned for want of X-ray Technicians.

The sampled HCFs did not maintain proper records indicating the cost of these units. Hence, Audit worked out that the estimated cost of X-ray units lying uninstalled in the sampled HCFs, based on current rates, as ₹56.25 lakh (approximate).

Thus, procurement of X-ray units without assessing the requirement, availability of site and technicians beforehand itself resulted in idling of the equipment and consequent failure to provide radiological services to the needy patients.

4.8.2 Non-repairing of existing X-ray machine

In seven of the 47 sampled HCFs, six X-ray units were not functional due to non-availability of spares and not repairing the same, as given in **Table 4.6**.

Table 4.6: X-ray machines kept idle in sampled hospitals

Name of the Hospital	Number of units non-functional	Date of installation	Date from which not functioning	Number of patients referred to other hospitals
GMCH, Tiruvannamalai	1	NA	NA	Nil
DHQH, Kumbakonam	1	NA	November 2021	Nil
DHQH, Theni	1	NA	18-03-2020	Nil
TKH, Andipatti	1	NA	August, 2020 ⁸²	Nil
TKH, Thandarampattu	1	October 2016	October 2016	--
NTKH, Kavandapadi	1	1996	November 2020	157

(Source: JPV and details furnished by respective HCFs)

It was observed that:

- All except NTKH, Kavandapadi had alternative X-ray units to handle the diagnostic requirements, hence the existing machines were not repaired on priority.
- No action was taken to transfer the units to other hospitals if they were not required, nor the older ones were condemned and auctioned off if they were beyond repair.

4.8.3 Lapses in ensuring safety of X-ray machines

X-rays are hazardous radiations and hence according to Atomic Energy (Radiation Protection) Rules 2004, installation and operation of X-ray machines require licensing by GoI's Atomic Energy Regulatory Board (AERB).

Audit found that 19 X-ray units installed in 22 sampled HCFs were functioning without valid license (**Appendix 4.7**). Further, in 16 of the sampled HCFs, the X-ray Technicians were not provided with the Thermoluminescent Dosimeter Badge, which is required to be worn by them to monitor personal radiation level.

⁸² During JPV (January 2024), it was ascertained that the machine is in the process of being condemned.

Thus, Audit observed that the significant number of sampled HCFs did not attach due importance to safety protocols, exposing the staff as well as the patients to the hazards of X-ray radiations.

GoTN replied (August 2022) that the HCFs concerned had applied for AERB licenses and Thermoluminescent Dosimeter badges were also being arranged. However, the fact remained that these machines were being operated without following the mandatory safety procedures.

4.8.4 Non-functioning of ECG and USG equipment

In seven out of the 47 sampled HCFs, 11 ECG machines were kept idle due to repair. As a result, three of the sampled HCFs referred 660 patients to nearby hospitals during 2020-21 for diagnosis; one hospital had alternative ECG machine(s) and no record on patient referral was maintained by five other HCFs (**Appendix 4.8**).

Similarly, in eight out of the 47 sampled HCFs, eight USG machines were kept idle due to disrepair. As a result, two of the sampled HCFs (APHC, Kadavur and UPHC II, B K Patti) referred 2,739 patients to nearby hospitals during 2020-21 for diagnosis; one hospital had alternative USG machine(s) and no record on patient referral was maintained by five other HCFs (**Appendix 4.8**).

ECG reports are used to diagnose cardiac ailments. USGs are frequently used to check pregnant mothers and referring them to other hospitals due to non-functioning of the available USG would amount to serious deficiency in prenatal service.

GoTN has furnished (August 2022) a detailed reply on the action taken/proposed to be taken in respect of the equipment pointed out by Audit. The fact, however, remained that significant number of ECG and USG equipment remained unutilised impacting service delivery.

Recommendation 7:

Government should ensure that medical equipment like X-ray machines, ECG/USG machines etc., are procured only after ascertaining the availability of infrastructure to house the equipment and technicians to operate/service them when under repair.