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**Process change at Bharat Hospital and Medical Research Center**

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RESEARCH CENTER**

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**PROCESS CHANGE AT  
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**Abstract**

Consultants and process drivers often find it difficult to pin-point a problem and build a lead up to solutions. This case revolves around problem identification and definition in organization development domain. The problem of high operating costs in a large multispecialty hospital and subsequent requirement to changing the processes are highlighted. It would be useful for students and consultants in the area of organizational change and development.

## **Process Change At Bharat Hospital & Medical Research Center<sup>1</sup>**

Dr. Balram, the Chief Executive Officer of Bharat Hospital and Medical Research Centre (BHMRC), was pensive since early morning. At 11 AM, the sweat beads on his forehead due to increasing operating costs BHMRC were not just the result of rising temperatures with the onset of Indian summer. He was worried that if the costs were not brought under control soon enough there would be larger problems of sustenance. The executive committee had maintained that Dr. Balram should ensure that the hospital is able to sustain itself. It was left to him to understand and solve the operating problems at the hospital. Dr. Balram was at a loss about the problem. While sipping his fifth coffee in third hour at work, he recalled his chance meeting with Amar. Amar was a graduate from IIM Calcutta, one of the premier management institutes in South East Asia. He had worked in the IT industry and then started his own IT consulting firm within the niche market of healthcare industry. Dr. Balram fished out Amar's card and decided to call Amar for his advice.

### **Bharat Hospital**

Yuva society was started in 1970 in Kerala with the aim of promoting education amongst the illiterate in the southern Indian region. The society slowly grew to promote a host of schools and entered into the area of medical education. Bharat Hospital and Medical Research Centre (BHMRC) was set up as a 100-bedded hospital in 1984 by the Yuva society as a part of their education and philanthropic efforts. By 2008, BHMRC grew from a 100 bedded hospital to a 1,830 bedded multi-speciality hospital. The hospital catered to all

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<sup>1</sup> Case prepared by Abhishek Goel (Faculty) and Nitin Soni (PGP, Class of 2011) of the Indian Institute of Management Calcutta. The authors acknowledge the support of Mr. Vishal Ranjan of Asclepius Consulting Bangalore in preparation of this case study. The case does not intend to highlight effective or ineffective handling of managerial and administrative issues. **Names and Places have been changed to protect identity. However all quantitative and qualitative data is real and correct.**

sections of the society and had different gradations of facility for various categories of patients.

BHMRC had earned the reputation of being a well-designed hospital that either met or set the highest industry standards in medical service. The hospital was known for excellence in treatment of the ailments and highest level of care for the patient. The hospital was built on a 15-acre plot of verdant land. It housed several specialities, and had residential facilities for the students and its doctors. The design of the hospital building evoked comfort and calmness that aided in a quick and complete cure. Patients and investors often remarked about the well utilized investment of INR 1 billion (Rs. 100 crores, USD 25 million approx) spent in building the hospital.

The BHMRC offered treatment in seven departments - General Medicine, General Surgery, Orthopaedics, E.N.T., Ophthalmology, Paediatrics, and Psychiatry. Super speciality services were offered in the areas of orthopaedics and cardiology (Exhibit-1). The clinical services were comprehensively supported by a state of the art diagnostic and support facilities such as Ultrasonography, X-ray and Molecular Imaging. The laboratories were equipped with modern machines for quick and accurate analysis of samples. For example, the blood bank of the hospital had state-of-the-art modern equipment to separate various blood components was given the status of Regional Blood Bank by the state government.

While all the departments were known for their academic prowess, the cardiology and orthopaedic units were amongst the best known in the academia and the patient care industry. BHMRC strongly encouraged implementing the latest research findings to medical practice. Thus, BHMRC was unique in the industry due to its focus on attaining excellence in both practice and patient care. The vibrant hospital environment complemented the dynamism required to innovate and try out new vistas without sacrificing on patient care. As

demanded by the environment, the policy making allowed great deal of freedom and flexibility to ensure meeting the twin goals of being at the forefront of practice and care. The focus on learning had resulted in constant upgrading and improvement of services, a rare phenomenon among hospitals in India.

### **The Starting Point**

Dr. Balram told Amar,

“We always focused on reducing the costs, while maintaining our standards and freedom. Somehow, somewhere things have gone out of control. We would need your expert help in fixing the problem.”

Hearing this Amar understood that the first task was to define the problem.

It was difficult for the outsider to pin point the problem. Amar figured out that while the maintenance of best in class care and facilities were coming at a very high cost. So the costs were needed to be in control first. While looking at operating costs, he decided to break the costs department wise, but there was no significant breakthrough. In the second iteration he worked on the costs of operations again from various sections. In the hospital balance sheet, the cost of consumables was the highest. The total revenue of the hospital was INR 54.5 cr out of which INR 26.7 cr was spent on consumables. A breakup of the consumables is given in Exhibit-2.

While growing through the records for consumables and trying to understand the process of handling consumables, Amar discovered that over a period pharmacy section showed an increase in inventory, while there were stock outs in several SKUs resulting in higher spend on consumables and revenue loss. He studied the processes of material management at BHMRC and concluded that the processes related to material management

had gone awry. In 2008, there were four different departments within pharmacy of BHMRC (Exhibit – 3).

### **The Pharmacy**

The Main Pharmacy facilitated all the requirement of medicines, surgical items and consumables for the entire hospital. It acted as a distribution hub of the hospital and supplied all requirements through a computerized system to all departments. The Out Patient Department (OPD) Pharmacy, Casualty Pharmacy and Critical Care Pharmacy were sales counters which provided patients with the medicines as prescribed by the doctors. The pharmacy staff had got a rich experience of twenty years and provided dedicated patient care service.

The hospital had negotiated individual contracts with 300 vendors. These vendors would dispatch medicines based on demand of Bharat Hospital. This process resulted in a total of 15,000 deliveries per month to the central store with an average monthly expense of INR 8,500. The large vendor base of the hospital had made it difficult to manage the costs at pharmacy. Record keeping was difficult and the sheer volume, requirement of speedy solutions brought in adhoc measures to tackle the purchases and internal distribution. Smaller delivery sizes also meant that the hospital had to pay higher amounts than the best rates available for bulk purchases.

With poor records and stock keeping, it was difficult to maintain reorder levels based on past usage. As a result inventory cost had been rising. Moreover poor visibility of material movement across the hospital further made matters worse.

### **Process gaps and key findings**

Amar started work on the hypothesis that if he could identify process gaps and specific opportunities for cost reduction/process improvement in specific material categories

across these areas he could directly address the issue of rising cost of material at BHMRC. After interaction with several key stakeholders at BHMRC and study of best practices in the industry, Amar zeroed in on three key aspects of material management in a hospital: procurement, inventory and consumption management processes.

## **Procurement**

Procurement was one of the crucial factors in purchasing activity at BHMRC. Several day to day operations and functions of all departments relied upon the central stores. The central stores, as the name suggested, made all purchase decisions ranging from stapler pins to prohibitively expensive life saving drugs. Thus, all purchases at Bharat Hospital were made through the central store. The sub-stores of the hospital received their supplies based on their requests. When sub stores needed anything they raised an indent request which was forwarded to the central store. If the central store had that product, they transferred it to the sub store as and when they received the request; else they directly created a purchase order for the same and sent it to the vendor giving the lowest price. Even if the same item was ordered by two different departments, the central store created separate purchase orders for each of them. This system was designed for quick disbursement of request and speedy acquisition, but it also resulted in ordering smaller quantities of similar items. Exhibit - 4 shows the number of vendors and annual expenditure on various consumables.

As the volumes grew, the hospital staff started feeling the heat. The head for procurement at BHMRC said,

“I used to minutely oversee the process earlier but with more than 15,000 deliveries made to central store, the individual managers have taken the decisions. The requests were so frequent that it was not possible for me to oversee each and every one of them. Most of the staff spent time negotiating with vendors, managing indents and arranging for deliveries. The



decision from which vendor to procure is now a lot of dependent [sic] on the discretion of the manager working under me. For us it was just a question of getting the best price.”

Bharat hospital did not have any fixed contract with vendors. As per the procurement department, rate list from all vendors in the market was used to get the best price. New vendors were also identified who could provide products at cheaper rates. As a result the hospitals had 300 vendors making deliveries at least once every year. Frequent requirements meant that purchases were made outside the rate list as well. The distribution of spend by vendors is shown in Exhibit - 5.

### **Inventory**

Inventory handling at BHMRC had to ensure that a product was available when needed. The closing inventory is shown in Exhibit 6. On analysis of the inventory data it was found that Bharat Hospital had more than double the optimum norms of inventory when compared to other Indian hospitals of same size. The general norm was around 30% in high performing hospitals. To illustrate, the opening inventory in July 2007 was INR 1.1 cr while the closing inventory in December 2007 was INR 2.2 cr. During the period of July-December 2007, the central store had received material worth INR 6.25 cr but issued material worth INR 5.14 cr only. A detailed analysis revealed that the increase in inventory was broad based across items. This indicated process gaps due to which the managers were not able to correctly estimate the amount of inventory to be ordered. Several high inventory items had multiple deliveries. This was largely due to ad hoc purchases as and when the demand came from sub stores. Such high stock levels, wastage, and unwanted stock outs seemed to stem from the lack of control in processes to optimize stocks. There was a potentially significant difference between the physical stock and stock reflected in the computerised system. An illustration of poor arrangement and visibility leading to multiple purchases and increasing inventory is shown in Exhibit 7a & b.

Estimation of reorder points to identify amount of inventory to be held before next order was non-existent. As per best industry practice Amar knew that on average a 60-day inventory was kept across similar sized hospitals. “High inventory clearly indicates that purchases have been done without any clear visibility of the stock” said Amar. To identify the number of deliveries at Bharat Hospital he analysed the inventory data. The inventory levels of consumables with highest spend and consumption based on VED (vital, essential, desirable) analysis is given in Exhibit-8.

### **Consumption**

There were two major consumption areas at Bharat Hospital – departments & wards. These included various departments such as Neurology, Nephrology and wards for the weaker section, private rooms and deluxe suites. Consumables worth INR 10.3 crores were issued by stores to over 130 departments and wards in 2007 whereas the stores received material worth INR 12.5 crores. However, there was no process to track consumption at these consumption points

One of the technicians at the pharmacy told,

“Consumption is totally based on discretion of the department. There are 5 different notebooks being maintained for keeping stock/receipts/consumption. There is no way we can match the supplies with what has come back. Sometimes due to rush it is difficult to even enter what is going out of the store. As a result once a medicine is issued to an admitted patient, it’s very difficult to identify how much did he actually receive, consume and how much was returned.”

Several consumption inefficiencies were attributed to poor traceability of medicines issued to patients. If a patient needed any medicine, the store issued it to a nurse looking after that patient. However entries for receiving and giving were made manually in registers. With a huge volume of patients, it was virtually impossible to reconcile this data with the actual

usage. “There is a lot of pilferage occurring due to our inability to track medicines issues to patients.” said a nurse.

Moreover many of the consumables such as gases, printer cartridges, hardware, cotton, etc. were issued to respective department with no further consumption tracking. These comprised an overwhelming 48% of the consumables cost yet there was no process in place to check the usage of these items. Since there was no budget or tracking of quantity issued and consumed, there was no incentive to reduce consumption of these items.

### **Implementation challenges**

To overcome these inefficiencies a major change in the current pharmacy processes was needed. Different people saw different areas of priority for such a major overhaul. Whatever way one looked at it, the greatest concern was to develop accountability for material management process, putting a vendor management strategy in place, improving material visibility for better handling, minimizing material wastage, and finally, monitoring the adherence to processes.

#### **Developing accountability for material management**

“With more than 130 consumption areas/departments to track, I want to have more accountability for consumables across the hospital” said Dr. Balram. “It is necessary for me to track violations and reward performance”.

#### **Improving material visibility**

Several senior managers were concerned that with 1800 plus beds and more than 50% of the consumables being directly attributed to patients, how were the consumables being tracked and used across various departments. Some mechanism was required to improve the visibility of the material and create a system that was easy to monitor.

**Vendor management strategy**

Amar saw the high number of vendors and deliveries made each month a growing challenge. “A robust vendor management process is needed to leverage the buying power of the hospital and develop win-win vendor relationships”. He wondered what sort of vendor consolidation could be done based on annual spend, number of items supplied and overall vendor relationship.

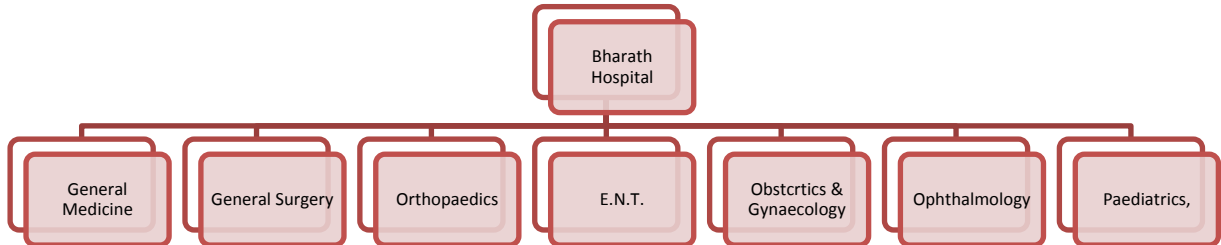
**Monitoring the adherence to processes**

Amar was feeling the heat yet again. He knew that managing the process would be critical for making this process stick. “You can define any number of new processes, but unless the new processes are followed by end users it’s all in vain. A performance review process is necessary to monitor the adherence to processes and drive organizational change.”

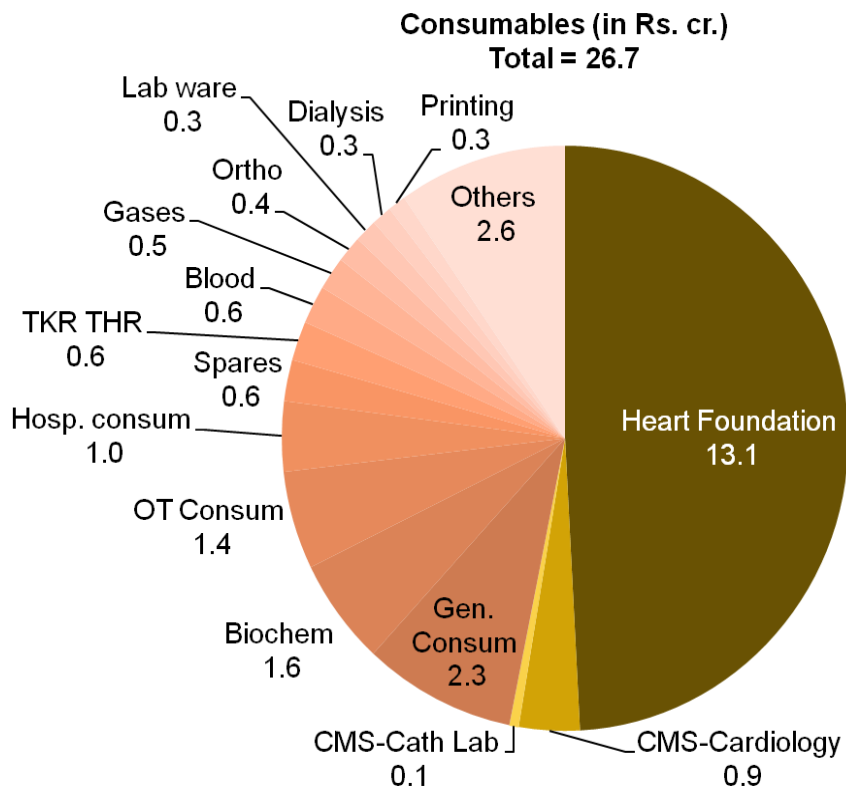
Based on the inputs, Amar pondered over the specific recommendations that could be designed to improve the material management practices by proactively managing the existing process gaps at Bharat Hospital. Amar looked back at the events, and comment made by Dr. Balram, “if any changes were to be successfully implemented at BHMRC, it had to be backed by consistent monitoring by senior management.”

As Amar continued to think, he became more confident of his next assignment.

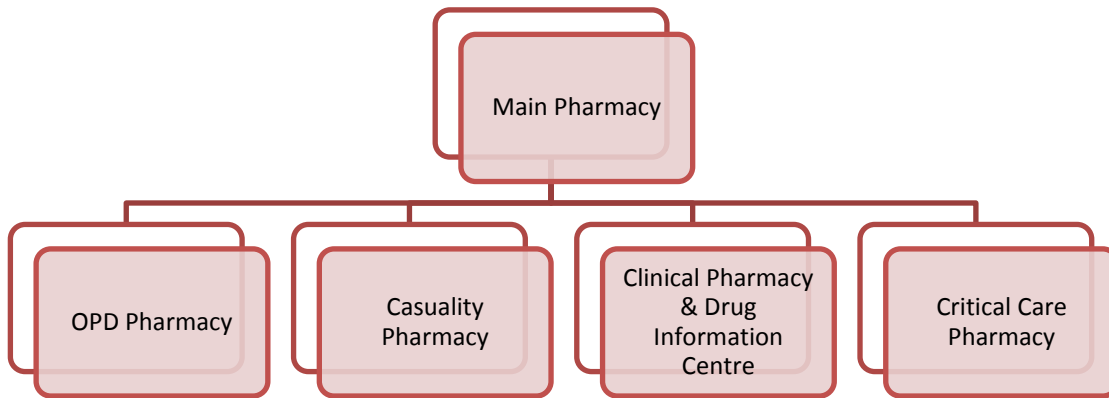
## Exhibit 1 Specialities at Bharat Hospital



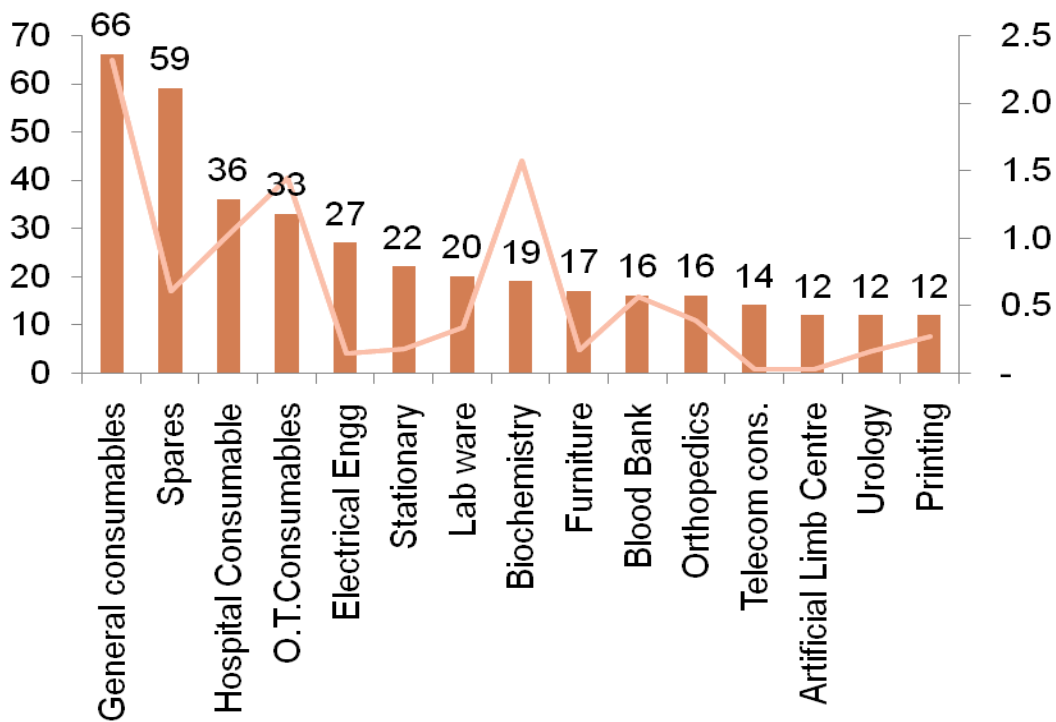
## Exhibit 2 Consumables (in Rs. Cr)



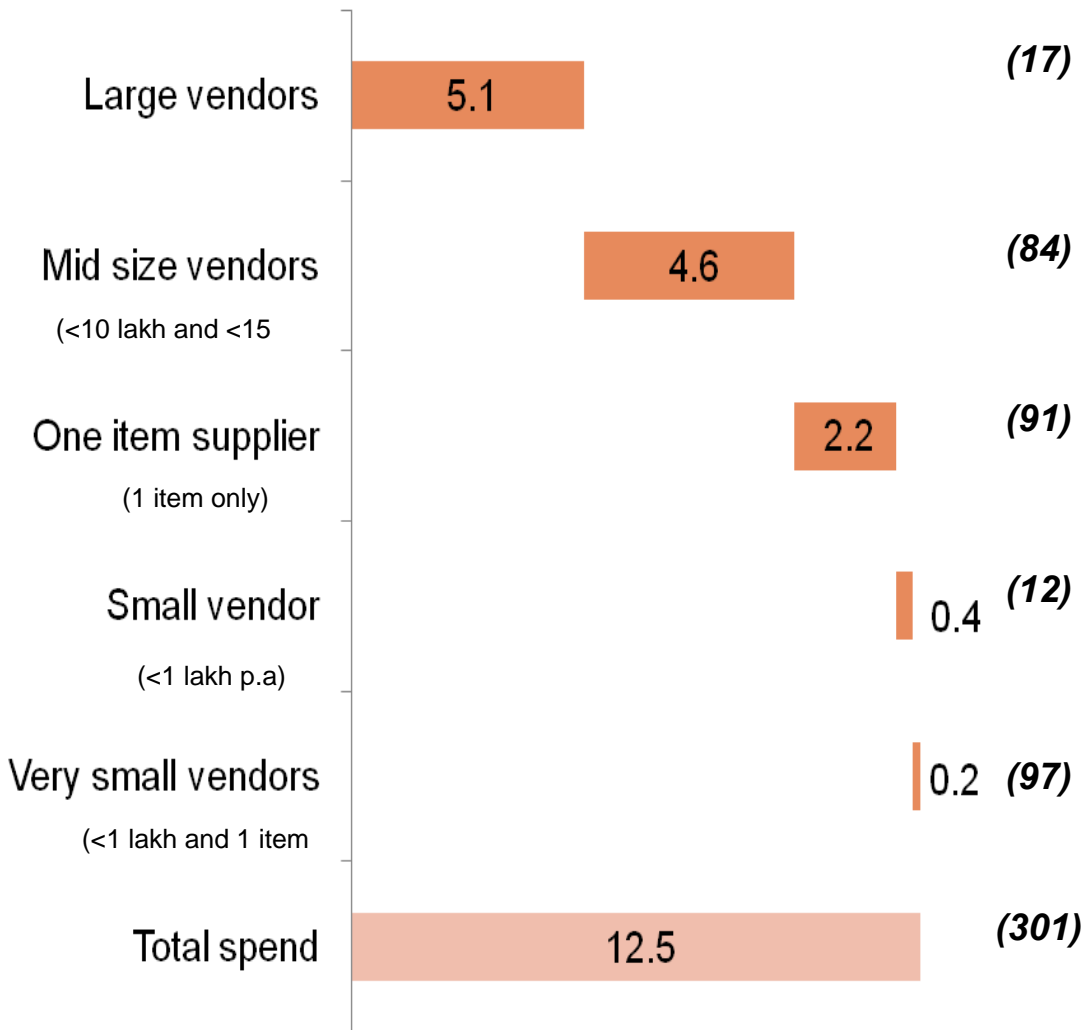
**Exhibit 3**  
**Pharmacy Departments at Bharat Hospital**



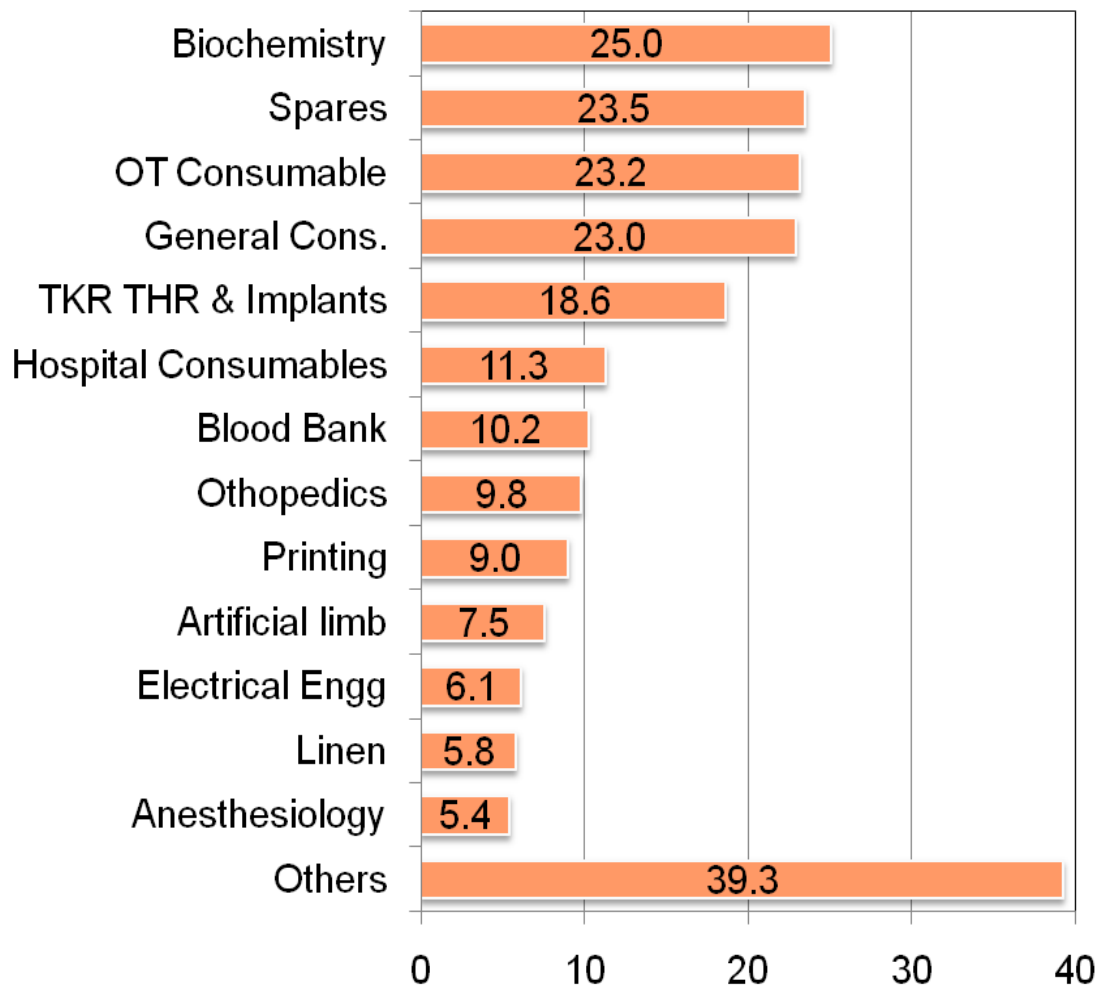
**Exhibit 4**  
**Number of Vendors & Annual spend**



**Exhibit 5**  
**Distribution of spend by vendors – 2007 (in Rs. Cr)**

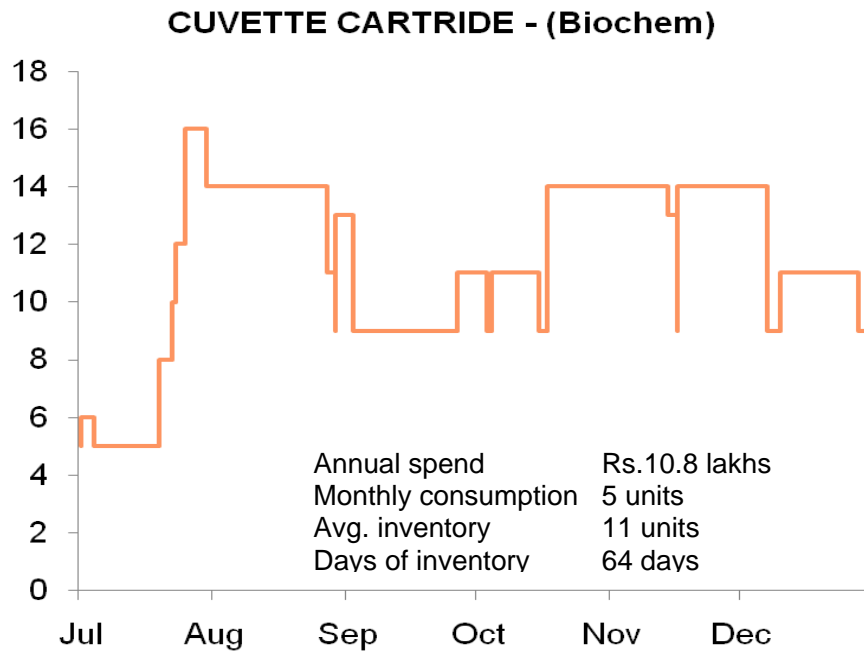


**Exhibit 6**  
**Closing Inventory Dec '07 (in Rs. Lakhs)**

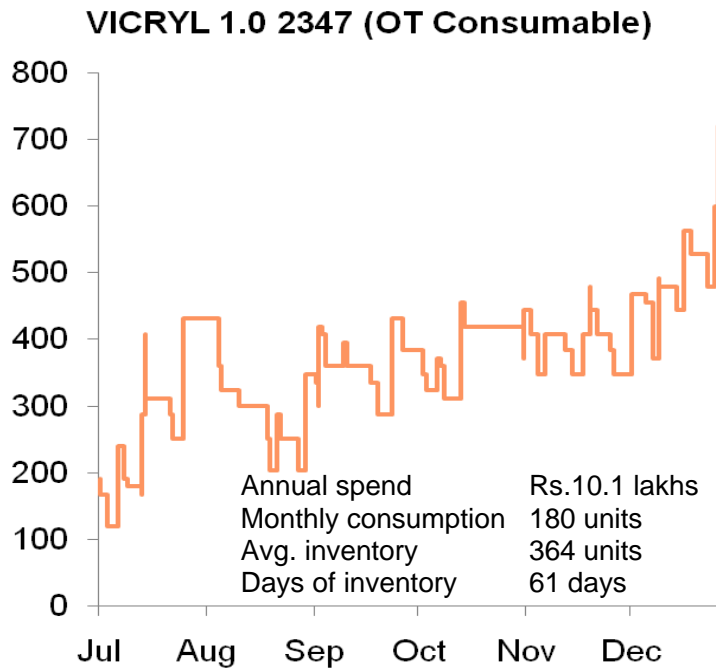




### Exhibit 7a: Closing Inventory in units



### Exhibit 7b: Closing Inventory in units



**Exhibit 8**  
**Closing Inventory of Major Consumables**

<b>Item name</b>	<b>Category</b>	<b>Annual Spend (Rs. Lakhs)</b>	<b>Avg. Inventory (Rs. Lakhs)</b>	<b>Avg. days of inventory (delivery)</b>	<b>N</b>
Cuvette Cartridge - D828	Biochemistry	10.8	1.8	60	22
Vicryl 1.0 2347	O.T. Consumables	10.1	0.8	30	42
Dual Prog. Reorder Pack	Biochemistry	9.3	1.3	51	16
Hcv Eliscan 192 Test	Blood Bank	9.1	0.9	38	30
Thromboplastin Kit	Pathology	8.4	1.7	73	18
Double Lumen Catheter Kit Hemo Dialysis		8.2	1.4	62	24
Fluid Pack C3 - Bp2655	Biochemistry	6.7	0.8	42	40
Coombs Test - Tulip	Biochemistry	6.6	2.0	112	24
Serum With Gel 4.0 MI	Lab ware	6.2	0.7	43	20
Tibial Base Plate Size 2inc.	Orthopedics	5.6	0.9	59	18
Tibial Base Plate Size 3inc.	Orthopedics	4.4	0.7	61	14
Bio-hazard White 16x21	General Cons.	3.0	1.7	207	16
Blood Bag 450ml - Triple	Blood Bank	2.9	0.7	86	20
Matrix Abd - 48 Test	Biochemistry	2.7	0.6	76	26
Cylinder Ward Type	Gases	1.6	0.8	180	142
Sodium Bicarbonate	Haemo Dialysis	0.6	0.7	448	14
<b>Total</b>		<b>96.2</b>	<b>17.5</b>	<b>1628</b>	<b>486</b>

## **Author Biography**

Abhishek Goel is a faculty in the Behavioral Sciences Group at the Indian Institute of Management Calcutta. He has earned his PhD in Organizational Behavior from the Indian Institute of Management Ahmedabad. His research and consulting interests are in the areas of organizational culture, leadership development, and building positive workplaces. He has been a recipient of Young Scientist Award from the International Congress of Psychology for his work on positive characteristics of individuals and managers.

Nitin Soni is a PGP student (Class of 2011) at the Indian Institute of Management Calcutta. Prior to joining IIMC, he led a team of four colleagues for developing Enterprise Pharmacy Retail System for the largest pharmacy retailer in US. His co-authored publication on 'Integrated IT solution for Indian Hospitals' has appeared in the Medical Equipment and Automation Magazine. He has keen interest in consulting for Healthcare IT industry.