



SUMMER TRAINING

At

Shalby Multi Speciality Hospital, SG Highway Ahmedabad

From 10th May 2021 to 2nd July 2021

Vendor Evaluation Form and Inventory Management

By

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Under the guidance of

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MBA- Hospital and Health Management

2020-2022



TO WHOMSOEVER IT MAY CONCERN

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This is to certify that **Dr. Komal Sisodiya** has undergone an Internship in the **"Department Of Supply Chain Management"** from 10th May 2021 to 02th July 2021 at **Shalby Hospitals, Ahmedabad**.

During this period she exhibited a high level of Professionalism and a tremendous zest for learning.

We would like to thank her sincere efforts during Covide-19 Period.

We wish **Dr. Komal Sisodiya** all the best in her future endeavors.

With Best wishes,



Babu Thomas
(Chief Human Resource Officer)

Acknowledgement

The summer internship opportunity I received with Shalby Multispecialty Hospital was an amazing opportunity for me to learn and grow professionally. I am also glad for the opportunity to meet so many amazing individuals and experts that helped me get through my internship.

In the light of foregoing, I would like to take this opportunity to convey my sincere gratitude and special thanks to **Mr. R Muralidhar Sir** Associate Vice President Supply Chain Management of Shalby Hospitals who inspite being extraordinary busy with his duties to handle 11 units SCM department took time to guide me and kept on the correct path and allowed me to give access to the organization data so that I can carry out my research nicely at their esteemed university.

I would also like to express my deepest gratitude to **Mr. Ajit Thakkar Sir** (Manger of medical equipment and Capex service in SCM department) who helped me at each step and always answered my queries and under his guidance I got the opportunity to learn various things about supply chain management. And I would like to thank you the whole team of Supply chain management department **Ms. Komal Chudasma** (Executive), **Mrs. Dolly Sangraajyka** (Asst. Manager Pharmacy), **Mr. Chirag Parekh** (Manager, implants and surgical), **Mr. Dwarkesh Shah** (Executive), **Mr. Dhariya Shah** (Sr. Manager), **Mr. Ankit Shah** (Manager), who made me fell welcoming in their team and helped me with my work in some or the other way, without there support this summer internship would not be possible.

It is my radiant sentiment to place on record my best regards and deepest sense of gratitude to **IIHMR University Jaipur, Dr. PR. Sodani** (President and Dean) and (my mentor) **Dr. Sandesh Kumar Sharma Sir**, who motivated me and guided me at each step and resolved my doubts effectively, and all the faculty and staff members of the IIHMR University, who gave me this opportunity of summer internship and helps and supported me whenever needed. I would also like to give my regards to the **Placement Cell of the IIHMR university** for bringing so many learning opportunities for us so that we can build up our carrier on a strong foundation.

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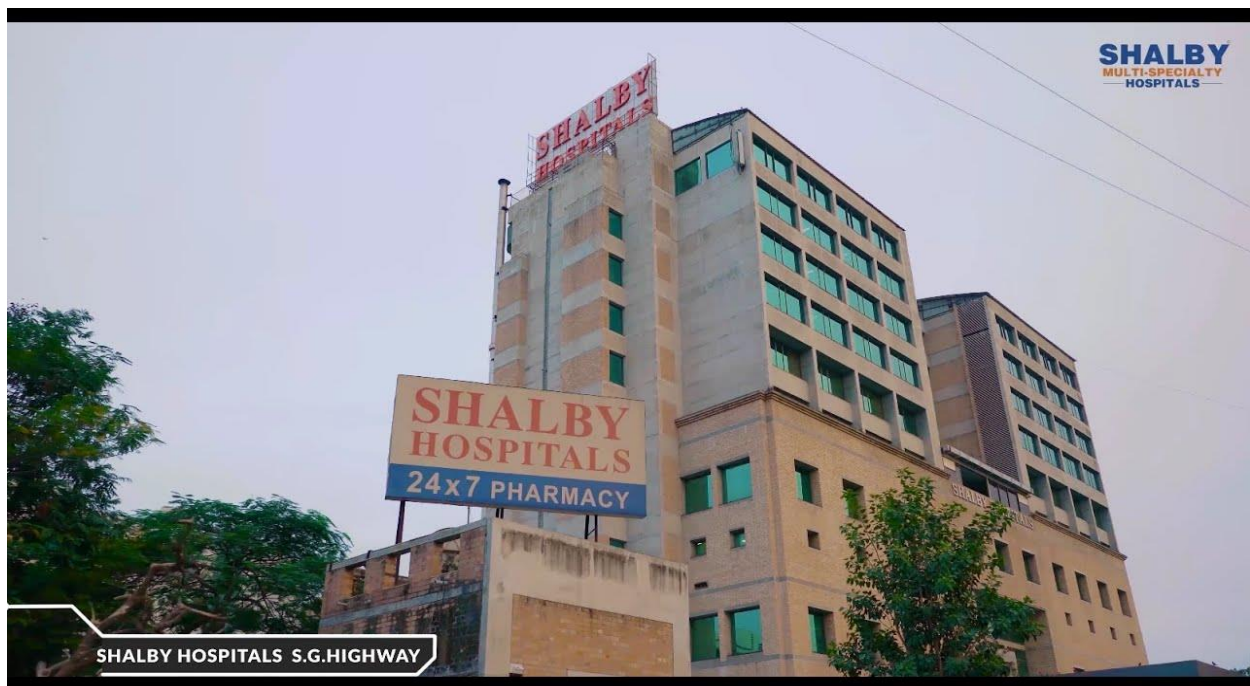
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Abbreviation:

- ABC – Always, Better and Control.
- B2B – Business to Business.
- B2C – Business to Consumers.
- B2G – Business to Government.
- CAPEX – Capital Expenditures
- CSSD – Central Sterile Services Department
- FSN – Fast, Slow and Non - Moving.
- HMIS – Hospital Management & Information System
- ICD – Infection Control Department
- ICU – Intensive Care Unit
- IOS – Distribution Certificate.
- IP – In Patient
- KPI – Key Performance Indicator
- NICU – Newborn Intensive Care Unit
- OEM – Original Equipment Manufacturer.
- OP – Outpatient
- OPD – Outpatient Department
- OPEX – Operating Expenditures
- OT – Operation Theatre
- PICU – Pediatrics Intensive Care Unit
- R&D – Research and Development.
- SCMD – Supply Chain Management Department
- SICU – Surgical Intensive Care Unit
- VED – Vital, Essential, and Desirable.

SHALBY MULTI-SPECIALTY HOSPITAL

Shalby Multi - Specialty Hospital, SG Highway Ahmedabad



Overview of Shalby Multispecialty Hospital:

Dr. Vikram I. Shah founded Shalby Hospitals (Shalby Limited) in Ahmedabad, Gujarat, in 1994. Shalby Hospitals (Shalby Limited) operates a chain of multispecialty hospitals in India with a total bed capacity of over 2000. Shalby's status as a multispecialty tertiary hospital chain in India was envisioned by its creator, Dr. Vikram Shah - CMD, who has been recognized by the government of India.

Our Healthcare Strategy

Shalby Hospitals is known for providing patient-centered care through a professional and ethical approach.

Beginning with a small goal and going a long way

Stages of the construction process Hospitals has established several records as a world-renowned Joint Replacement Center. They have successfully done thousands of joint replacement procedures since 2007, and the number is growing every day. Shalby's transformation into a multispecialty hospital network in less than 26 years speaks loudly about our trustworthiness and commitment to Hematology.

A True Multispecialty Hospital Chain

Shalby's Centre's of Excellence is a large range of specialties: Joint Replacement Surgery, Critical Care & Trauma, Spine Surgery, Neurology and Neuro Surgery, Ortho-Oncology Surgery, Cardiology & Minimal Invasive Cardiac Surgery, Sports Injury, Kidney Transplant, Liver Transplant Counseling, Hepato-biliary Surgery, Pediatrics, Medical Oncology & Onco Surgery, Dental Cosmetics & Implantology, Ophthalmology, Plastic & Reconstructive Surgery, Rheumatology, Cosmetics & Dermatology, Homecare, Bariatric Surgery, Gynecology, IVF & Surrogacy Counselling, Homecare etc. Specialty clinics for Stroke, Epilepsy, Acidity, Snore & Sinus, Glaucoma, Sleep Study, Diabetes, Liver, Kidney, Asthma, Fertility, Obesity, Hypertension, Radio Therapy and Radio surgery etc. are other avenues of treatment at Shalby. Shalby's multi-specialty corporate hospital concept has been constantly getting appreciation from patients who get holistic expert healthcare solutions under one roof.

Journey Ahead

Shalby is dedicated to offering comprehensive wellness across specialties, as part of our vision of "leveraging global competence in Joint Replacement to build multispecialty care across geographies." Shalby continues its journey toward a healthier future for the globe by employing methodologies and adhering to the highest ethical ideals.

MISSION

“Leveraging global leadership in joint replacement to establish multi speciality care across geographies.”

VISION

Exceeding Expectation from health.

VALUES

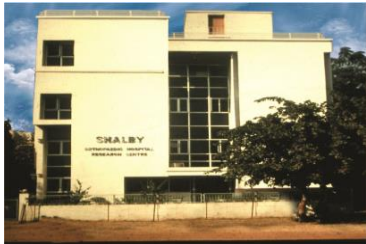
Value each and every human life placed in our hands and constantly work towards meeting the expectations of our customers and stakeholders by raising the standards of our service deliveries, every time.



Recent Milestone Achieved:

- Rajiv Gandhi National Quality Award, 2010
- FICCI Healthcare Excellence Award, 2011
- Annual India Healthcare Excellence Award,2013
- Emerging India Award,2013
- ICICI Lombard Healthcare Award,2015
- India Healthcare Award,2015
- Best Dentistry by Time Health Icon Award,2018
- Best Patient Friendly Hospital by APHI,2018
- The Luminary Award, 2018
- Time Health ICONS Award, 2018
- Best Medical Tourism Award,2019
- Best IT enabled hospital Award,2019
- Express healthcare excellence Award,2019
- Gujarat Healthcare Leadership Award,2019
- Zee Business Award,2019
- Best Brand Evolution Award, 2019
- Medical Value Travel Specialist Award, 2019
- MP healthcare leadership Award,2019
- Dr. Darshani Vikram Shah Awarded with Times Power Women Award,2019
- Inspiring Women Award,2020
- Dr. Darshani Vikram Shah awarded with Phenomenal Women Award,2020
- People Q Inspiration Award,2020
- Tele Health Award,2020
- Best Hospital for patient care Award,2020
- Best medical Tourism Centre of Gujarat Award,2020
- Most Trusted Chain of Multispeciality Hospital Award,2021

SHALBY UNITS

SG Shalby 	Location	Ahmedabad
	Commencement	2007
	Bed capacity	201
• Multispecialty and Tertiary Care Hospital • NABH & NABL Accredited		
Krishna Shalby 	Location	Ahmedabad
	Commencement	Acquired in 2012
	Bed capacity	220
• Multispecialty hospital – first corporate hospital established in Gujarat • NABH & NABL Accredited • Prominent cardiology department • Dedicated international wing		
Vijay Shalby 	Location	Ahmedabad
	Commencement	1994
	Bed capacity	27
• First Joint Replacement Centre • Started with 6 beds and capacity can be augmented to 30 beds • 14 TKR surgeries in the first year		

Naroda Shalby  - Till now Shalby's highest bed capacity unit is at Naroda. - Equipped with latest technology.	Location	Ahmedabad
	Commencement	2017
	Bed capacity	267

Vapi Shalby  One of the largest corporate hospitals in Vapi	Location	Vapi
	Commencement	Acquired in 2012
	Bed capacity	146
Mohali Shalby  - Chandigarh tri-city area has one of the highest per capita income in the country - Mohali Shalby – a milestone to cater North India patient's needs.	Location	Mohali
	Commencement	Acquired in 2015
	Bed capacity	145
Jabalpur Shalby  One of the leading corporate hospitals in Jabalpur district.	Location	Jabalpur
	Commencement	2015
	Bed capacity	233

Indore Shalby  • NABH Accredited Hospital. • Located at the heart of Indore City, Shalby has emerged as a one of leading tertiary care hospital.	Location	Indore
	Commencement	2015
	Bed capacity	243

Jaipur Shalby 	Location	Jaipur
	Commencement	2017
	Bed capacity	237
• Equipped with modern infrastructure • Latest Medical equipment & technology • Serving the patients, those who had to earlier travel from Rajasthan to Gujarat for TKR.		
Surat Shalby 	Location	Surat
	Commencement	2017
	Bed capacity	243
• Serving the southern Gujarat patients. • Latest X-Ray machines, Catheterization laboratories, and CT Scanning fluoroscopies.		
Ghatkopar -Zynova Shalby	Location	Mumbai
	Commencement	2017

	Bed capacity	50
• Major milestone to cater Maharashtra's Patients. • Prominent Heart Care Hospital.		

Floor Wise Description of SG Highway Unit –

I. Basement 2

- Bio Medical Engineering.
- Mortuary
- Medical Records
- General Store
- Linen Store
- IP Pharmacy
- Engineering Department

II. Basement 1

- Emergency Room
- Health Check up
- Radiology & Diagnostics department
- Pathology Collection Center
- Emergency OT

III. Ground Floor

- Reception
- Admission
- Dental OPD
- Orthopaedic OPD
- Medclaim
- Pharmacy
- Visitors Cafe
- Temple
- Billing Department
- Travel Desk
- Main Reception
- OP Pharmacy
- Glaucoma Unit
- Neuro OPD

IV. First Floor

- General OPD& Doctors Consultation Rooms
- Cath Lab
- CCU & MICU

V. Second Floor

- OT (001-005)
- Surgical ICU (SICU)

VI. L Floor

- Corporate Block
- CSSD

VII. Third Floor

- OT (006-009)
- Cosmetic Department OPD
- Dialysis Ward
- ICU
- NICU
- Labor Room

VIII. Fourth Floor

- Twin Room

IX. Fifth Floor

- Twin Room
- Day Care
- Economic Ward

X. Sixth Floor

- Premier Rooms

XI. Seventh Floor

- VIP Suite
- Premier Rooms

XII. Eighth Floor

- Premier Rooms

XIII. Ninth Floor

- Library
- Clinical Research Room
- Kitchen
- Microbiology Department
- Pathology (Blood Bank)
- Doctor's Cafeteria

XIV. Terrace

- Solar Plant
- Pipeline

The Hospital is equipped with total 8 lifts i.e.,3 Patient lift, 3 Visitor lift,1 Doctor's lift and 1 Service lift.

There are around 1000 (approx.) employees currently working in Shalby, SG Highway

There are 319 doctors working in Shalby Hospitals

SCOPE OF SERVICES AT SHALBY SG HIGHWAY UNIT

I. Clinical Services –

- Arthroscopy.
- Cardiology
- Cardiothoracic and Vascular Surgery
- Cosmetics & Aesthetics
- Arthroplasty/TKR & Hip Replacement
- Dental Cosmetic & Implantology
- Dermatology
- ENT Surgery
- Emergency Medical
- Endocrinology-Diabetology
- Gastroenterology
- Gastrointestinal Surgery
- General Medicine (GM)
- General Surgery (GS)
- Hair Transplant
- Hepatobiliary & Liver Transplant
- PICU
- Infectious Diseases
- Intensive and Critical Care
- Laparoscopic Surgery
- Nephrology-Dialysis
- Renal Transplant
- Neurology
- Neurosurgery
- Obstetrics & Gynaecology
- Oncology
- Oncosurgery
- Ophthalmology & Glaucoma
- Orthopaedics & Trauma
- Paediatrics & Neonatology
- Pathology & Microbiology
- Pulmonology & Respiratory
- Radiology & Imaging
- Rheumatology
- Spine Surgery
- Trauma

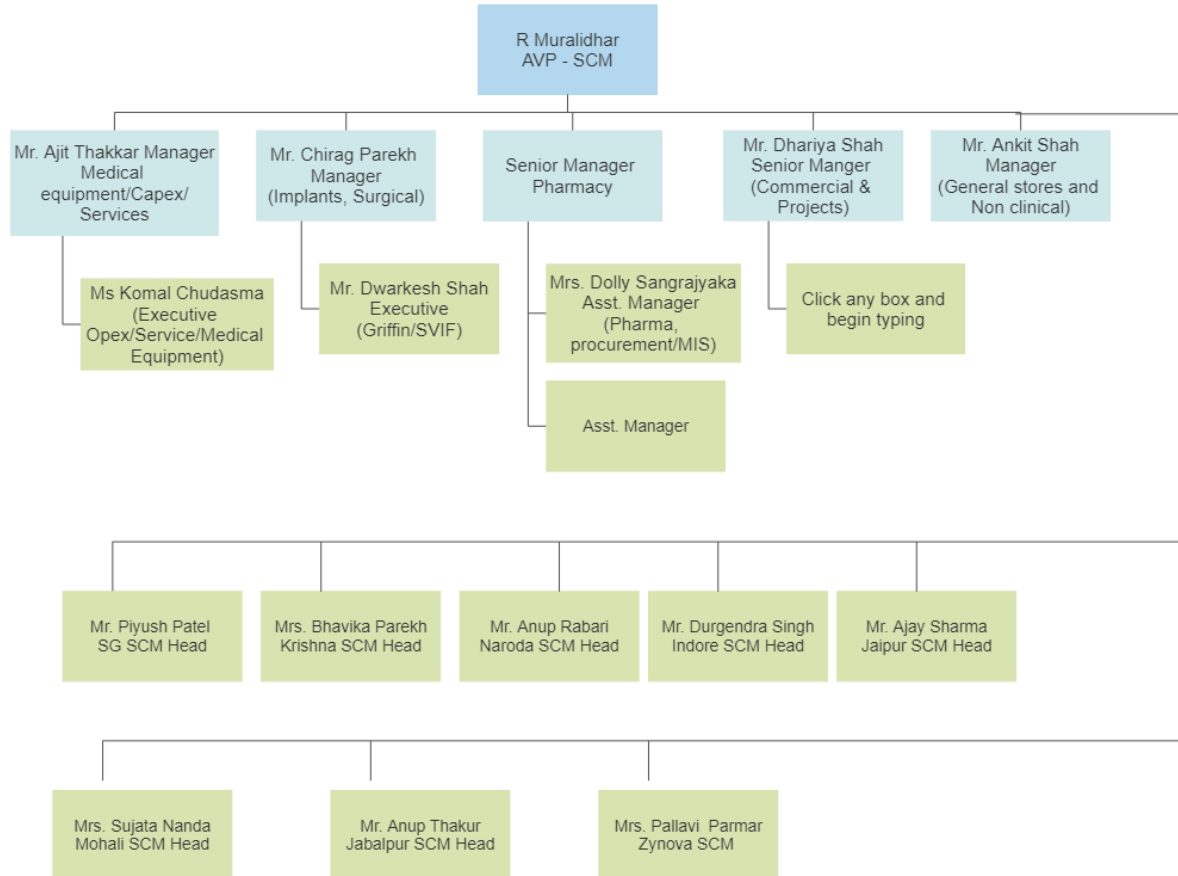
II. Support Services

- Ambulance Service
- Blood Bank
- Laboratory Service
- Home Health Care
- Medical Record Department
- Pharmacy
- Physiotherapy
- Radiology Services

III. Auxiliary Services

- Dietician Service
- Home Health Care
- HMIS
- ICD
- Kitchen
- Linen & Laundry
- Store
- Mortuary

Corporate Supply Chain Management Department Organogram



VENDOR SELECTION AND EVALUATION FOR SHALBY HOSPITAL, AHMEDABAD. PROJECT REPORT

INTRODUCTION

What is a Vendor?

A vendor in simple words is someone who sell some products or services to other people.

In supply Chain Management (SCM) a vendor is a party that makes goods / products or services available to companies or consumers.

A vendor can be both a manufacturer and a seller/ distributor.

Types of Vendors –

Basically, there are 3 types of vendors –

1. B2C –

This type of vendor sells the goods and services directly to the consumers. They sell completed products to the end user or sometimes component of the products. For e.g., a retail store.

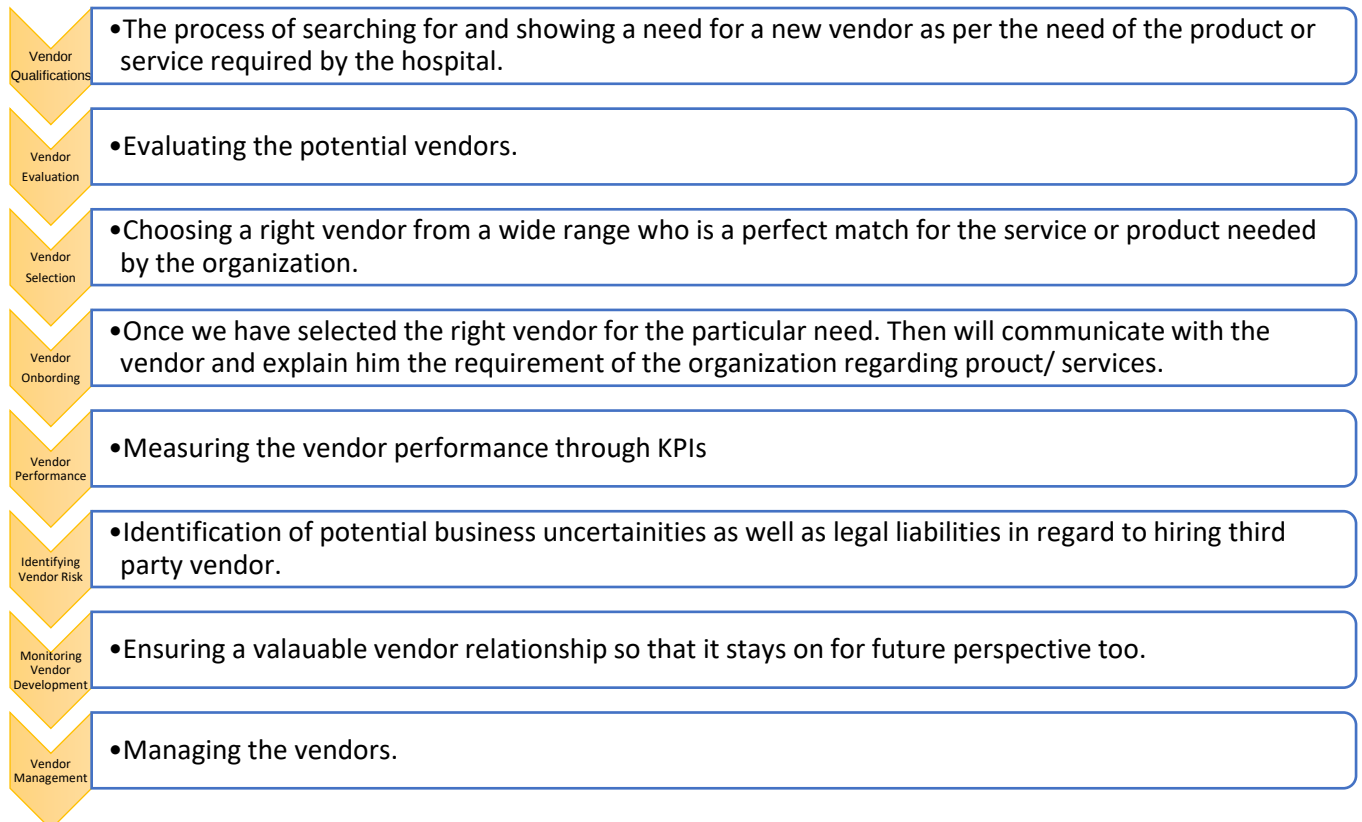
2. B2G –

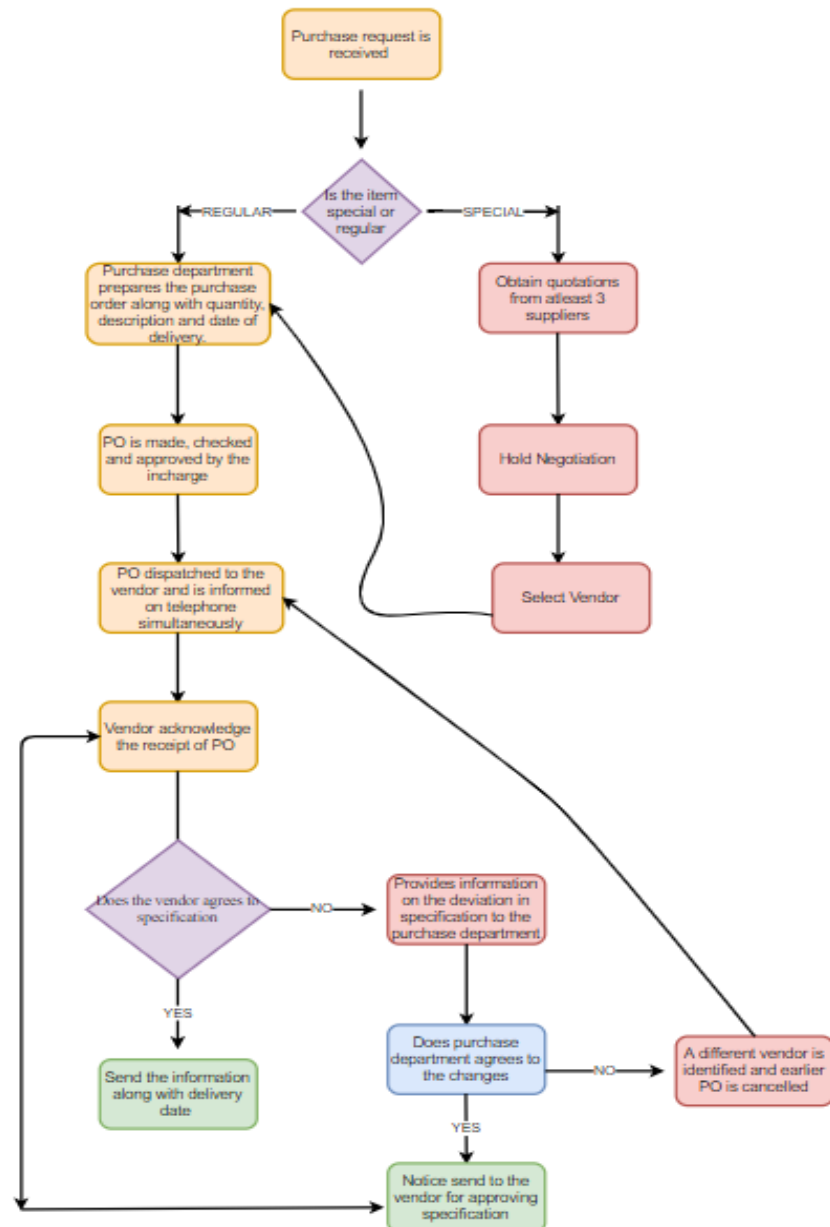
These types of vendors sell goods and product to the government. For e.g., the vendors selling materials to the army.

3. B2B –

This type of vendor is the one that sells primarily to other vendors. For e.g., Panasonic it sells its battery to tesla.

Life Cycle of a Vendor in Supply Chain Management





Life Cycle of a Vendor in Supply Chain Management

Criteria's (KPI) for Vendor Selection.

There are numerous criteria upon which any organization can select the vendors of their right choice depending upon the need of an organization. Some of those criteria are as follows: -

1. Number of Years in Business–

One needs to know that their vendor is established and ready to serve the organization. And should know that from how long the vendor is in the business and all his past performance history.

2. Ability to meet the need of the organization –

The vendor should have skilled manpower and the latest technology so that he can remain up to date and can meet the need of the organization. Organization needs product or services on regular basis, a vendor who has a supply issue will affect the organization.

3. Flexibility to allow changes in order or product line –

Many times, due to certain situations organization can make certain changes in the services or the products it needs, like sometimes there can be a hike in the demand of certain product or service and sometimes there can be downfall for the same. For e.g., during COVID-19 times there was hike in the demand of hospital beds, oxygen concentrators so at such uncertain times vendor should be flexible enough to provide the desired number of product / services to the organization.

4. A Complete Product Catalogue and Product Line –

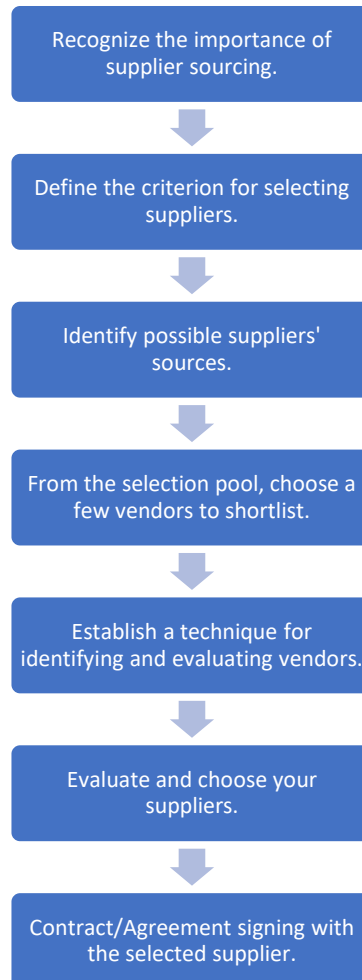
It indicates an established vendor size and means that if you will order from the vendor with substantial catalogue will give organization the flexibility in ordering. If one vendor has a large variety of services and products to offer to your organization, it can minimize the no. of vendors to deal with as this vendor with substantial catalogue will be a one go to stop.

5. Internal Experts –

The Vendor should be equipped with the people who are experts with respect to what they are doing so that any time the organization has some queries or issues related to some services or the product those experts can solve it.

6. Testimonials and References –
To check whether the vendor is reliable or not.
7. Sustainability and financial stability –
When working with a new vendor the organization should ask for the financial statement of the vendor to review it so that the organization can calculate the vendor's profitability ratio, Liquidity ratio (it will provide the measure of vendor's ability to meet short term obligations).
8. Prices –
Prices should be such that it satisfies both the vendor and the organization.
9. Delivery Times –
Vendors should have a prompt delivery system the delivery should be made in time when organization needs them.
10. Clear payment terms –
There should be clear payment terms on which the vendor and the organization will work to avoid any conflict. The credit period should be set with the considerations from both vendors and the organization.
11. Responsiveness and Customer Service –
The vendor should be responsive to any problem or issues that might generate in the product or service and should be capable to resolve those issues at earliest.

The Vendor Selection and Evaluation Process involves the following steps: -



Literature Review –

The most essential step that a business does is vendor evaluation and selection and analyze the performance of the vendor.

Competitive bidding has traditionally been the principal technique for awarding purchase contract. However, the vendor selection process has grown in importance to the point that teams of cross-sectional individuals are frequently assigned to visit and evaluate vendors.

There are different approaches to evaluate a vendor. Irrespective of approach applied the goal should be to minimize acquisition risk while increasing total value to the buyer/organization.

The process of selecting suppliers is the core of strategic sourcing and supply chain management. The main objective of the vendor assessment process is to reduce purchasing risk while enhancing total value for the buyer (Monczka & Giunipero & Pattersson 2011). When a new supplier is needed, a supplier evaluation procedure should begin. The goal of supplier evaluation is to ensure that a possible supplier is capable of meeting technical, financial, and commercial needs (Lysons & Farrington 2012). The process of evaluating a current supplier's performance against a set of criteria over time, this is known as supplier evaluation.

AIM

To develop a Vendor Evaluation Form for Shalby Hospitals.

METHODOLOGY

Study Place -Shalby Hospital, SG Highway Ahmedabad.

Type of study – Longitudinal Observational Study

Research Design – Qualitative.

Data Collection – The primary data was collected from Vendor Master Sheet of purchase department.

In this study a Vendor Evaluation Form was created for all the 11 units of Shalby Hospitals. This form is developed for 4 departments and was circulated to all the SCMD of all 11 units. All the 11 units will keep a check on their Vendors for each department and will track their performance and will evaluate the vendors on Half-yearly basis and will categorize the vendors into ABC Categories

A – Being the best Vendor

B – Being the Average performing Vendor

C – Being Below Average Performing Vendor

EVALUATION PROCESS

- The evaluation of each vendor will be based on some KPIs, where the different SCMD of each unit of Shalby will evaluate them from 0 to 10.
- Then for all the KPIs the mean of each vendor is calculated and based on the criteria the vendors are classified into A, B&C.

QUESTIONNAIRE FOR VENDOR EVALUATION -

I. For Pharmacy, Surgical, Implant supplier and General Store.

1. Does the vendor have standard certification for the product?
2. Pharmacy Items supplied for more than 6 month of residual shelf life? (For pharmacy only)
3. Is shipping of the order is appropriately done without the damage to the product?
4. Return policy of expired and damaged products?
5. Quality of the product received.
6. Timeliness of the delivery.
7. Mentioning of product description (raw materials used, expiry date in term of pharmacy department)
8. Information brochure on storage of the product
9. Responsiveness of the vendor
10. OTIF.
11. Discount Provided.
12. Credit period (min. 30 days)
13. Invoice accuracy
14. Completeness of the order.
15. Technical Competence.
16. Adherence to RFP Specification.
17. Supported Shalby in any activity.

II. Medical and Non - Medical Equipments Vendor

1. Best Cost obtained at which equipment is provided.
2. Quality of the equipment provided.
3. OTIF
4. Adherence to the specification of the contract.
5. Flexibility to match the changes if any.
6. Accessibility to the vendor.
7. Responsiveness of the vendor.
8. Team strength to meet order needs and support in future.
9. Spare/ backup strength if any fault comes in the equipment.
10. Invoice Accuracy.
11. Supported Shalby in any activity.
12. Customer review or past performance (in remark)
13. Providing operating and maintenance manuals of the equipment.
14. Duration of maintenance and servicing period of the equipment.

III. Service Delivering Vendor

1. Customer satisfaction level.
2. Responsiveness
3. Cost effectiveness of the service provided.
4. Work performed in compliance with the contract terms.
5. Staff Availability.
6. Staff Professionalism
7. Quality of work
8. Communication and accessibility.
9. Documents, records and receipts, invoices and computer-generated report received in a timely manner and in compliance with contract specification.
10. Supported Shalby in any activity.

IV. Project Vendor

1. Timeliness
2. Competitiveness on cost (bidding)
3. Satisfaction
4. Credit Period
5. Overall financial condition
6. Quality of design compared to specification.
7. Technical support staff level of expertise.
8. Supported Shalby in any activity.

CRITERIA FOR CLASSIFICATION

CATEGORY OF VENDORS	RANGE OF MEAN VALUES (Criteria)
A	8 to 10
B	5.1 to 7.9
C	0 to 5

DIFFERENT FORMS

- Pharmacy, Surgical & General Store Vendor Evaluation Form
- Medical & Non-Medical Equipments Vendor Evaluation Form
- Service providing Vendor Evaluation Form
- Project Related Vendor Evaluation Form

RECOMMENDATIONS

- The Vendor evaluation should be done twice every year on half-yearly basis, so that organization have the knowledge of each and every vendor performance.
- By doing this the hospital can increase its operations in terms of quality, and can deliver a quality based care if hospital is aware about the procurement of its equipments and drugs which are essential to run a hospital and thereby will increase the overall revenue of the hospital.

CONCLUSION

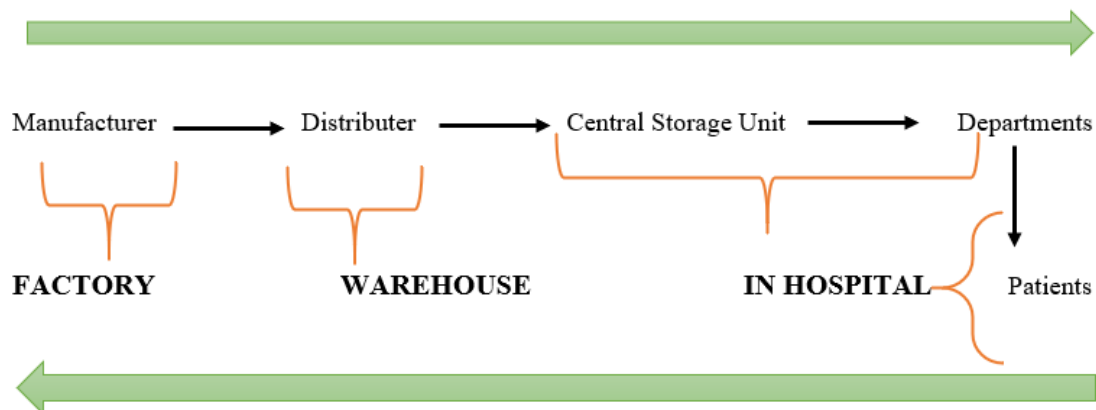
- The evaluation of vendor will give the hospital a broader view of their SCM and Procurement process.
- The hospital will be more efficiently able to decide that which vendors are to be kept along for a long time and how each vendor is fulfilling his duties towards the hospital.
- This evaluation will give opportunity to the hospital to increase their Quality of operations by dealing with only good vendors who provide the best equipments and drugs for the hospital.

INVENTORY CONTROL & MANAGEMENT RESEARCH REPORT

INTRODUCTION

In a hospital to deliver high quality treatment to the patients, there should be significant investment in the supply chain management. Inventory management is an important part of supply chain system. Inventory management in hospitals is becoming increasingly important as requirements, goods, pricing, expectations, and policies change. Multiple suppliers/manufacturers/distributors, a central storage site in the hospital, numerous departments, and patients make up a hospital supply chain.

FLOW OF PRODUCTS



FLOW OF INFORMATION

Inventory management plays an important role in all hospitals. It let the hospital know the detailed information on medicine stocks and batches. It keeps the updated stock of drugs and other equipment's by keeping track of expiry dates of the medicines. Inventory management is very helpful for the overall management of medicines and equipment's.

DEFINITION–

Inventory management is a methodical strategy to acquiring, storing, and selling inventory; in other words, it means having the appropriate stock at the right levels in the right place at the right time for the right price.

Need of Inventory management in hospital –

The most crucial duty for all hospitals is to keep precise and up-to-date inventory records for medications and surgical equipment. Every hospital must run and maintain a sufficient supply of life-saving drugs, as well as any other items necessary to run the facility properly. When it comes to inventory management, hospitals encounter a variety of issues, including:

- Shortage of essential medicines.
- Loss or damage of surgical equipment's.
- Overstock of medicines.
- Not being able to keep track of expiry date of the medicines.
- Sorting of medicine with respect to demand and usage.

A good inventory management process can help the hospital to solve all these problems and run its procedures efficiently.

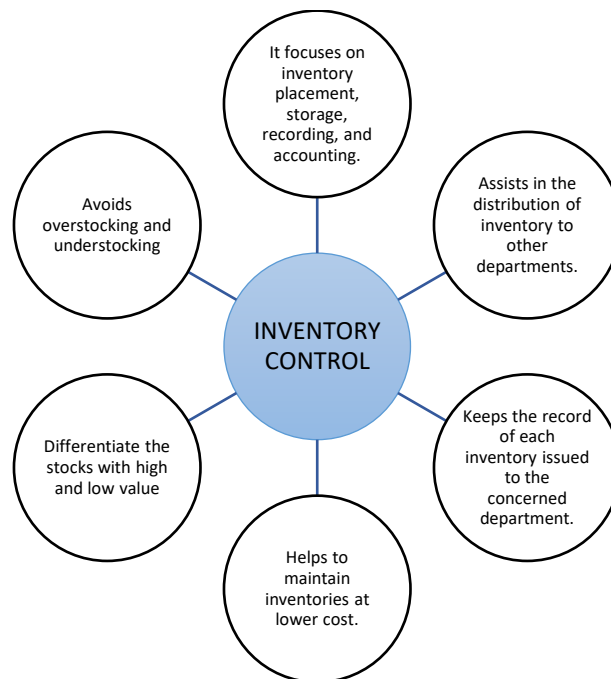
Inventory management keeps the track of the assets of the hospital and helps hospital in maintaining them.

Inventory management provides real time tracking keeping the stocks up to date

INVENTORY CONTROL—

Inventory control is defined as the supervision of supply, storage, and accessibility of items in order to ensure an adequate supply without over or under supply.

Inventory Control Advantages -



Techniques in Inventory Management –

1. ABC (Always, Better, Control) Analysis –

- It is based on consumption/usage value.
- Pareto Principal i.e., Pareto 80/20 rule.
- This rule states that 80% of the overall consumption value is based on only 20% of total items.
- It divides inventory into 3 categories based on their annual consumption –
 - ✓ A item – Have tight inventory control and accurate records. 70-80% annual consumption accounts for only 10-20% of the total inventory item.
 - ✓ B item – Have less tight control and good records. 15-25% of the annual consumption for 30% of the total inventory item.
 - ✓ C item – Have minimum records 10-5% annual consumption accounts for 80% of total inventory items.

2. VED Analysis –

- It is based on criticality of the inventories.
- It divides inventory into 3 categories –
 - ✓ (V) Vital – Medicines and equipment that are essential for the patient's survival and must be available at all times in the hospital.
 - ✓ (E) Essential – Lower-critical-need medicines and equipment that may be accessible at the hospital. These products shortages can only be tolerated for a limited time. If non-availability persists over an extended period of time, it has an impact on the hospital's capacity to function.
 - ✓ (D) Desirable – The remaining medicines and equipments with lowest criticality, the absence of these will not have any effect on the functionality of the hospital.

3. FSN Analysis –

- Fast moving, slow moving, non – moving inventory differentiation of inventory is based on their consumption rate, quantity, and the rate at which the inventory is used.
 - ✓ Fast Moving – the stock that moves quickly and needs to be replenished very often.
 - ✓ Slow Moving – Inventory that crawls slowly through the supply chain.
- Hospitals generally maintains a large amount of non-moving inventory which blocks a lot of capital.

4. HML Analysis –

- It classifies inventory according to a products unit price.
 - ✓ (H) High Cost – Items with high unit value.
 - ✓ (M) Medium Cost – Items with medium unit value.
 - ✓ (L) Low Cost – Items with low unit value.
- HML analysis is very close to ABC analysis.

5. SDE Analysis –

- It classifies inventory according to the scarcity of supply.
 - ✓ (S) Scarce Item – items which are short in supply.
 - ✓ (D) Difficult Item – Items which are not readily available in local markets and have to be procured from faraway places which makes limited no. of supplier and quality suppliers are difficult to find.
 - ✓ (E) Easy Item – items are easily and readily available. Items purchased locally without any difficulty.

6. GOLF Analysis –

- G group includes all the items which are procured from government suppliers.
- O group comprises of items which are procured from non-government organizations.
- L group consists of inventories purchased from local suppliers.
- F group consist of items purchased from foreign suppliers.

7. SOS Analysis –

- It is based upon the seasonality of the items that are available.
- (S) Seasonal.
- (OS) Off Seasonal.
- Procure items in right season.

Literature Review–

Inventory and supply chain management are the backbone of any business, and as technology has advanced, inventory management has changed dramatically.

The connection between capacity utilization and inventory investment was highlighted by Abramovitz and Modigliani (1957). The inventory-to-sales and inventory-to-investment ratios were shown to have a favorable relationship.

Inventory management is a critical function that affects the organization's financial situation as well as the supply chain's health. Every company strives to have the best inventory possible in order to satisfy the needs of the company.

Inventory items should be categorized into major groups based on acceptable criteria and standards to develop a flawless inventory control system.

Drug shortage might occur regularly which can affect patient's life; But hospital cannot keep a big quantity of each drug. due to various reasons, one being storage space insufficiency and high budgets.

The focus of this research is to develop a hospital inventory management system that reduces total inventory costs while ensuring patient safety.

Because drugs are distinguished by their value and therapeutic relevance, a single inventory technique cannot be used successfully to all of them. Drug classifications and demand characteristics should be used to classify medicines.

Inventory management that is effective and efficient may have a significant impact on the hospital's profitability.

The prevention or limitation of shortages is one of the major tasks of inventory. Having a precise inventory allows you to remove recalled and expired items right away, reducing waste, reducing backstock, and assisting you in making decisions about whether to refill and buy bulk supplies.

STUDIES	OBJECTIVE	KEY FINDINGS
Joana Isabel Baptista Nabais, 2009	To analyze hospital's inventory management and make suggestions to improve its practice	With competition and increasing costs the hospital should look at some functions that should be banished, adapted, adjusted or made efficient.
Duangpun Kritchanhai. W. Meesamut, 2015	Developing Inventory Management in the Hospital	Single Inventory management system can not be effectively applied to all the medicines.
Vahit Yigit, 2017	Analyze the annual medical materials expenditure and consumption of a hospital using inventory control techniques	The medical inventory control and material management in hospital is very essential because hospital resources are limited this situation requires effective and efficient management of the existing resources.
Dr. Tariq Sheakh, 2018	Inventory cost have a lot of impact on the profitability of the firm	The ROI of inventory management will be seen in the form of increased revenue and profits and +ve employee atmosphere and overall customer satisfaction

Rationale –

An efficient and cost - effective patient care can be delivered in a hospital only if sufficient amount of right drugs and consumables are available This research is conducting in order to classify the drugs into various categories based upon their value and to identify the areas of improvement in this process.

Objectives –

- To study the inventory management of a multispecialty corporate hospital (Shalby Hospital SG Highway, Ahmedabad).
- To study different inventory control techniques.
- To categorize the inventory according to ABC Analysis.
- To categorize the inventory according to the VED Analysis.
- To study the movement of items in hospital i.e., FSN Analysis.
- To study and suggest solution to avoid inconvenience due to unavailability of inventory in patient's care.

Methodology –

- ✓ Study Area – Shalby Hospital SG Highway.
- ✓ Study Duration:
 - 25th December 2020 – 27TH May 2021
- ✓ Sample Technique – Convenience non - random sampling.
- ✓ Sample Size – All drugs and inventory in Pharmacy main store and Dental Department dated from 25th December 2020 – 27th May 2021
- ✓ Type of Study – Descriptive observational Study.
- ✓ Nature of Data – Data was collected through the hospital purchase database and VED Analysis was done with the help of day-to-day interaction with pharmacy store executive.
- ✓ Research Design – Qualitative and Quantitative method.
- ✓ Limitations –
 - The study is focused on pharmacy main store and Dental Department of Shalby hospital SG Highway Ahmedabad.
 - The study is limited to observational and interaction with department staffs.

ABC Analysis –

ABC analysis is a crucial component of material management. This analysis helps to determine the stock's importance elements and priorities their management based on their worth. It is based on Pareto Principle economic theory. Pareto Principle states that 80% of the sales volume gets generated from the top 20% items and therefore, it is also known as 80/20 rule.

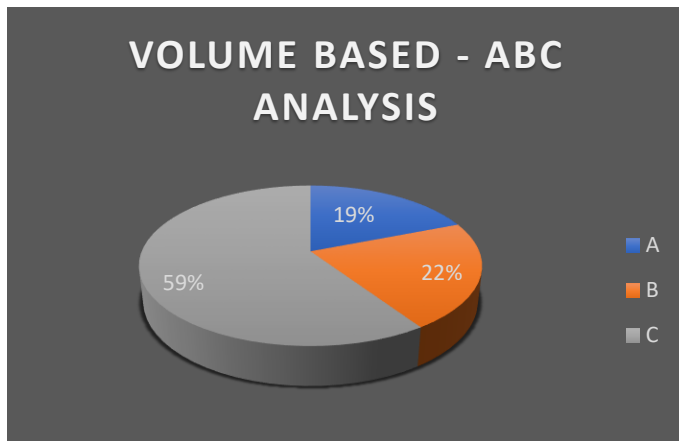
This analysis is used to classify the drugs based on their value consumption. In this the items are classified into 3 different categories: -

- A item – Most important stock item having the highest value and should have tight inventory control and accurate records.
70-80% annual consumption Only 10-20% of the entire inventory item is accounted for.
- B item – Items in this category are larger in volume but have less utility than those in the A category, therefore they should be documented with less strict control.
15-25% of the annual consumption for 30% of the total inventory item.
- C item – Contains the most inventory products with the least value in terms of income generation, and this category should have simplest control and minimum records.
80% of all inventory goods are consumed at a rate of 10-5% every year.

Steps for Performing ABC analysis –

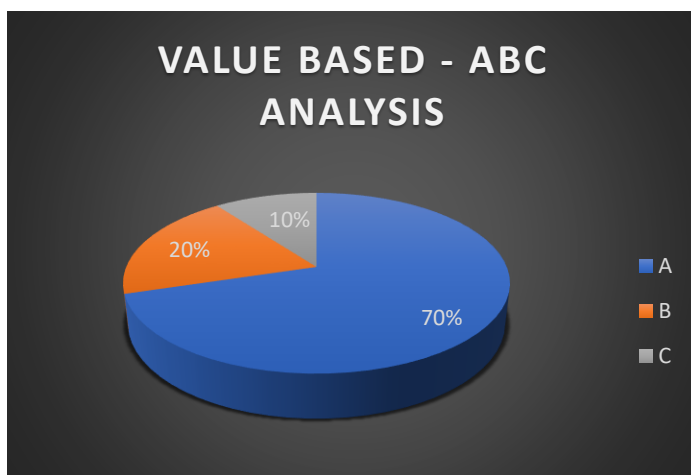
1. Collect all inventory data.
2. Multiply the yearly demand by the unit cost of each item to get the total value of each item.
3. Add up the entire worth of each item to determine the inventory's total sale value.
4. Calculate the percentage of value of each inventory, by dividing the total value of each item with the total sell value of the inventory and change it to % by multiplying the result with 100.
5. Arrange, the items in descending order with respect to their percentage of value.
6. Break the inventory items into ABC class.

For Pharmacy Main Store –



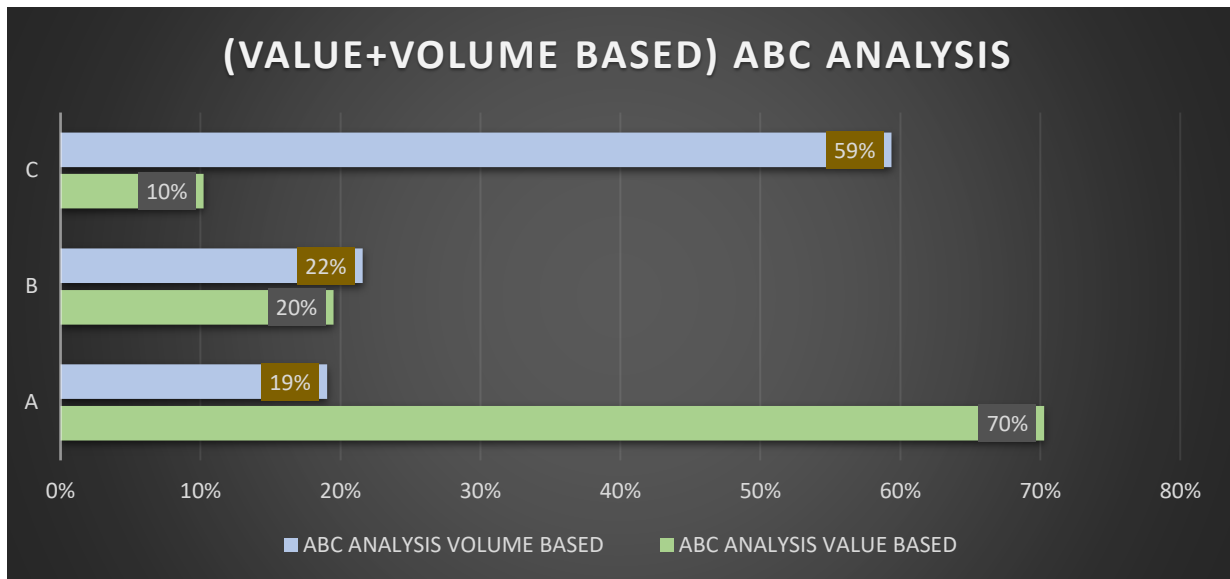
ABC	ABC ANALYSIS BASED ON VOLUME
A	19%
B	22%
C	59%
Grand Total	100%

It was found that C Category item contributed maximum share of total inventory based on volume, followed by B category item and the least volume of A category Item.



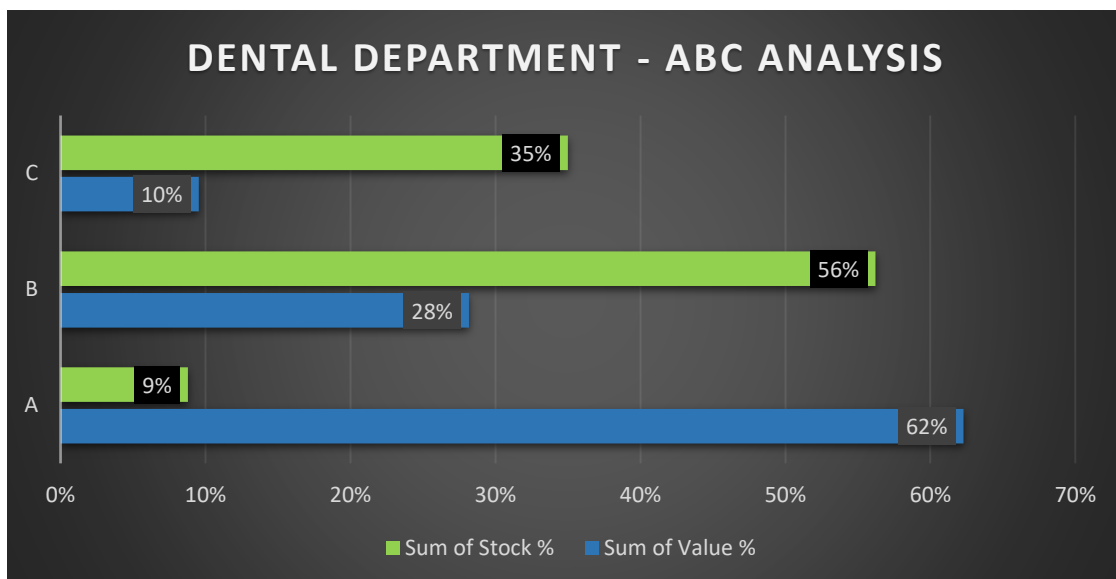
ABC	ABC ANALYSIS BASED ON VALUE
A	70%
B	20%
C	10%
Grand Total	100%

The maximum amount of share was found to be 70% for category A, 20% for category B, and 10% for category C.



For Dental Department –

ABC	ABC ANALYSIS BASED ON VALUE %	ABC ANALYSIS BASED ON VOLUME%
A	62%	9%
B	28%	56%
C	10%	35%
Grand Total	100%	100%



FSN Analysis –

FSN analysis of the products have been done on the basis of Consumption Rate of the products and sorted with the guidance of Organization guide.

F = items that have a faster rate of consumption and require frequent purchasing.

S = Items that have comparatively slower rate of consumption and does not need recurrent purchasing.

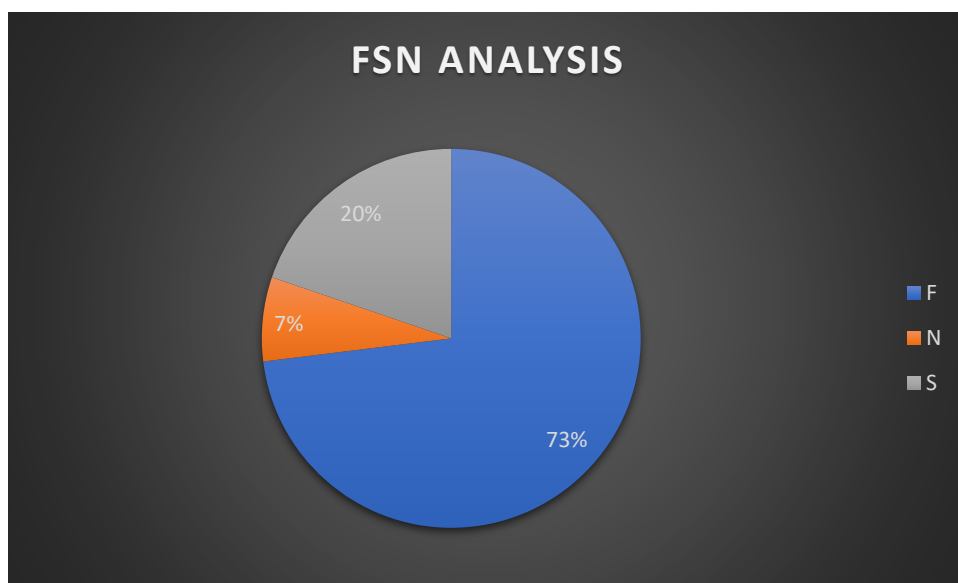
N = items which are stagnant and does not need to be purchased over a longer duration.

Steps in FSN –

1. Calculate the total consumption of the product.
2. Divide the total consumption with the months for which we need to find the FSN.
3. Calculate the cumulative consumption of each product.
4. Calculate the total consumption of all products
5. Calculate the % consumption of each product
6. Divide the products into FSN category.

For Pharmacy Main Store -

FSN	Sum of % CONSUMPTION
F	73%
N	7%
S	20%
Grand Total	100%



The Fast-moving goods, require timely and frequent purchase. These items are supposed to get stocked out, so they require a strict supervision. Slow moving items should have longer shelf life.

VED Analysis –

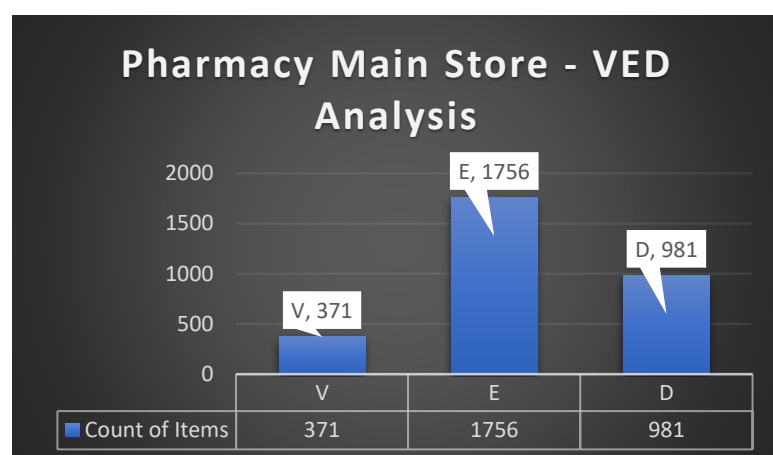
VED Analysis is done to classify the products into Vital, Essential, and Desirable categories. This analysis was done with the help of the organization staff.

V = Vital, means these drugs/products should always be present in the inventory as their absence will hinder the day-to-day operations in the organization. Their shortage cannot be tolerated.

E = Essential means these drugs/products should be there, and their absence might hinder the day-to-day operations but will not affect that much. Their scarcity is tolerable but for short period.

D = Desirable, means these products absence would not affect any operations. Their shortage will not adversely affect, but they might be using more resources. These items must be carefully examined.

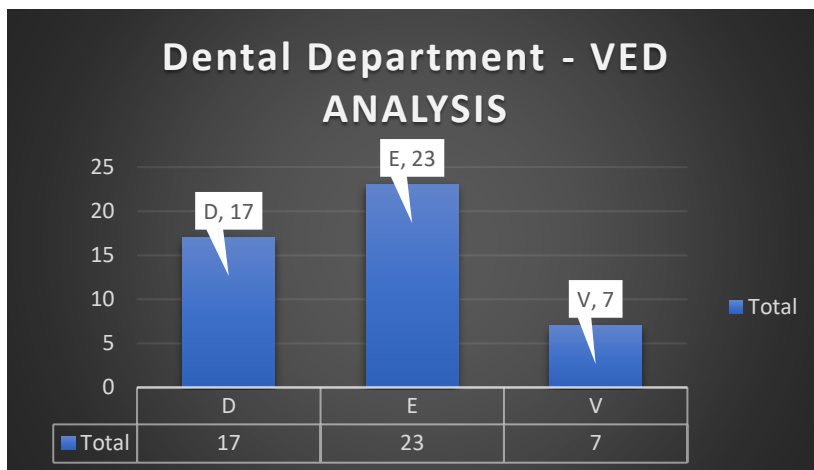
For Pharmacy Main Store –



VED	Count of Items
V	371
E	1756
D	981

In patient care, the Vital Items (V) are lifesaving. It is not acceptable to have a stock out or a shortage of these products. The stock of essential items (E) should continually be monitored. Desirable things (D) should not be kept in big quantities.

For Dental Department –



VED	ITEMS
V	7
E	23
D	17
Grand Total	47

Recommendations –

- The goods in A category should be thoroughly examined because they account for the majority of the overall inventory value.
- A category objects should be stored and moved with care and caution, and they should be closely monitored from time to time. The goods in A category should be thoroughly examined because they account for the majority of the overall inventory value.
- B category items should be monitored on monthly basis as they hold the 2nd position in total value of the inventory.
- Reordering of these items should be made less frequent should be audited on quarterly basis.
- F category Fast moving item require timely and frequent purchase. This category items are most likely to go out of stock soon and therefore it requires tight surveillance.
- S category that is slow moving item should also have a strict supervision as there are chances of expiry of these items.
- N category, non-moving items should not be kept in excessive quantities. Items in the S category should have a longer shelf life.
- The V category that is vital items are lifesaving in patients care.
- Shortage or stock out of vital items should not be tolerated as they can hamper in patient care and in daily operations of the department as in case of dental department in above study.
- The stock of essential products (E) should always be monitored.
- Desirable things (D) should not be kept in excessive quantities.

Conclusion –

- The importance of inventory management is very much it is one of the important aspects to run any business.
- The primary goal of inventory control in healthcare is to provide safe and appropriate care to the patient. The hospital should ensure that amount of inventory meets the demand from patient's treatment.
- The study concludes that a single form of inventory cannot be applied to all types of drugs and medical departments.
- The inventory policy should consider both the value and clinical significance elements, as well as demand characteristics.
- The inventory policy should be revised every year.
- ROP or a certain amount of time triggers the ordering. If real-time demand (as in the COVID-19 Period) and stock levels can be exchanged with vendors, active replenishment may be done properly. This is known as Vendor Managed Inventory (VMI).

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