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ABSTRACT

Tamil Nadu Health Systems Project – Strengthening of Equipment Maintenance System in Government Medical Colleges and its attached institutions under the control of Director of Medical Education – Contracting of Bio Medical Engineers – Orders issued.

HEALTH AND FAMILY WELFARE (EAP1/1) DEPARTMENT

G.O.(2D) No.24

Dated: 16.02.2012
Thiruvalluvar Aandu - 2043,
Masi - 4

Read

1. G.O.Ms No.63, Health and Family Welfare (EAP 1/1) Department Dated: 20.04.2005.
2. G.O.(4D) No.2, Health and Family Welfare (EAP 1/1) Department Dated: 10.04.2007.
3. G.O.(2D) No.81, Health and Family Welfare (EAP 1/1) Department Dated: 09.07.2008.
4. G.O.(Ms) No.23, Health and Family Welfare (H2) Department Dated: 24.01.2011

Read also

From the Project Director, Tamil Nadu Health Systems Project,
Letter No.3533/HSP/E1/2011 dated: 06.09.2011

ORDER:

In the Government Order fourth read above, the Government ordered that all medical equipments supplied to Government Medical Institutions should be categorised into A, B and C based on the value and essentiality and an inventory of these equipments and non medical equipments shall be made and that the inventory status should be updated as and when new supplies are made. The Government have also issued detailed guidelines on maintenance of equipments and ordered the establishment of a central Help Desk in Tamil Nadu Health Systems Project for equipments. The Government have also ordered that one Bio Medical Engineer and two Bio Medical Technicians will be provided to each districts to take care of the equipments at Secondary Care Hospitals and Primary Health Centres and one Bio Medical Engineer and two Bio Medical Technicians to all Government Medical Colleges.

2. The Project Director, Tamil Nadu Health Systems Project has stated that as per the Government Orders first to third read above the Tamil Nadu Health Systems

Project had recruited 10 Bio Medical Engineers on contract basis for maintenance of Equipments in 270 Secondary Care Hospitals and Primary Health Centres and posted them in 10 regions as follows, each region consisting of 3 districts or more.

(i) Trichy, (ii) Cuddalore, (iii) Kancheepuram, (iv) Coimbatore, (v) Virudhunagar, (vi) Madurai, (vii) Thirunelveli, (viii) Kumbakonam, (ix) Salem and (x) Dharmapuri.

3. With a view to effectively reduce the break down time of equipments and to streamline an effective equipment management systems, the Project Director, Tamil Nadu Health Systems Project has proposed sanction of 21 posts of Bio Medical Engineers under the control of Director of Medical Education to attend to the equipments maintenance systems in all Government Medical Colleges. The Project Director has requested the Government to issue orders in the matter as following:-

- i. To sanction an annual recurrent expenditure of Rs.61.38 lakhs and a non recurring expenditure of Rs.12.10 lakhs from out of Government of Tamil Nadu funds towards contracting of Bio Medical Engineers and Bio Medical Equipment Technicians for strengthening of equipment maintenance system as proposed above and as worked out below.

S.No	Activity	Unit cost (in Rs)	Annual cost (in Rs.lakhs)
1	Contract payment to Bio Medical Engineers	Rs.22,000 per month per BME for 12 months x 22 BMEs	58.08
Total Annual cost			58.08

Training cost (Non recurring cost)

S.No.	Category	Course fee	TA Food & Accommodation charges (Actual will be paid)	Total cost
1	Induction training for 46 new & 10 existing BMEs for 4 weeks to start with and 1 week each after 6 th and 12 th month	Rs.25,000 per person for 56 BMEs (Rs.14.00 lakhs)	Rs. 10,000 per person for 56 BMEs (Rs. 5.60 lakhs)	Rs. 19.60 lakhs
Total				Rs. 19.60

Provision of Kits and tools (non recurrent cost)

S.No.	Category	Unit cost In Rs.	Cost in Rs. lakhs Cost for DME (for 22 BMEs)
1	Patient safety test equipment	Rs.5, 000 (approx) per person	1.10
2	General test equipment	Rs.5, 000 (approx)	1.10
3	Tools	Rs.10,000 (approx)	2.20
4	Laptop with internet access (includes cost of data card and initial deposit)	Rs.30,000 (approx)	6.60
5	Cell phone	Rs.5,000 (approx)	1.10
Total			12.10

Provision for annual recurring cost for data card and cell phone

S. No.	Category	Unit cost In Rs.	Cost in Rs. lakhs Cost for DME (for 22 BMEs)
1	Provision for data card connectivity @ Rs.750 per month for 12 months each year for 22 persons	Rs.750	1.98
2	Cell phone allowance @ Rs.500 per month for 12 months each year for 22 persons	Rs.500	1.32
Total			3.30

Abstract of Cost

Director of Medical Education side

1	Recurring cost	Rs. 58.08 lakhs
2	Recurring cost	Rs. 3.30 lakhs
Total		Rs.61.38 lakhs

1	Non recurring cost (Para 5.4)	Rs.12.10 lakhs
Total		Rs.12.10 lakhs

- ii. To create 22 temporary posts of Bio Medical Engineers under the Directorate of Medical Education to fill them up by contract appointment @ 1 Bio Medical Engineer for every Medical College Hospital and its attached institutions including the Medical College for each of the 17 Medical Colleges.
- iii. To fix up the contract payment and other remuneration of Bio Medical Engineers as proposed above and at a cost as worked out at para 3 (i) above.
- iv. The Bio Medical Engineers working under Tamil Nadu Health Systems Project will be paid out of project funds the Bio Medical Engineers working under both Director of Medical Education & Director of Medical and Rural Health Services side will be paid out of Government of Tamil Nadu funds.
- v. The Project Director, Tamil Nadu Health Systems Project may be permitted to train the Bio Medical Engineers at Christian Medical College and Hospitals, Vellore in batches at a total cost of Rs.18.20 lakhs.
- vi. The Project Director, Tamil Nadu Health Systems Project may be permitted to recruit the Bio Medical Engineers on contract by calling for applications through news paper advertisements and select them by a committee nominated by him consisting of Director of Medical Education & Director of Medical and Rural Health Services and other officials.
- vii. The Project Director, Tamil Nadu Health Systems Project may be permitted to procure the patient safety kit, tool kit, laptop, cell phones etc., for the use of Bio Medical Engineers, as proposed in above through Tamil Nadu Medical Services Corporation by following World Bank procurement procedures. He is permitted to transfer the sanctioned funds further purpose to the PD account of Managing Director, Tamil Nadu Medical Services Corporation Limited through usual procedure.
- viii. The Bio Medical Engineers so recruited will execute contract agreement with Tamil Nadu Health Systems Project / Director of Medical Education as the case may be. The Project Director, Tamil Nadu Health Systems Project will

provide the Terms and conditions of contract and Employment in writing to the Bio Medical Engineers as given in the annexure I, II & III to this order.

- ix. The Project Director Tamil Nadu Health Systems Project may be permitted to reallocate the non recurring expenditure within the component without exceeding the total cost sanctioned.

4. The Government, after careful consideration, accept proposal of Project Director, Tamil Nadu Health Systems Project and issue the following orders:

- i. Sanction is accorded for an annual recurring expenditure of Rs.41.85 lakhs and a non recurring expenditure of Rs.8.25 lakhs from out of Government of Tamil Nadu funds towards contracting of Bio Medical Engineers and Bio Medical Equipment Technicians for strengthening of equipment maintenance system as proposed above and as worked out below in respect of Director of Medical Education component.

Director of Medical Education component

Recurring cost

S.No	Activity	Unit cost (in Rs)	Annual cost (in Rs.lakhs)
1	Contract payment to Bio Medical Engineers	Rs.22,000 per month per BME for 12 months x15 BMEs	39.60
	Total Annual cost		39.60

Recurring Cost

S. No.	Category	Unit cost In Rs.	Cost in Rs. lakhs Cost for DME (for 15 BMEs)
1	Provision for data card connectivity @ Rs.750 per month for 12 months each year for 15 persons	Rs.750	1.35
2	Cell phone allowance @ Rs.500 per month for 12 months each year for 15 persons	Rs.500	0.90
	Total		2.25
	Grant Total		41.85

1	Non recurring cost	Rs.8.25 lakhs
Total		Rs.8.25 lakhs

- ii. Sanction is accorded to create 15 temporary posts of Bio Medical Engineers under the Directorate of Medical Education to fill them up by contract appointment @ 1 Bio Medical Engineer for every Medical College Hospital and its attached institutions including the Medical College for each of the 10 Medical Colleges (except the districts of Thoothukudi, Vellore, Kanniyakumari, Theni, Dharmapuri, Villupuram and Tiruvarur).
- iii. To fix up the contract payment as worked out above and other remuneration of Bio Medical Engineers as proposed above and at a cost as worked out below.

Provision of Kits and tools (non recurrent cost)

S.No.	Category	Unit cost In Rs.	Cost in Rs. lakhs Cost for Director of Medical Education (for 15 BMEs)
1	Patient safety test equipment	Rs.5, 000 (approx) per person	0.75
2	General test equipment	Rs.5, 000 (approx)	0.75
3	Tools	Rs.10,000 (approx)	1.50
4	Laptop with internet access (includes cost of data card and initial deposit)	Rs.30,000 (approx)	4.50
5	Cell phone	Rs.5,000 (approx)	0.75
Total			8.25

- iv. The Bio Medical Engineers working under Director of Medical Education side will be paid out of Government of Tamil Nadu funds.

- v. The Government also direct that the existing and the new Bio Medical Enginners to be appointed shall be paid a contract payment of Rs.22,000/- (Rupees twenty two thousand only) per month with effect from the date of issue of this Government Order and date of joining respectively.
- vi. The Project Director, Tamil Nadu Health Systems Project is permitted to train the Bio Medical Engineers at Christian Medical College and Hospitals, Vellore in batches at a total cost of Rs. 5,25,000/- for Director of Medical Education.

S. No.	Category	Course fee	TA Food & Accommodation charges (Actual will be paid)	Total cost (Rs in lakhs)
1	Induction training for 15 BMEs for 4 weeks to start with and 1 week each after 6 th and 12 th month	Rs.25,000 per person for 15 BMEs (Rs.3,75,000/-)	Rs. 10,000 per person for 15 BMEs (Rs. 1.50 lakhs)	Rs. 5.25
Total				Rs. 5.25

- vii. The Project Director, Tamil Nadu Health Systems Project is permitted to recruit the Bio Medical Engineers on contract by calling for applications through news paper advertisements and select them by a committee nominated by him consisting of Director of Medical Education & Director of Medical and Rural Health Services and other officials.
- viii. The Project Director, Tamil Nadu Health Systems Project is permitted to procure the patient safety kit, tool kit, laptop, cell phones etc., for the use of Bio Medical Engineers, as proposed above through Tamil Nadu Medical Services Corporation by following World Bank procurement procedures. He is permitted to transfer the sanctioned funds further purpose to the PD account of Managing Director, Tamil Nadu Medical Services Corporation Limited through usual procedure.
- ix. The recurring expenditure relating to contract payment and cost of data card and cell phone allowance to the Bio Medical Engineers under Director of Medical Education side and the non recurring expenditure towards supply of kits and tools to the Bio Medical Engineers under the control of Director of Medical Education shall be met out from the following new head of account:
- "2210 Medical and Public Health – 01 Urban Health Services – Allopathy – 110 Hospitals and Dispensaries I. Non plan – DZ Upkeep of Medical equipments 05 Office Expenses – 01 Telephone Charges – Rs.3,00,000/-
(DPC 2210 01 110 DZ 0514)

19 Machinery and Equipments 01 purchase – Rs.3,00,000/-

(DPC 2210 01 110 DZ 1915)

33 Payments for professional and special services – 04 contract payment –

Rs.39,60,000/-

(DPC 2210 01 110 DZ 3342)

72 Training – Rs.5,25,000/-

(DPC 2210 01 110 DZ 7204)

76 Computer and Accesories 01. Purchase - Rs.4,50,000/-

(DPC 2210 01 110 DZ 7615)

- x. The Bio Medical Engineers so recruited will execute contract agreement with Director of Medical Education as the case may be. The Director of Medical Education will provide the Terms and conditions of contract and Employment in writing to the Bio Medical Engineers as given in the annexure I, II & III to this order.
- xi. The Director of Medical Education is authorised to incur the expenditure sanctioned at para 4 above and permitted to reallocate the non recurring expenditure within the component without exceeding the total cost sanctioned.

5. The Director of Medical Education is the estimating, reconciling and controlling authority for the above new head of account. The PAO/Treasury officers concerned are requested to open the above new head of account in their books.

6. The expenditure sanctioned in para 4 above shall constitute an item of "New Service" and the approval of Legislature will be obtained in due course, Pending approval of the Legislature the expenditures will initially be met by an advance from the contingency fund. Orders regarding which will be issued by the Finance (BG-I) Department based on the application from Director of Medical Education in the prescribed form along with a copy of this order. The Government direct the Director of Medical Education to send necessary draft explanatory notes for inclusion of the expenditure in the supplementary estimates to obtain approval of the Legislature at the appropriate stage to Finance Department.

7. This order issues with the concurrence of the Finance Department vide its.U.O.No.2433/H-I/2011-1, dated 15.02.2012 and Additional Sanction Ledger No.1603 (One Thousand Six hundred and Three)

(BY ORDER OF THE GOVERNOR)

GIRIJA VAIDYANATHAN,
PRINCIPAL SECRETARY TO GOVERNMENT

To

The Project Director, Tamil Nadu Health Systems Project, Chennai- 6.

The Principal Accountant General (A&E), Chennai – 18.

The Principal Accountant General (Audit I), Chennai -18.

The Pay and Accounts Office (South), Chennai -35.

The Director of Medical and Rural Health Services, Chennai -6.

The Director of Medical Education, Chennai -10.

The Director, Department of Internal Medicine, Govt. Rajiv Gandhi Hospital,
Chennai - 3.

The Director of Public Health and Preventive Medicine, Chennai - 6.

Copy to:

The Secretary to Government of India, Ministry of Health and Family Welfare, New
Delhi - 11.

The Country Director - India, The World Bank, New Delhi Office,
70, Lodhi Estate, New Delhi - 3.

The Finance (Health -I) Department, Chennai - 9.
SF/SC.

// FORWARDED / BY ORDER //

(Signature)
SECTION OFFICER

Annexure I

Job Title: Bio-Medical Engineer (Bio Medical Engineer)

Qualifications

- Bachelor in Engineering in one of the following technical streams - Biomedical, Mechanical, Instrumentation, Electrical or Electronics.

Additional Qualification

- Candidates who have done B.E with Bio Medical Engineering as one of the subjects shall be considered
- Two years experience as Bio Medical Engineer in a Hospital or Firm or Candidates who have undergone special training in equipment maintenance from reputed institutions shall be preferred.

Duties and Responsibilities (Revised and applicable to the existing Bio Medical Engineers also)

- The Bio Medical Engineer is responsible for maintaining a computerized inventory and repair status of all hospital equipments of all Government Health Care facilities in the district. The equipment shall cover both the existing ones and the equipment being provided by the Tamil Nadu Health Systems Project or by any other funding organization.
- He is responsible for maintaining the computerized inventory status of equipments.
- He is responsible for overseeing regular preventive maintenance and breakdown maintenance of equipments which are under AMC / warranty. He will attend to the breakdown of equipments.
- He is to periodically inspect each hospital and Primary Health Centre to verify the upkeep and the repair status of all equipments. The inspection shall be made at least once in a month.
- He is to oversee proper installation of all Bio Medical equipments.
- He is to recommend equipments for condemnation during his periodic visits to the hospitals.
- He will assess and find out the equipment requirement for the hospitals within his jurisdiction.
- He is to submit a monthly inspection report in respect of each hospital to the Hospital Authority, Deputy Director of Health Services office, Joint Director of Health Services office, Director of Medical and Rural Health Services office and Project Management Unit.

- He is to work in close coordination with the Tamil Nadu Medical Services Corporation in respect of equipment supply, installation and maintenance.
- He is to work under the Joint Director of Health Services / Hospital Superintendent / Dean / Director based on the place of posting.
- He shall send his advance tour programme to the institutions with a copy to the Joint Director of Health Services office, Deputy Director of Health Services office / Directorate Concerned.
- He shall maintain a diary of activities performed by him each day.
- He shall attend the Chief Medical Officers monthly review meeting conducted by the Deputy Director of Health Services, Joint Director of Health Services and similar meetings conducted by the Dean / Medical Superintendent as the case may be.
- He shall keep track of all warranty commitments on equipment purchased, AMCs finalized and all other contracts with third parties for maintenance / repair of equipment and ensure that all such arrangements work to minimize breakdown time of machinery / equipment.
- He will organize training programmes on equipment maintenance for the health care providers in the region either on his own (or) in coordination with supplier / Maintenance agency.
- He shall oversee and analyze standard health care technology, developing appropriate preventive maintenance or performance assurance protocols, and designing and implementing modifications which permit enhanced operational capability.
- He will apply and ensure that the relevant codes and standards related to the health environment and safeties are adhered to.
- He is responsible for ensuring calibration and performance of essential healthcare technology, the failure of which could directly affect the operation of essential services of the health facility as well as patient and operator safety.
- He will perform and document scheduled preventive maintenance, performance assurance, corrective repairs, and modifications on new and existing health care technology in coordination with Supplier / Agencies.
- He will utilize various measurement techniques to obtain optimum operational efficiency.
- He will perform other activities such as planning and costing work, training equipment users, managing the equipment inventory and database, financial management, keeping statistics, installing and commissioning basic- and medium-level equipment, and monitoring contracts.

- He will determine the need for, and assist in the purchase of equipment, tools, consumables, accessories, spare parts, and materials necessary to accomplish this range of tasks.
- In the performance of his/her duties, he shall work closely with Public Works Department & other engineering and medical personnel.
- He will communicate orally and in writing with medical, administrative and engineering professionals.
- He will develop written procedures and recommendations for administrative and technical personnel.
- He will apply conventional technical principles to modify, install, and correct malfunctions on basic health care technology skills Development
- He must possess or be able to acquire fundamental knowledge of the techniques, theories and characteristics of basic electricity, mechanics, optics, pneumatics and working materials in conjunction with Anatomy, Physiology, and health facility procedures (offered as in-service training).
- He must be willing to learn management skills on-the-job from supervising managers.
- He must be willing to be trained and apply soft-skills on the job to ensure collaborative solutions to be developed.
- He should have an active and inquiring attitude to pro-actively identify problems and generate solutions that can work within the system.
- He should be open to raise clinical and engineering skills and to work in partnership with clinicians, academia and industry to develop local solutions and technologies.
- He must be aware of relevant codes and standards related to the health environment and safety and apply relevant codes and standards related to the health environment and safety.
- He shall carryout all responsibilities assigned to him from time to time by the superior.

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C. M. P. M.
SECTION OFFICER

Annexure II

Training

Bio-Medical Engineering Induction Training

The program will expose the student to the physiology & anatomy as well as biophysical signal processing with reference to biomedical equipments. Experiences provided will include clinical exposure and understanding of the importance and use of various medical technologies by clinicians to manage patients. The program will also expose them to safety testing and calibrations of medical equipment. It will cover planning and organizing a medical equipment management system in multispecialty public health care delivery institute. Some basic soft skills and fundamentals on quality will also be covered in the program.

Course Duration: 6 contact weeks (4 weeks off-site initially, followed by 1 week in 6 months, and 1 week in 1 year)

Class size : 25 students/class

Program:-

- Will be conducted at CMC Vellore and orientation to a Healthcare facility.
- Will include workbooks/material on subjects
- Will include orientation to working in a hospital and with doctors & nurses.
- Will cover more applied physiology & anatomy, understanding the basics of bio-physical & electrical signals and processing with reference to biomedical equipments.
- Will cover board spectrum medical technology modalities including radiology, cardiology, neurology, critical care, laboratory sciences.
- Introduction to new modalities and technologies in healthcare.
- Will cover basics of medical equipment management, safety and testing.
- Working and establishing a Quality Management Systems
- How to run and manage a Bio-Medical Department
- Basics on managing a team of technicians and getting optimum performance from them.
- Introduction to Information Technology in Health Care
- Each student will be provided with a basic tool kit
- Each student will be provided a certificate of completion by CMC Vellore

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[Signature]
SECTION OFFICER

Annexure III

Sl.No	District	Hospital	Bio-Medical Engineers
1	Chennai	Madras Medical College and Research Institute, Chennai.	3
		Government General Hospital, Chennai	
		Regional Institute of Ophthalmology & Govt. Ophthalmic Hospital, Chennai.	
		Govt. Kasthuribai Gandhi Hospital , Chennai.	
		Institute of Obstetrics & Gynaecology & Hospital for Women & Children, Chennai	
		Institute Of Child Health and Hospital For Children , Chennai	
		Institute of Mental Health, Chennai	
		Institute Of Thoracic Medicine, Chetput, Chennai.	
		Government Institute of Rehabilitation Medicine, Chennai	
		Government Peripheral Hospital, Periyar Nagar, Chennai	
		Tamil Nadu Government Dental College and Hospital. Chennai	
2	Chennai	Stanley Medical College, Chennai.	2
		Government Stanley Hospital, Chennai	
		Raja Sir Ramasamy Mudaliar Lying-In Hospital, Chennai.	
		Government Hospital of Thoracic Medicine, Tambaram	
		Government Peripheral Hospital, Tondiarpet, Chennai	
3	Chennai	Kilpauk Medical College, Chennai.	2
		Kilpauk Medical College Hospital, Chennai	
		Thiruvetreeswarar Hospital For Thoracic Medicine, Otteri, Chennai	
		Govt. Royapettah Hospital, Chennai	
		Government Peripheral Hospital, K.K.Nagar, Chennai	
		Government Peripheral Hospital, Anna Nagar, Chennai	
		Government Hospital, Saidapet, Chennai	
4	Kancheepuram	Chengalpattu Medical College, Chengalpattu	1

		Chengalpattu Medical College Hospital, Chengalpattu	
		Arignar Anna Memorial Cancer Institute and Hospital Kancheepuram.	
5	Thanjavur	Thanjavur Medical College, Thanjavur.	1
		Thanjavur Medical College Hospital, Thanjavur	
		Raja Mirasdar Hospital, Thanjavur	
6	Madurai	Madurai Medical College, Madurai.	1
		Government Rajaji Hospital, Madurai	
		Government Hospital, Balarangapuram, Madurai	
		Government Hospital for Thoracic Medicine, Thoppur, Madurai	
		Infectious Diseases Hospital, Thoppur, Madurai	
		Cholera Collection Centre, Thoppur, Madurai	
7	Coimbatore	Coimbatore Medical College, Coimbatore	1
		Coimbatore Medical College Hospital, Coimbatore	
8	Tirunelveli	Tirunelveli Medical College, Tirunelveli	1
		Tirunelveli Medical College Hospital, Tirunelveli	
		Frieda Monier Hospital, Kalakad, Tirunelveli	
9	Salem	Mohan Kumaramangalam Medical College, Salem	1
		Mohan Kumaramangalam Medical College Hospital, Salem	
10	Trichy	K.A.P. Viswanatham Government Medical College, Trichy	1
		Annal Gandhi Memorial Government Hospital, Trichy	
11		Directorate of Medical Education	1
		Total	15

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6/12/2014
SECTION OFFICER