

## 5.2 TEACHING HOSPITAL KURUNEGALA

Teaching Hospital Kurunegala (THK) comes under the Ministry of Health. It comes under the direct purview of the Line Ministry and it is one of (41) Line Ministry Hospitals in Sri Lanka. THK is classified as a tertiary care hospital and is the only one of its kinds in the North Western province. THK provides many types of medical services such as Medical, Surgical, Cardiology, Paediatric, Gynaecology & Obstetrics, Orthopaedic, ENT, Oral-Maxilo-Facial, Eye, Urinary, Cancer, Dermatology, Neurology, Rheumatology, Chest medicine, Neonatology, Judicial medicine, etc. One of the striking features of this hospital is that there is a Thalassamia Unit as an independent section. This hospital has 46 wards and 1,355 beds. This hospital is comparatively bigger than other teaching hospitals, which house an average of 900 beds.

In 2005 the number of outpatients treated in this hospital was 350,000. The number of patients attending clinics was 420,000. The number of operations carried out during the year was 29,000. The number of inpatients admitted to the wards was 191,000. The bed occupancy rate was 103% during the year. The average length of stay in the hospital was 4 days. This hospital is classified as a Teaching Hospital because it is used for the on-ward training of medical undergraduates.

### 5.2.1 HOSPITAL FUNCTIONS AS RELATED TO COST ACCOUNTING

In the case of a large-scale hospital like Teaching Hospital Kurunegala(THK), it is important and yet difficult to gain a comprehensive understanding of the costs involved in the consumption of drugs and surgical and dressing items, since many units and wards following different procedures exist. Given below is a description of the main features relating to the disbursement and management of these items at THK.

#### A. DRUGS, DRESSINGS AND SURGICAL ITEMS MANAGEMENT

- Main Drug Stores

THK gets the items from the Medical Supplies Division (MSD) involving a stock transfer voucher (STV). If the hospital runs out of stock during the year a supplementary request form is filled and sent to the MSD in order to gain the required items.

There are 2 drug stores. Main drug store number one is involved in distributing injection items and intravenous fluids. It issues these to the indoor drug dispensary (IDD) mainly with the outdoor dispensary (ODD) only receiving 5 injection items. Main drug store number two is involved in distributing oral drugs, surgical dressings, external preparations and disinfectants. Surgical dressings are issued to the Central

Sterilizing Supply Division (CSSD). Drugs are distributed to the IDD and the ODD. Some disinfectants like Betadine are issued to wards directly. They are provided with a weekly supply and registers are maintained store-wise.

- Indoor Drug Dispensary Store (IDDS)

This gets injections and intravenous preparations and drugs from the two Drug Stores as described above. The items they handle are vaccines and sera, dangerous narcotic drugs, antibiotics, detailed accountable drugs, bulk accountable drugs, injections, intravenous fluids and external preparations and items coming under accountable drugs and medical oxygen. Detailed accountable drugs are the drugs which cost over Rs. 4.50 per single tablet and the quantity is balanced to the exact point with regard to these items. Bulk accountable drugs are those which cost less than Rs. 4.50 per single tablet. All the items listed above are divided into 5 sections, each under the control of a separate person. There is a separate register to enter issues to wards/units. They receive and issue on a weekly basis. At present items are issued unit wise, along with unit prices. Items coming under non accountable drugs are antiseptic solutions and dermatology preparations. These are not entered unit wise. Only the total consumption and expenditure is recorded. With regard to oxygen, only total consumption is entered.

- Outdoor Drug Dispensary Store (ODDS)

They get items from the main drug stores. Apart from the 5 injections, they do not get other injections and intravenous preparations. There are 6 books maintained: (i) antibiotics (ii) detailed accountable drugs (iii) bulk accountable drugs (iv) vitamins and syrup (v) external preparations and (vi) injections. These are stored in 6 different cupboards. The drugs are issued directly to the OPD dispensary and through it to other clinics. Receiving and issuing of drugs done on a weekly basis.

- Dispensary: Central Sterilizing Supply Division (CSSD)

The main items they receive and distribute are gauze, bandages, sanitary pads etc. They receive these from the main drug store number two on a weekly basis. It is documented in CSSD in a register. Each unit has its own register and they get it entered at the CSSD. They have unit-wise data at the moment. The difficulty is that for some items exact quantity is not entered (for example the length of gauze varies on different issue notes).

- Surgical Consumable Store

The sources of surgical consumable are MSD, local purchase, other hospitals and donations. For each year MSD sends an estimation form in the middle of the previous year. So

depending on last year's consumption, the estimation form is filled and sent to MSD. MSD supplies the items on a quarterly basis. With the items, a stock transfer voucher (STV) is sent. Sometimes when the MSD has to issue items in a hurry without having time to enter them properly, they send an advice note. STV differs from the advice note in that it contains the price of the items unlike the advice note. Local purchase is done depending on the budget and needs. When the MSD is unable to provide the necessary items urgently, items are borrowed from other hospitals. Items are also donated by benefactors and organizations through the Director of the hospital. Once they have got the items in the above said ways, they enter them in a register.

Wards and other units have their own registers and they come up with these to get the items. Issue of consumables is done using a rough book on to which they transfer the original data from the above said register. After issuing consumables that data is again transferred from the rough book to the register. Notes are kept item wise and unit wise. Normally consumables are issued to wards on 2 weekly basis.

- **Surgical Inventory Store**

Items are mainly of two categories. They are instruments and equipment. Instruments are provided by the Bio-medical Engineering (BME) Service. Apart from these they get items as donations as well. MSD and BME send estimation book in the middle of a year to request estimates for the next year. Once the estimation is sent to them, they provide the necessary items on a quarterly basis. They send the items with the STV. This STV is entered in an inventory book which has separate folios for each item.

Wards/units have their own inventory books and when they request items from this branch, they bring the inventory book as well as a request book. The issued items are documented in the inventory book of the office as well as the inventory book of the unit.

At present entries are made item wise, unit wise. The difficulty with which they are faced is that the STV from the MSD contains the unit price but the Bio-medical Engineering Service does not provide information on prices.

## **B. DRUG DISTRIBUTION MANAGEMENT SYSTEM (SOFTWARE)**

In 2006, Drug Distribution Management System which was provided by the Ministry of Health was introduced in the hospital. Now the Drug Stores and Surgical Store use this software. Each section is connected to the network and is so able to share their information.

At the Main Drug Store number one, they have entries to the soft ware programme with regard to narcotic drugs. They also have information about drug price, expiry date, local purchase details etc. At the Surgical Consumable Store, they enter data pertaining to invoice number, ward, reference number, et. Unit price information sometimes poses a data problem as advice notes do not contain prices.

## **5.2.2 PRESENT STATUS OF HOSPITAL MANAGEMENT INFORMATION SYSTEM**

### **A. CLINICAL INFORMATION**

Hospital clinical information is maintained at the Medical Record Office which comes under the Quality Assurance Department.

A total of 6 employees including Medical Record Officer (MRO) and Assistant MRO (AMRO) belong to this department (in addition to which there are some Minor staff). This division is responsible for administering medical records for outpatients and inpatients, the preparation of various statistics such as the number of patients and length of stay, ICD coding, as well as playing a role in collating clinical information from the X-ray Department, the Laboratory Department and the operation theatres, etc. They use software customized for the hospital in maintaining patient medical records (Name, Age, Sex, Address, BHTNo, Date (admission/discharge), Diagnosis, ICD code). The Department also prepares a clinical statistical report for the entire hospital every month, based on information from other departments. The data from this report is analyzed at the Monthly Review Meeting.

### **B. FINANCIAL INFORMATION**

The Accounts office is positioned within the organization under the Deputy Director. This department incorporates 3 sections (Accounts branch, Pay branch and Diet branch) In the Accounts office, Accounts branch and Pay branch have 27 employees including the Chief Accountant and Assistant Accountant (with the exception of Minor staff). The main duties of the Accounts office are budgeting, preparing accounts and financial control (store's issue control, budget-allocation control, cash control). The Accounts branch takes charge of payments for various goods as well as the corresponding book keeping. The Pay branch prepares the staff salary, overtime payments and other allowances. There is no regular reporting system on the financial situation of the entire hospital, at present.

### 5.2.3 COST ACCOUNTING PROCESS AT THE HOSPITAL

#### A. COST CENTRES

THK did not have a cost centre system in operation. For the purpose of this study, cost centres were categorized into Final Cost Centre (55), Intermediate Cost Centres (23), and Overhead Cost Centres:

#### B. ALLOCATION AND APPORTIONING OF COSTS TO COST CENTRES

Using the Government Payroll System (GPS), the salaries to each cost centre were allocated according to the number and type of employees working in the cost centre. Overtime/holiday pay and travel expenses were also processed on the same basis.

Drugs, surgical items and dressings were also directly allocated to each cost centre as issued by the Drug Store, Indoor pharmacy and surgical consumables store. The above items are issue to wards/cost centres: medical oxygen is directly allocated to the cost centres; laboratory chemicals and consumables apportioned to each cost centre according to the number of tests done by each cost centre; X-Ray consumables apportioned to cost centres according to the number of X-rays taken by each cost centre.

Food provisions (diet.) apportioned to the cost centres according to the number of diets provided to each cost centre. General supplies and food directly allocated to cost centres. Repairs and maintenance allocated directly to relevant cost centre.

TABLE 5- 7: ALLOCATION OF DIRECT COST TO COST CENTRES

Cost	Method
1. Personnel Emoluments	From GPS prepared the total monthly salaries. Names are identified cost centre wise.
2. Travelling	Name wise monthly payment taken from Accounts Office. Allocated by cost centre
3. Drugs, Dressings	Taken from the issue register of the Drugs Stores and Indoor Pharmacy and listed cost centre wise
4. Surgical Items	Taken from the issue register of the Surgical Consumable Stores and listed cost centre wise
5. Medical Oxygen	Taken from the Accounts Unit. Entered cost centre wise.
6. Lab chemicals and Consumables	Taken from the Stock Transfer Vouchers at the Laboratory and Local purchase invoices.
7. X-ray Consumables	From X-ray Department according to no. of X-rays taken of patients in the different cost centres
8. General Suppliers	Taken from issue register book and entered by cost centre
9. Food Provision	Taken from Kitchen and cross-checked with Accounts records. Entered cost centre wise.

<b>10. Fuel</b>	Taken from Accounts Department. Entered cost centre wise.
<b>11. Repairs &amp; Maintenance</b>	Taken from Accounts Department and cross checked against Administration records. Entered cost centre wise.
<b>12. Electricity</b>	Taken from electricity bill payments. Amount of equipments used considered by power requirement and consumption rate. Apportioned by cost centre.
<b>13. Water</b>	Taken from water bill payments. Apportioned based on number of patients and staff and usage in the cost centre.
<b>14. Telephone</b>	Taken from telephone bill payments. Direct lines bills directly allocate to cost centres, other calls allocated to cost centres based on call registers.
<b>15. Gas</b>	Taken from Accounts Department and entered cost centre wise.
<b>16. Laundry</b>	Taken from hospital records and entered cost centre wise.
<b>17. Other Services</b>	Rent, Rates, Postage, Holiday warrants, Wastage disposal, Maintenance of garden etc taken from Accounts Department and entered cost centre wise.

#### 5.2.4 RESULTS FROM STEP-DOWN COST ACCOUNTING AT TEACHING HOSPITAL KURUNEGALA

##### A. COSTS BY COST CENTRES

The sum total of medical expenditure in 2005 at this hospital is 899,889 thousand LKR. This expenditure is divided among the 118 cost centres. The cost centres are classified into three levels: Final cost centres (55 centres, 573,022 thousand LKR), Intermediate cost centres (23 centres, 253,067 thousand LKR) and Overhead cost centres (40 centres, 73,800 thousand LKR). The detailed cost structure for each level of Cost Centre and Step-down cost accounting results are given in the following Table.

Resource Book I: Costing for Hospital Management

TABLE 5- 8: COSTS BY COST CENTRES

Final Cost Centres														000Rs	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Ward -01	Ward -02	Ward -03	Ward -04	Ward -05	Ward -06	Ward -07	Ward -08	Ward -9	Ward -10	Ward -11	Ward -12	Ward -13	Ward -14	Ward -15
<b>Personnel Costs</b>	9,448	7,108	5,750	2,882	4,837	2,977	7,356	3,129	3,073	6,052	2,083	3,633	2,134	4,683	1,022
<b>Material Costs</b>	6,477	5,197	4,559	1,495	2,012	1,567	4,887	305	239	2,375	1,000	2,552	970	1,007	660
<b>Recurrent Costs</b>	955	884	817	461	446	464	921	274	259	506	290	520	469	409	241
<b>Total Costs</b>	16,879	13,189	11,126	4,838	7,295	5,008	13,164	3,708	3,571	8,933	3,373	6,705	3,574	6,099	1,923

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Ward -16	Ward -17	Ward -18	Ward -19	Ward -20	Ward -21	Ward -22	Ward -23	Ward -24	Ward -25	Ward -26	Ward -27	Ward -28	Ward -29	Ward -30
<b>Personnel Costs</b>	3,450	2,047	7,071	3,662	2,643	1,042	6,175	4,670	4,986	3,397	4,133	2,476	2,373	6,466	3,163
<b>Material Costs</b>	602	337	1,721	1,544	793	764	1,133	3,312	2,917	1,243	885	1,366	808	2,817	1,495
<b>Recurrent Costs</b>	290	230	681	429	411	350	681	521	574	589	573	382	371	675	502
<b>Total Costs</b>	4,342	2,615	9,473	5,635	3,847	2,156	7,989	8,503	8,476	5,228	5,591	4,224	3,552	9,958	5,160

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
	Ward -31	Ward -32	Ward -33	Ward -34	Ward -35	Ward -36	Ward -37	Ward -38	Ward -39	Ward -40	Ward -41	Ward -43	Ward -44	Ward -46	Ward -47
<b>Personnel Costs</b>	2,100	2,432	3,961	2,190	7,147	696	3,588	8,145	4,596	6,309	6,807	2,883	214	288	1,100
<b>Material Costs</b>	934	765	903	1,035	2,380	364	229	3,417	2,820	1,792	1,623	256	347	212	282
<b>Recurrent Costs</b>	255	238	372	280	571	151	352	732	417	615	457	265	60	75	120
<b>Total Costs</b>	3,288	3,435	5,235	3,505	10,099	1,211	4,168	12,293	7,833	8,716	8,887	3,404	620	575	1,502

Resource Book I: Costing for Hospital Management

	46	47	48	49	50	51	52	53	54	55
	Ward -48	Bhikkuward	CCU	SCBU	Baby ICU	Dialysis	A & E	NTC	OPD	Clinics
<b>Personnel Costs</b>	431	2,879	8,665	13,285	3,780	4,850	27,530	3,338	21,088	14,664
<b>Material Costs</b>	128	795	4,803	3,286	1,485	1,373	13,770	30,543	73,897	62,091
<b>Recurrent Costs</b>	58	267	1,083	1,730	438	603	2,184	335	1,326	1,413
<b>Total Costs</b>	617	3,941	14,551	18,300	5,704	6,827	43,484	34,216	96,311	78,167

Intermediate Cost Centres														000Rs	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Pay ward	ICU	O.T	Eye O.T	Kitchen	x-ray	E.C.G	E.E.G	S.L.T.U	Phisio	Indoor pha	OPD Pha	CSSD	Bloodbank	Surg rep
<b>Personnel Costs</b>	1,063	10,682	30,395	3,196	4,224	4,103	2,322	386	353	3,848	1,249	797	2,670	2,503	264
<b>Material Costs</b>	164	9,958	19,809	512	187	301	313	117	47	372	3,245	391	74,479	706	31
<b>Recurrent Costs</b>	148	4,102	9,649	528	1,755	3,338	211	82	90	399	202	136	261	1,504	59
<b>Total Costs</b>	1,375	24,742	59,854	4,236	6,165	7,741	2,846	585	489	4,619	4,695	1,325	77,410	4,712	353

	16	17	18	19	20	21	22	23
	Linen	Drug stores	Scan	Sewing	LAB	Labour room	Sports Medical	Surgical con
<b>Personnel Costs</b>	934	1,486	2,075	511	12,812	18,252	316	760
<b>Material Costs</b>	307	169	87	74	1,646	6,999	5	40
<b>Recurrent Costs</b>	104	231	257	89	2,197	2,354	58	154
<b>Total Costs</b>	1,346	1,887	2,420	674	16,655	27,606	379	954



Resource Book I: Costing for Hospital Management

Overhead Cost Centres													000Rs		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Generalstore	Consumable	Director's off	Deputy D's off	A.O's off	M.R.O	T.Exchange	DoctorsQurt	Security	Planning	Accounts	Diet	Computer	Salary	Admin
<b>Personnel Costs</b>	349	217	634	473	313	1,227	1,478	914	158	1,992	2,058	1,678	155	1,762	3,317
<b>Material Costs</b>	91	31	567	92	1,169	210	286	69	3	329	2,641	337	84	973	2,822
<b>Recurrent Costs</b>	74	74	189	140	70	194	181	324	58	213	272	190	72	205	396
<b>Total Costs</b>	514	322	1,391	705	1,552	1,631	1,945	1,307	219	2,534	4,971	2,206	311	2,940	6,535

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Establish	Matron's Off	JMO's Off	OC OFFI	H.P.U	I .C.N	Transport	Mortuary	Auditorium	Inservice	Elect.unit	Water unit	Bio-Med unit	Malariaiya	Matron's Qurt
<b>Personnel Costs</b>	4,011	1,993	1,744	3,961	1,033	736	5,943	481	148	220	2,072	3,353	271	319	152
<b>Material Costs</b>	2,765	182	414	172	632	368	190	146	3	108	218	129	20	82	59
<b>Recurrent Costs</b>	398	173	170	547	120	308	561	3,016	59	58	349	379	84	74	126
<b>Total Costs</b>	7,174	2,347	2,328	4,680	1,784	1,413	6,694	3,642	211	386	2,639	3,861	374	474	337

	31	32	33	34	35	36	37	38	39	40
	Condemn stores	Accountant's	Doctor's library	Pat.Reg.Unit	milk mgmunit	Tea room	Familyhealth	Carpenter	Wel.library	Nurses Qurt
<b>Personnel Costs</b>	147	278	139	286	933	561	543	1,07	160	466
<b>Material Costs</b>	162	8	89	61	15	93	45	97	4	42
<b>Recurrent Costs</b>	60	89	58	74	122	314	104	150	58	177
<b>Total Costs</b>	369	375	286	421	1,069	968	692	1,284	223	685

TABLE 5- 9: RESULTS THROUGH STEP-DOWN COSTING

Cost Center	FINAL		INTERMEDIATE		OVERHEAD		TOTAL	
	000's	%	000's	%	000's	%	000's	%
Costs								
Personnel cost	276,885	48%	105,200	42%	47,709	65%	429,795	48%
Materials cost	266,568	47%	119,959	47%	15,811	21%	402,337	45%
Recurrent cost	29,569	5%	27,907	11%	10,280	14%	67,757	8%
<b>Total</b>	<b>573,022</b>	<b>100%</b>	<b>253,067</b>	<b>100%</b>	<b>73,800</b>	<b>100%</b>	<b>899,889</b>	<b>100%</b>
		64%		28%		8%		100%

Cost Centre	FINAL		INTERMEDIATE		TOTAL	
	000's	%	000's	%	000's	%
Costs						
1st Allocation Total	573,022	91%	253,067	94%	826,088	92%
Overhead Cost Centre	57,088	9%	16,712	6%	73,800	8%
<b>Total</b>	<b>630,110</b>	<b>100%</b>	<b>269,779</b>	<b>100%</b>	<b>899,888</b>	<b>100%</b>

Cost Centre	FINAL		TOTAL	
	000's	%	000's	%
Costs				
1st Allocation Total	573,022	64%	573,022	64%
Overhead Cost Centre	57,088	6%	57,088	6%
Intermediate Cost Centre	269,779	30%	269,779	30%
<b>Total</b>	<b>899,889</b>	<b>100%</b>	<b>899,889</b>	<b>100%</b>

**B. CONSIDERING COSTS OF FINAL COST CENTRES**

Total amount of cost by final cost centre is In-patient 691,448 thousand LKR (77%) and Out-patient 208,441 thousand LKR (23%).

Disaggregating costs shows that the major cost elements are Personnel costs (35% inpatient and 17% outpatient care), Medical material costs (19% inpatient and 65% outpatient care), Recurrent costs (4% inpatient, 1% outpatient) and costs absorbed from administrative and intermediate cost centres (42% inpatient, 16% outpatient). The absorbed cost of inpatient care is higher because it involves greater cost absorption from intermediate cost centres such as operating theatre, x-ray and laboratory departments.

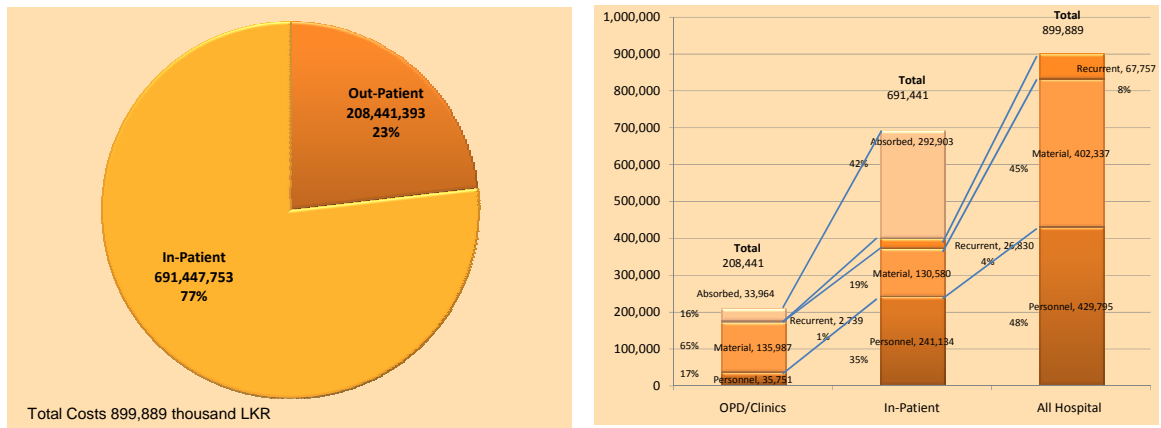


FIGURE 5- 7: TOTAL COST OF FINAL COST CENTRE BY IN-PATIENT AND OUT-PATIENT SECTION

The final cost centres are added up by speciality in the case of inpatients. Due to lack of detailed information it is not possible to divide up OPD Clinic care by speciality.

With regard to the cost per medical specialty, the cost at the OPD is the highest, followed by Medical, Obstetric, Clinic, Accident and Emergency services and surgical care. Considering the characteristics of the 6 highest medical specialties, it is noted that material costs occupy a high ratio of the OPD/Clinic with absorbed costs such as X-ray and operation theatre costs occupy a high ratio for the other departments.

With regard to the cost per patient based on medical specialties, the cost at the Dialysis Unit (Rs. 27,875) and Neurology (Rs. 20,629) are the highest. The reason why the cost at the Dialysis Unit is so high is that this department has a large number of staff compared with the number of patients.

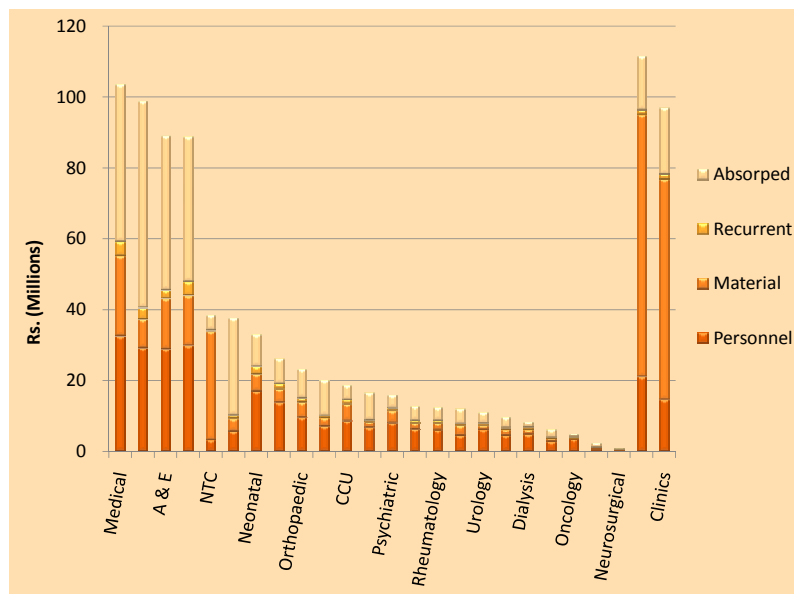


FIGURE 5- 8: TOTAL COST STRUCTURE BY MEDICAL SPECIALITY, 2005