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ABSTRACT

④ Tamil Nadu Health Systems Project – Strengthening of Equipment Maintenance System in Government Hospitals and Primary Health Centres - Contracting of Bio Medical Engineers - In Government Health Institutions - Orders issued.
HEALTH AND FAMILY WELFARE (EAP1/1) DEPARTMENT

G.O.(3D) No.3

Dated:24.02.2012
Thiruvalluvar Aandu - 2043,
Masi - 12

Read

- 1) G.O.(Ms) No.63, Health and Family Welfare (EAP1/1) Department
Dated: 20.04.2005
- 2) G.O.(4D) No.2, Health and Family Welfare (EAP1/1) Department
Dated:10.04.2007
- 3) G.O.(2D) No.81, Health and Family Welfare (EAP1/1) 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.5431/HSP/E1/2011 dated: 22.11.2011.

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 to sanction of 22 posts of Bio Medical Engineers to look after the equipments maintenance system in all Government Hospitals and Primary Health Centres in all 32 Districts. Accordingly the Project Director, Tamil Nadu Health Systems Project had placed a proposal before the State Empowered Committee in the meeting held on 03.11.2011 for sanction of additional posts of Bio Medical Engineers. The State Empowered Committee had approved the proposal. The Project Director has requested the Government to issue orders in the matter.

4. This activity has been approved by the World Bank and comes under Component IV Sub Component A. The expenditure is eligible for reimbursement from the World Bank.

5. The Government, after careful consideration, accord sanction for creation of 24 temporary posts of Bio Medical Engineers to look after the equipment maintenance system in Government Hospital and Primary Health Centres. Out of these 24 posts of Bio Medical Engineers, one post of Bio Medical Engineer each shall be posted in the Equipments Cell to be created in the Directorate of Medical and Rural Health Services and Directorate of Public Health and Preventive Medicine. The remaining 22 posts and the 10 posts of Bio Medical Engineers already sanctioned in the Government Orders (i) to (iii) read above shall be posted at the rate of one Bio Medical Engineer in each district. These Bio Medical Engineers will be under the administrative control of the Joint Director of Health Services of the district and under the overall control of the Project Director, Tamil Nadu Health Systems Project and handhold with Tamil Nadu Medical Services Corporation during the project period. After the project period, all the Bio Medical Engineers appointed shall be placed under the administrative control of the Director of Medical and Rural Health Services, Chennai. During the project period, the contract payment of the 24 Bio Medical Engineers to be contracted new will be made by the Tamil Nadu Health Systems Project.

6. Sanction is accorded for creation of an Equipment Cell in the Directorate of Medical and Rural Health Services, Directorate of Medical Education and Directorate of Public Health and Preventive Medicine to supervise the work of maintenance of equipment in all the Medical Institutions under the administrative control of the respective Directorates.

7. Sanction is accorded for incurring a non – recurrent expenditure of Rs.18.70 lakhs (Rupees eighteen lakhs and seventy thousand only) as detailed below towards provision of kits and tools to the Bio Medical Engineers. The procurement of the above items shall be done through Tamil Nadu Medical Services Corporation Limited by following World Bank procurement procedure.

S.No.	Category	Unit cost In Rs.	Cost in Rs. lakhs for TNHSP (for 34 BMEs)
1	Patient safety test equipment	Rs.5, 000 (approx) per person	1.70
2	General test equipment	Rs.5, 000 (approx)	1.70
3	Tools	Rs.10,000 (approx)	3.40
4	Laptop with internet access (includes cost of data card and initial deposit)	Rs.30,000 (approx)	10.20
5	Cell phone	Rs.5,000 (approx)	1.70
Total			18.70

8. The Project Director, Tamil Nadu Health Systems Project is permitted to transfer the amount of Rs.18.70 lakhs towards procurement of safety kit, tool kit, lap top, cell phone, etc to the Tamil Nadu Medical Services Corporation Limited by cheque and credit it to the Public Deposit account of Tamil Nadu Medical Services Corporation Limited under the following head of account. " K Deposits and Advances (b) – Deposits not bearing interest – 8443.00 Civil Deposits – 800. Other Deposits of Tamil Nadu Medical Services Corporation Limited (D.P. Code : 8443 00 800 CE 000H (Receipts)".

9. The Managing Director, Tamil Nadu Medical Services Corporation Limited is permitted to procure and supply the above items to the Tamil Nadu Health Systems Project to settle the account with the Project Director, Tamil Nadu Health Systems Project after the supply.

10. Sanction is also accorded for incurring a recurring expenditure of Rs. 5.10 lakhs (Rupees five lakhs and ten thousand only), as detailed below towards provision of Data Card connectivity and Cell phone allowance to the Bio Medical Engineers.

S. No.	Category	Unit cost In Rs.	Cost in Rs. lakhs for TNHSP (for 34 BMEs)
1	Provision for data card connectivity @ Rs.750 per month for 12 months each year for 34 persons	Rs.750	3.06

2	Cell phone allowance @ Rs.500 per month for 12 months each year for 34 persons	Rs.500	2.04
	Total		5.10

11. Sanction is accorded for incurring an expenditure of Rs.11.90 lakhs (Rupees Eleven lakhs and ninety thousand only) towards training for 34 Bio Medical Engineers.

12. Sanction is accorded for incurring an expenditure of Rs. 63.36 lakhs (Rupees sixty three lakhs and thirty six thousand only) towards payment of contract wages to the Bio Medical Engineers sanctioned under Tamil Nadu Health Systems Project.

13. The Government also direct that the existing and the new Bio Medical Engineers 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. They will also be paid a Daily Allowance of Rs.150/- per day towards travel and other expenses for the number of days of visit to Hospitals and Primay Health Centres within the districts. They should make a separate claim for this payment. No Dearness Allowance will be paid for working in Head Quarters.

14. The recurring expenditure relating to contract payment to Bio Medical Engineers and cost for data card and cell phone allowance to the Bio Medical Engineers under Director of Medical and Rural Health Services side and the non recurring expenditure of training and provision of kits and tools to all Bio Medical Engineers shall be met out from the Tamil Nadu Health Systems Society Grant under the following head of account:

" 2210 – Medical and Public Health – 01 Urban Health Services - Allopathy - 800 Other Expenditure – Schemes in the Eleventh Five Year Plan – II . State Plan – PA. Tamil Nadu Health Systems Society. 09. Grants– in-aid – 03. Grants for specific schemes. (DPC: 2210 01 800 PA 0939)

15. The expenditure sanctioned above constitutes an item of New Service. The approval of the Legislature will be obtained in due course pending approval of the legislature the expenditure will be initially met by drawal of an advance from contingency fund. Orders regarding which will be issued by Finance (BG I) Department separately. The Project Director Tamil Nadu Health System Project is requested to send necessary proposal to Government in finance (BG I) Department in prescribed format, along with a copy of this order for sanction of an advance from contingency fund, He is also requested to send necessary explanatory note for inclusion of the above expenditure in the supplementary estimates to Finance (BG I) Department at an appropriate time without fail.

16. The Bio Medical Engineers recruited will execute a contract agreement with Tamil Nadu Health Systems Project 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.

17. The Project Director, Tamil Nadu Health Systems Project is permitted to reallocate the non recurring expenditure within the component without exceeding the total cost sanctioned.

18. After the project period, all posts of Bio Medical Engineers in Directorate of Medical and Rural Health Services side will be taken in the cadre strength of Directorate of Medical and Rural Health Services side and the payment for them will be made by the Government. Similarly the posts of Bio Medical Engineers in the Directorate of Medical Education will be absorbed in the cadre strength of Directorate of Medical Education and will be paid by the Government.

19. This order issues with the concurrence of the State Empowered Committee constituted in G.O. (Ms).No.28, Health and Family Welfare Department, dated 28.02.2005 and Finance Department vide its.U.O.No.10710/CMPC/2012 dated 23.02.2012 and Additional Sanction Ledger No.1692 (One Thousand Six Hundred and Ninety two)

(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.

All Pay and Accounts Offices.

All Treasury Officers.

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.

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Annexure I

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

Qualifications

- Bachelor in Engineering in any 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 and 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 superiors.

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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 exposure and understanding of the importance and use of various medical technologies applied 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 Christen Medical College 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 Healthcare.
- Each student will be provided with a basic tool kit.
- Each student will be provided a certificate of completion by Christen Medical College Vellore.

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Annexure III - DMS

Sl.No.	District	Number of Medical Colleges and Government Hospitals	Number of Primary Health Centres	Number of Urban Primary Health Centres	Number of Blood Bank	Total Number of Places	Bio Medical Engineers
1	Kancheepuram	8	55	4	5	68	1
2	Vellore	10 + 1	73	5	6	89	1
3	Thiruvannamalai	7	86	5	1	94	1
4	Cuddalore	8	59	6	4	71	1
5	Dharmapuri	4 + 1	36	4	1	41	1
6	Salem	9	75	2	3	87	1
7	Erode	8	71	8	3	82	1
8	Coimbatore	9	39	3	4	52	1
9	Tiruppur	8	31	3	2	41	1
10	The Nilgiris	6	30	1	2	38	1
11	Trichy	9	53	7	3	65	1
12	Pudukottai	12	54	4	2	68	1
13	Dindigul	12	53	3	2	67	1
14	Madurai	6	49	4	2	57	1
15	Virudhunagar	9	39	1	4	52	1
16	Sivagangai	16	47	3	2	65	1
17	Ramanathapuram	10	51	4	1	62	1
18	Tirunelveli	13	66	10	4	83	1
19	Thoothukudi	9 + 1	48	5	2	59	1
20	Kanniyakumari	9 + 1	36	4	2	47	1
21	Nagapattinam	12	48	3	2	62	1
22	Thanjavur	13	60	4	5	78	1
23	Villupuram	9 + 1	86	7	4	99	1
24	Karur	6	31	2	1	38	1
25	Perambalur	3	26	2	1	30	1
26	Ariyalur	4	30	2	-	34	1
27	Thiruvallur	11	46	3	1	58	1
28	Thiruvarur	7 + 1	42	3	1	50	1
29	Theni	6 + 1	29	4	2	37	1
30	Namakkal	8	51	8	3	62	1

31	Krishnagiri	6	39	6	2	47	1
32	Chennai				16	16	1
33	Director of Medical and Rural Health Services						1
34	Director of Director of Public Health and Preventive Medicine						1
	Total	267	1539	130	93	1899	34

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