SUMMER TRAINING

at

FORTIS HOSPITAL, ANANDAPUR, KOLKATA.

(10th May to 2nd July 2021)

A report

On

Supply Chain Management

by

Jayashree Hira

Roll Number-1109

MBA program (HHM, Batch of 2020-2022)

OFFICIAL PART

I hereby declare that this project is done in HOSPITAL AND HEALTHCARE MANAGEMENT as taught in IIHMR University, Jaipur according to UGC guidelines & under my guidance & supervision.

(Signature of Student) **(Signature of Guide)**

SELF-DECLARATION

I hereby declare that the training report on “Supply Chain Management“ in FORTIS HEALTHCARE LTD., ANANDAPUR being submitted by me in original & independent research work.

All the information in this project is the best of my knowledge & interest. The data & information provided in this project is also truly original and valid & was not influenced by another work done in the same field before. It is prepared by my observation and discussion with the staff & executives of the concerned department. And even the fact and the findings presented in this project reports are true to my best of knowledge and belief.

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TO WHOMSOEVER IT MAY CONCERN

*This is to certify that **Ms. Jayashree Hira** student of **IIHMR, Jaipur** has completed her two months' summer training in the hospital **from May 10th, 2021 to July 2nd,2021** in order of partial fulfilment of her study on MBA Hospital & Health Management Program.*

*During her internship she was placed in the **Supply Chain Management.***

We Wish her Success in life.

Dr Arafat Faisal
Head Medical Services

Fortis Hospital, Anandapur, Kolkata

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Acknowledgement

The completion of this undertaking could not have been possible without the participation and assistance of my **Mentor Mr Ashish Bandhu** who helped me throughout and gave his precious time every time I needed. I am also thankful to my parents who never kept any kind of inadequacy in my life and provided me almost everything of my wish. In addition to their contributions, I sincerely appreciate the help of my dear friend **Mr Avirup Dutta** which is gratefully acknowledged.

My profound gratitude to also my Project Mentor **Mr Bhaskar Guha** (Manager, Pharmacy) for coming up with such a wonderful idea and binding thoughts into a compiled version to provide as much as information possible in regard to Hospital Management at Fortis Anandpur, Kolkata. I would also love to extend my sincere thanks to **Mr Pratyush Srivastava** (Zonal Director), **Dr Arafat Faisal** (Head Medical Service), **Mr Abdul Rashid** (HR Head), **Mrs Shruti Sinha** (Clinical Pharmacist & Academic Coordinator) and **Mr. Sandip Chatterjee** (Supervisor, SCM)**.**

Lastly, thankful to the Almighty, for whom my "State of being" exists.

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Acronyms and abbreviations

Sl. No.	Abbreviations	Full Form
1.	CBU	Central Buying Unit
2.	SCM	Supply Chain Management
3.	PO	Purchase Order
4.	GRN	Goods Receipt Number
5.	PC	Purchase Committee
6.	QCPAF/RN	Quotation Comparison Purchase Approval Form/Recommendation Note
7.	HOD	Head of the Department
8.	MDM	Master Data Management
9.	SPOC	Single Point of Contact
10.	FMO	Fortis Master Organization
11.	MC	Medical Consumables
12.	PH	Pharmaceutical Product.
13.	NM	Non-Medical
14.	TAT	Turn Around Time
15.	SKU	Stock Keeping Unit
16.	OEM	Other Emergency Materials
17.	NCBU	Non-Central Buying Unit
18.	ROL	Re Order Level
19.	HIS	Hospital Information System
20.	GAM	Global Account Management
21.	MICU	Medical Intensive Care Unit
22.	CCU	Critical Care Unit
23.	ICU	Intensive Care Unit
24.	MIS	Management Information System
25.	NABH	National Accreditation Board for Hospitals

Observational Learnings

About Fortis: -

"Fortis Healthcare Limited, an IHH Healthcare branded Company is a leading integrated healthcare service contributor in India" (1) . "Among many other healthcare chain institutes in the country it has around 36 healthcare facilities (including projects under development), 4000 operational beds and over 400 diagnostics centres (including JVs)". This chain of hospital is present in different countries like India, Sri Lanka and United Arab Emirates (UAE). "The Company is also listed on the BSE Ltd and National Stock Exchange (NSE) of India. From IHH, a major global and parent company it draws strength to build upon its culture for world-class patient focussed care giving and superlative clinical excellence. Fortis has a employee strengh of 23,000 people (including SRL Diagnostics) who share the similar vision of becoming the world's most reliant healthcare network. Fortis offers a full spectrum of integrated healthcare services ranging from clinics to quaternary care facilities and a wide range of ancillary services."

Some major titles received by Fortis Group are: -

- Economic Times Health World Hospital Awards'20- Fortis Group won four awards in different fields at the Economic Times Health World Hospital Awards 2020.
- Fortis bagged the 'Best Hospital Chain' and the 'Best Hospital for Patient Care' titles in pan India.
- Fortis Hospital, Bannerghatta Road, Bengaluru, was awarded the 'Best Hospital - Urology' in the given area.
- Fortis Memorial Research Institute, Gurugram, was recognised as the 'Best Hospital for Oncology' in its region.

Fortis Anandapur Kolkata was commissioned on 9th January 2011(2),it is a 400 bedded Super Speciality Hospital situated in the EM Bypass Road. It is one of the best of Kolkata's leading Healthcare providers in the city having three other branches located at different areas. "Focusing on the tertiary care of Super Speciality like cardiology and cardiac surgery, bone and joint care, brain and spinal care, digestive care, urology and nephrology, emergency care and critical care. Medical amenities include 24-hours accident and emergency services

including trauma treatment, ambulance services, blood bank, fully functional operation theatres, catheterization lab and diagnostic lab. They have 18 NABH certified Hospital in the country. Fortis Anandapur is also NABH accredited. As well as it received the nursing excellence NANI."

LOGO

The Fortis symbol consists of two human hands that enclose human forms. The logo of hands joining gives a human figure representing Fortis's responsive approach to healthcare and caring attitude towards its seekers. It is the promise to patient or ailing people for maximum comfort. This symbol engages a constant reminder of their mission and also for their audiences outside the organisation and to their external and internal stakeholders.

INITIATIVE

Sparkle is an initiative to improve and meet International standards of cleanliness at Fortis. To keep their hospital clean they follow the 5S concepts. 5 'S' include 1. Sparkle shot 2. Straighten 3. Shine 5. Systemize 6. Sustain Green card recognition program or "Dil Jeet liya Aapne", is an initiative where the needful service of an individual will be honoured by offering him/her a card (named Green Card) with a note of recommendation. To be a true "Fortis Ambassador" one has to pass the white belt test full which is based on a person's level of familiarity/information about the hospital and its facilities.

VALUES

PATIENT CENTRICITY

1. Fortis is committed to 'best outcome and experience' for the patients.
2. Fortis treat it's patients and the caregivers of the patient with utmost empathy, care and apprehension.
3. The need of patients is always a priority to Fortis.

INTEGRITY

1. The main integrity is to remain high on principles, open-minded and being sincere.
2. To have some ideal models and keep up the values.
3. Always have the moral courage to speak up whenever the situation demands.

TEAMWORK

1. To support eaqch other proactively and divide responsibilities among themselves.
2. To always give respect and value to people at different levels with different opinions, experience and conditions.
3. To always put organizational needs before one's departmental or self-interest.

OWNERSHIP

1. The aim of Fortis employees is to be more responsible for their actions and take pride in it.
2. They also take initiatives necessary at situations and to go yonder the call of duty.
3. To deliver everything with complete commitment and sticking to the agreements made.

INNOVATION

1. To continuously upgrade and constitute to exceed conjecture.
2. Adopting employees to a 'can-do' outlook.
3. The employees challenging themselves always to do things uniquely.

MISSION & VISSION

They are a part of a team that has established outstanding reputation for or each cutting edge technology in healthcare services and is a benchmark for service quality.

- MISSION:

  The mission of Fortis is to be a globally acclaimed healthcare organisation and get recognised for clinical distinction and delivering excellent patient care.

- VISION:
- Their vision is to save and enrich lives of people.

Supply Chain Management: -

Introduction: **"**Supply Chain Management (SCM) is the practice of incorporating a company's social, environmental, and economic goals into the coordination of inter-business processes to improve the long-term economic performance of the individual company and its supply chains (3,4)." SCM in any industry or company is a very important factor for the managing of the organisation and meeting the demands in various situations(5). The pharmaceutical and non-pharmaceutical products are key or important part of any hospital(6). The intention of SCM in Hospitals and health-based system is to find the threats in different departments and put forward measures to decrease them. It focuses to identify vulnerable areas to achieve targeted health results and increases investments in global health. The supply chain ensures availability of medicines and related medical products at right time, reducing inventory wastage, magnifying patient care, coordination in all departments decreasing human error/medication errors(4). In Fortis Anandapur Hospital, the people working in the procurement and inventory group are very active and people are placed holding different posts based on their roles and responsibilities. Staffs are segregated based on their duties and shifts.

Procurement Management

Procurement Management is described as "It is a strategic approach to optimizing organizational spend (7). It invoices sourcing, requisitioning, ordering, inspection, and reconciliation. It means acquiring your goods and services from preferred vendors, within your determined budget, either on or before the deadline."

Procurement Management in Fortis, Anandapur:-

- **Item Master Creation**- For every existing item to be purchased or new item to be introduced there must be an item code for the same. The unit checks the requested item if at all it is present in the Fortis Master Organization (FMO) and Master Data Management (MDM) tool. For items not existing in FMO/MDM tool, a request for item creation is to be raised in MDM tool. Requisite approvals for the assignment/creation to be taken as per the workflow approval matrix. The unit Single Point of Contact (SPOC) fills up the information in the MDM tool and submit for further processes. For Central Buying Unit (CBU) items, the CBU team fills up the requisite fields in the

MDM tool and submit the request and for Non-CBU items, MDM tool creates the item in FMO with the details requested by the unit.

- **Procurement**- The procurement of the required materials and services by Fortis is done at the lowest rate within the specified time. They generally don't compromise with the quality and service parameters. Stock Keeping Units (SKU) are items typically procured on historical demand and stocked at the unit of consumption. Items are stocked to avoid procurement lead times, meet variations in demands and achieve economies of scale while purchasing. In case of Monopoly, Other Emergency Materials (OEM) product or doctor's preference three quotation requirements would not be applicable. In such cases an e-mail documentation to be maintained or the Quotation Comparison Purchase Approval Form (QCPAF) should mention the remarks about the monopoly or OEM vendor items. In case of CBU items is made as Non-CBU due to any price change, QCPAF has to be made for that item mentioning that "CBU converted to NCBU" and the comparative of existing similar CBU or Non CBU items to be included the QCPAF for Global Account Management (GAM) approval.

  For CBU items, the CBU or Central Buying Unit consolidate the PRs and releases Purchase Orders on approved vendors, approved rates and approved commercial terms. All approved QCPAF on basis of which the POs are raised, to be retained and filed suitably with relevant quotations and documentation for audit trail. For Oracle units QCPAF and supporting documents can also be uploaded in the system.

  QCPAF/RN to be sent for approval covering all the details of prices, credit period, quality, justification of shortlisted vendor etc. to the concerned personnel. QCPAF is also to be filled in all purchase decisions. The QCPAF forms are to be approved by unit Purchase head/SCM Head and further approvals to be taken as per GAM.

  MDM team also ensures that all the requests received are responded to within the Turn Around Time (TAT) as defined by various actionable. TAT to be measured on the Procedure, Finance Module, etc. where the request are being sent through Excel Template and update done in Oracle directly.

Inventory Management: -

"Inventory management is a part of the SCM. Inventory management includes the aspects such as controlling and overseeing purchases (8) from vendors as well as to the customers,

maintaining the storage of stock, keeping the amount of product sale in control and also fulfil the required order."

Fortis maintains two different departments for their Supply Chain Management. Non-Pharmacy and Pharmacy for a less complicated transaction and issue of items. It also falls under their policy to maintain two separate inventories for storing their products.

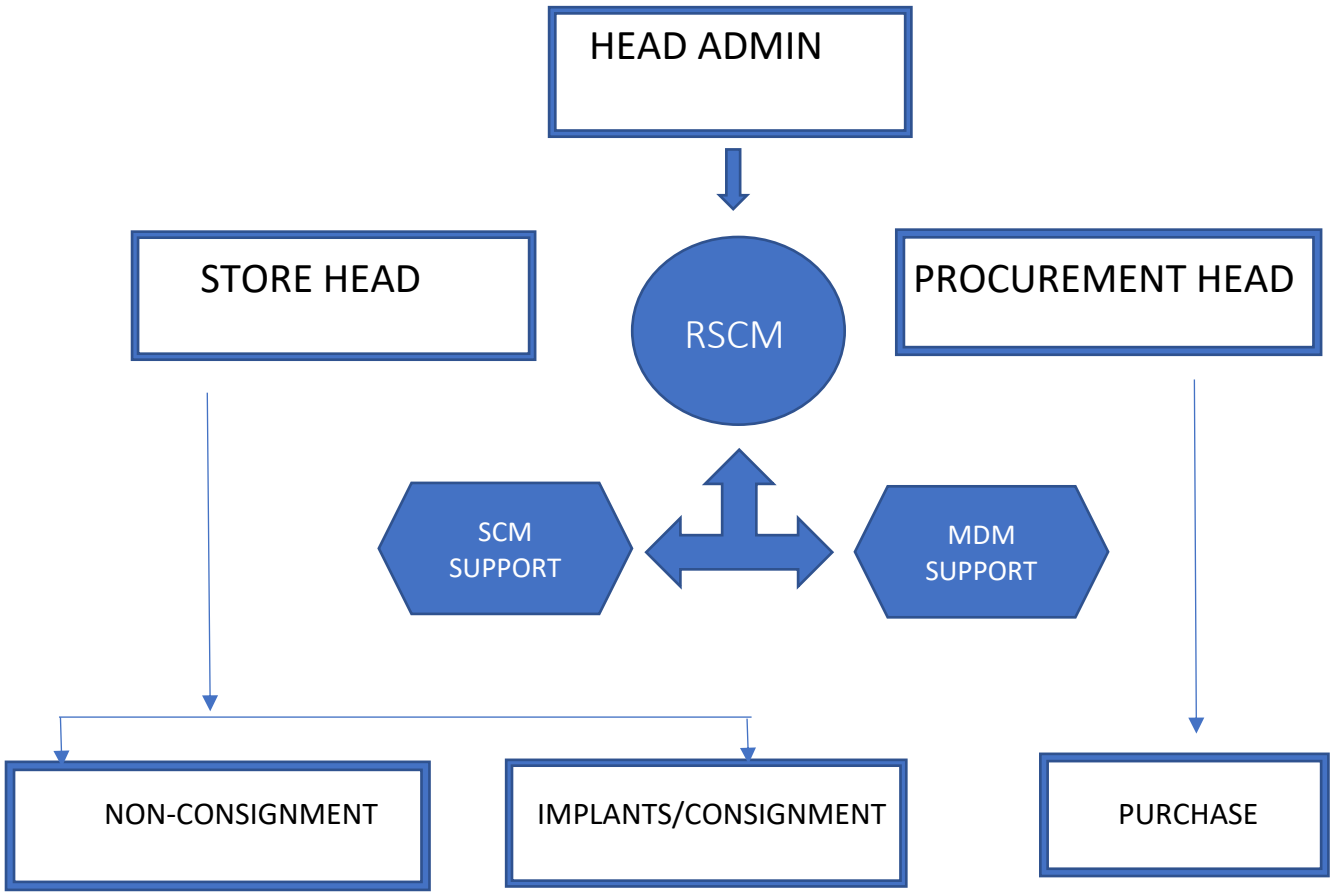
There are five main stages followed for managing the inventory system are: -

1. **Purchasing**: Buying materials or buying products as per the mentioned medicines in the formulary for Pharmacy and listed or suggested products for surgical or medical consumables. Among the purchased items, items like stationary products, printing and binding also has a major role.
2. **Holding stock**: Storing the materials before they are issued for use in different departments. Storing techniques are depending on the materials. Some medicines and medical consumables including every dosage forms might need certain temperature and environmental conditions others might not. The inventory is designed in such a way to stock everything aiming for minimum wastage.
3. **Issuing of items**: Indention of items from each department against individual patients as per their requirements.
4. **Reporting**: Businesses need to know how much the products are being used and how much money it makes on each sale.

Non-Pharmacy Products: -

Apart from Pharmaceutical Inventory, Fortis maintains a separate inventory for non-pharmaceutical products. Non-Pharmaceutical products like medical consumable products, implants, printing and stationery, etc. are the vital part of inventory material in Fortis which carries a huge value as well as huge consumption. The entire hospital consumptions cover approximately 40% of the value. Here is shown the schematic diagram for the departmental management.

Table.1: Showing the organogram for Supply Chain Management.



- Main Store
- Catheterization store
- Operation Theatre store
- Printing and Stationery store

- Consigned Items

- Capex
- Non medical
- MC
- Implant
- Services like AMC, CMC. etc.

Consigned Items-

Among the consigned items, medical consumables are a major part. The data of medical consumables are also maintained using the software called Oracle as there are also supplies coming from outside vendors. The product to be used and their rates are decided by the Central Buying Unit and updated in the Oracle. These products are commonly called “Implants” in Fortis store. Implants are of two broad categories Cardiac and Non-Cardiac. Cardiac items are based on catheterization laboratory Except of Heart Valve and Non-Cardiac is based on Operation Theatre like Ortho Implant, Neuro Implant. The brand used under

Cardiac items come to the store against that of the challan produced by the vendor as per CBU Approval. Stock is generally received by the catheterization lab store separately and not by the main store. They are monitored and maintained by them. After the material is used and proper consumption sheet with consultant signature are sent to the Main Consignment store. Finally, when all the formalities are completed by the main store the finance department receives the bill for payment to the vendor.

In case of Non-Cardiac or General Implants which are mainly orthopaedics & Neurologist based, the required item or product to be used, here are mainly suggested by the concerned doctor. The medical team present to assist such patients convey the recommended brand or to the company person for supplying the product against a given challan. Here, the items need no inventory management. They are directly received on the OT day by the specific people and are put into use. If the product is feasible on OT day to the patient the store clarifies and cross checks all the details of the consumption paper of the product and the challan. Consecutively the bills are generated. The to-the-patient charges are usually generated on the basis of GBPA and a GRN is done. The patient is charged as per hospital policy. The main store then sends the bill after completing all the paperwork to the finance for the payment of the bill.

The bills on such products are paid by the Finance Department within a time span of thirty to forty-five days as per their agreement.

Non-Consigned Items-

Non-consigned items follow the same procedure as pharmaceutical products. According to the ROL (Re-order Level), which is run on second and fourth day of the week in this department, the system checks the stock and sends a Purchase Requisition to the concerned vendor and to the store as per the requirement. Against the PR, after the materials are delivered, a PO or

Purchase Order is issued. GRN or Good Receipt Note is kept in the system and the bills are sent to the purchase department.

Some Major Items Viewed in the Inventory are: -

Fig: 01

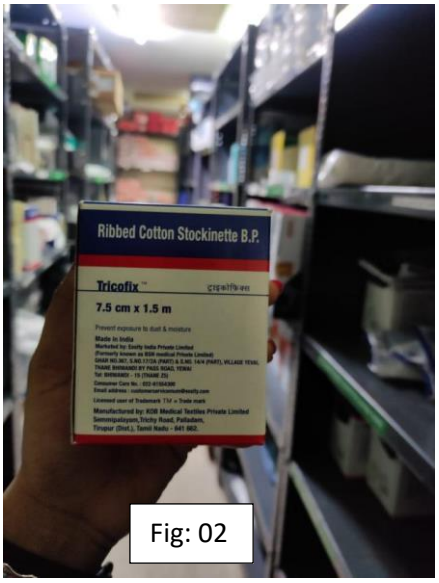


Fig: 02

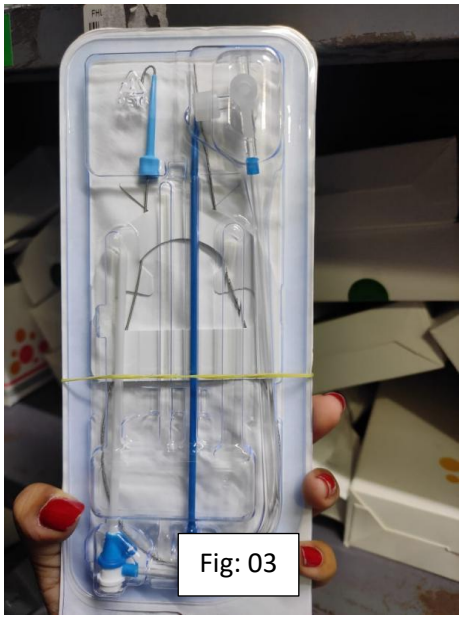


Fig: 03

Fig: 04

Fig: 05

Fig: 06

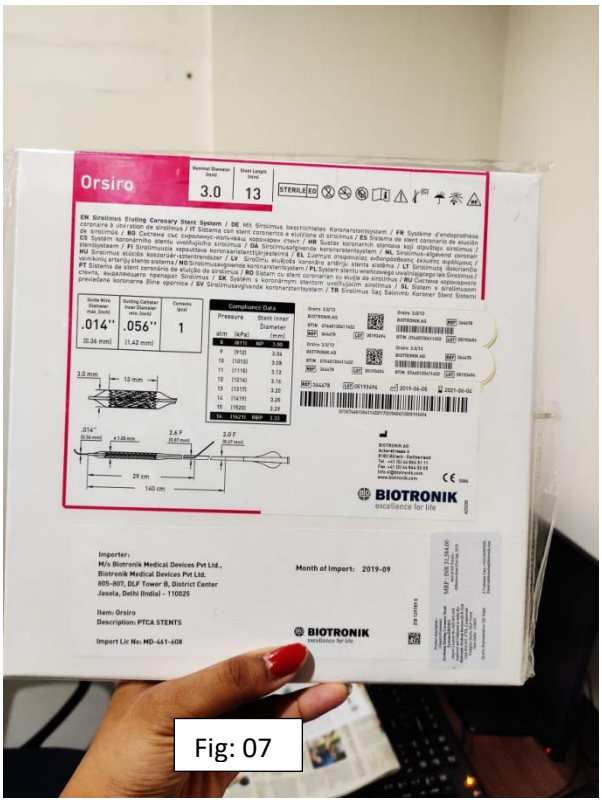


Fig: 07

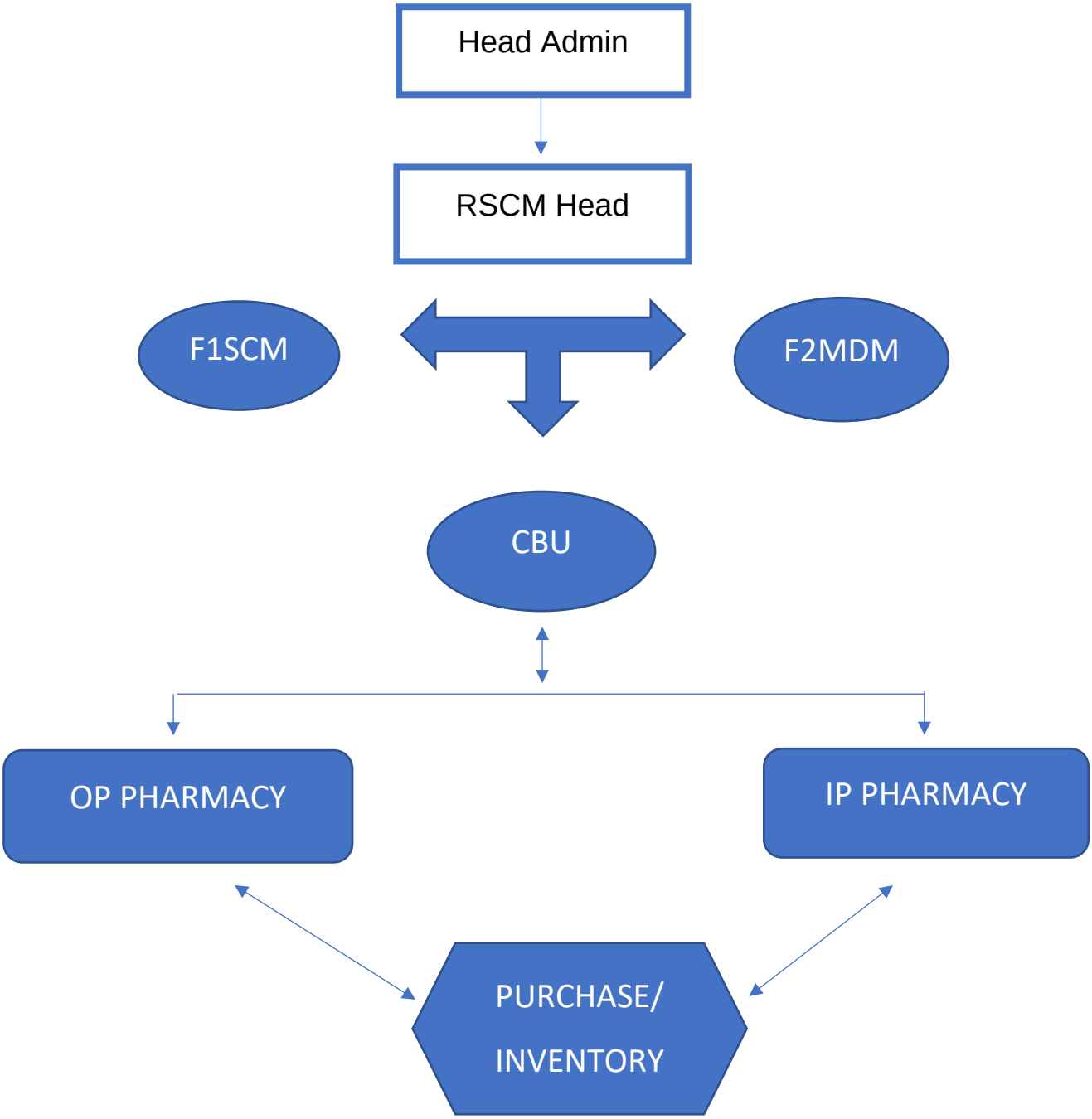

Fig: 08

Pharmacy Products: -

Hospital pharmacy has a wide contribution in healthcare services that involves the system, practice and profession of selecting, preparing, storing, compounding and dispensing medicines, advising patients, doctors, nurses and other healthcare professionals on their safety, effective and efficient use. It is a specialized field of pharmacy which constitutes an integrated part of patient health care in a health system.

During the departmental visit, it is observed that it consists of a **Pharmacy Head**, whose responsibility is to plan, organize and coordinate pharmacy services and operations. They also supervise, train and evaluate the work of the assigned staff. For better functioning of the department, they also have the ability to develop policies and procedures and to evaluate current program effectiveness. In case of emergencies, they can also serve as the technical expert supporting all data management matters and serves as an important resource for pharmaceutical product management with the concerned vendors and dealers.

Table.2: Showing the hierarchy for Pharmacy departments:-



Stocks arranged and stored in the pharmacy: -

Fig: 09

Fig: 10

Fig: 11

Cold Chain Management

Quality is ensured by the following parameters in the process of inventory management by quality team:-

1. Percentage of Stock outs including emergency medicines= “No. of stock outs”/ “No. of drugs listed in hospital” formulary and hospital consumables
2. Percentage of first indent medicines dispensed within half an hour= no. of dispensing within 30 mins/ Total no. of first indent *100
3. Percentage of dispensing error=no. of dispensing error/total patient days*1000
4. Percentage of drugs and consumables procured by local purchase= No of drugs/items purchased within formulary/no. of drugs/items in the hospital formulary list.
5. Percentage of drugs and consumables rejected before preparation of GRN= total quantity rejected/ total quantity received before GRN
6. Percentage of variations from the procurement process=Total number of variations from the defined procurement process/total no of items procured

Data provided by the hospital for the year 2016-2019 showing one of the Quality Parameters: -

An example shared by the hospital for the year 2016-2019 for quality control by one of the parameters:-

Percentage of drugs and consumables procured by local purchase-

CQI	Percentage of drugs and consumables procured by local purchase		N= Number of drugs/items purchased by local purchase within formulary/D= Number of drugs/items in hospital formulary list											
	Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Year	Target				0	0	0	0	0	0	0	0	0
	2016	N	0	0	0	0	0	0	0	0	0	0	0	0
		D				4437	4437	4608	4608	4608	4608	4608	4608	4608
		O				0	0	0	0	0	0	0	0	0
	2017	N	0	0	1	1	0	0	1	0	0	0	0	0
		D	4437	4437	4437	4437	4608	4608	4608	4608	4608	4608	4608	4608
		O	0	0	0.23	0.23	0	0	0.22	0	0	0	0	0
	2018	N	0	0	0	0	0	0	0	0	0	0	0	1
		D	3091	3091	3091	3091	3091	2620	2620	2620	2620	2620	2620	2620
		O	0	0	0	0	0	0	0	0	0	0	0	0.04
	2019	N	0											
		D	2627											
		O	0											

**Other data are not shared due to Hospital Policy.

CASE STUDY:-

CASE REPORT ON EXCESSIVE INDENTATION OF MEDICINES AND RETURN IN IP PHARMACY IN FORTIS HOSPITAL.

Introduction:

Fortis Hospital, Anandapur is a 400 bedded hospital and it has its emergency services active round the clock. The IP Pharmacy and other non-medical items have to be kept in stock for any kind of urgent situations leading to doctor's demand. It is observed that this unit of Fortis is very much capable of having every kind of medications stored in both under normal condition and in special conditions maintaining correct level of temperature using cold chain techniques. Approximately 40 percent of the hospital cost, i.e. more than half of the consigned and non-consigned budget is accounted for medicines, pharmaceutical supplies and medical consumables. The IP Pharmacy is spacious for storing veracious number of medications but sometimes, run low on manpower. It is also observed that they try to use their limited manpower in a planned manner but misunderstandings among workers were quite common. While going for the findings on our focused topic, it is mentioned by the manager in charge that such problem is very frequent and creates a terrible loss of manpower and revenue. Among various dispensing errors, the major ones are associated with less accuracy and inefficient dispensing systems. This thought and happenings led the study to delve deeper to understand the core initiation of this issue. Drug-Dispensing Systems in hospitals can be of majorly two types: -Collective or Individualized.

- **Collective System**- "The collective system which is also known as the traditional system is the oldest and has become mostly obsolete. In this system, drug-related undertakings are given the responsibility on nursing professionals and the pharmacist is merely a drug delivery agent. It is characterized by the distribution of drugs per hospital unit/ward based on an indentation by a nurse from the system. It implies that the establishment of inventory in these units are under the nurse's supervision round the clock. In this system it is estimated that nurses spend about 25% of their time transcribing and indenting medicines from system software, filling requests, and transporting and separating drugs in the various units. Institutional costs might be high

due to losses by theft, inadequate storage, drug expiration, damage and spillage. The advantages of this system are that drugs are readily available at the units/wards, there are fewer requests to the pharmacy, with a measurable reduction in pharmacy expenses related to human resources and materials. These advantages become obstacles for improved pharmaceutical service to patients and in the entire hospital area."

- **Individualized System**- "In this system, the pharmacy and pharmacists participate more actively on drug-use issues; though, the participation of the nurses and dispensing error are still very high. In this system, drugs are dispensed per patient, usually for a 24-hour treatment period. The pharmacy dispenses drugs separately per patient, according to the medical prescription, to the hospital units/wards. The objective of the study was to study the wrong indentation of medicines, factors influencing the return of drugs and revenue involved in it."

Review of Literature:-

The article written by Diksha Shroff talks about drug dispensing time, patient waiting time, turnaround time (TAT) of medications and the wrong dispensing of medications. It also emphasizes how in spite of availability of new technology we are still lagging behind in dispensing proper medications to the patients (9).

Asma et. al mentions the importance of improvement the turnaround time in any chain of corporate hospitals. The paper includes mainly the TAT of different high alert medicines, their dispensing time, etc. (10) .

In 2016 a study was conducted by Emilie et. al to know if the hospitals are following safe dispose of returned medicines. The collection and disposal of unwanted medicines is an important public health issue. There are many reasons why excess medicines can be prescribed. A regular audit should be done and it must be ensured that even if the excess medicine is getting dumped they must not harm our environment or any living beings(11).

This study was done by the esteemed authors Georgia et. al whose aim was to identify pharmacist professional liability patterns and trends associated with two of the most common allegations in legal claims, those are, wrong drug dispensing errors and wrong dose dispensing errors (12).

Eric G Poon and company through their study and investigation have observed wrong dispensing of medications and have come up with the unique idea of providing barcode to every product available. According to them the implementation of barcode has reduced the wrong dispensing of medications(13).

Another research was done to investigate the frequency, type, and consequences of medication errors in the process of the medication indentation, dispenses, including discharge summaries. A cross-sectional study using three methods to detect errors in the medication process such as direct observations, unannounced control visits, and chart reviews can be useful(14)

Study conducted by C Gabriel et. al aimed to determine the incidence of medication errors in paediatric anaesthesia in a University paediatric hospital, and to identify their characteristics and potential predictive factors(15).

Described in the form of PPT presentation the reasons of medication errors, their causes and the reasons very briefly. A case study was also included to clearly indicating that such mistakes are very frequent by providing the example how epinephrine was administered instead of midazolam in a tertiary healthcare(16).

Sneha et. al observed medication problem is having adverse day by day and to prevent those, we must take immediate actions as it is directly related to patient wellness. It is

always advisable to track the patient's current medications and those prescribed during discharge. This practice will help for the rational use of medications (17).

Yasir conducted his study in a tertiary care hospital of Karachi and assessed the frequency and contributing factors for medicine return from wards to the Pharmacy Department and its effects on medication errors(18).

Research Question:-

What are the gaps in Supply Chain Management in IP Pharmacy at Fortis Hospital Anandapur?

Research Objective:-

1) To know the gap in Supply Chain Management in IP Pharmacy department at Fortis Hospital Anandapur.
2) To suggest key recommendation in the areas of improvement and minimizing the in the existing gap in Supply Chain Management in IP Pharmacy.

Methodology:

A probable observational study in the In-Patient Pharmacy Department of Fortis Hospital, Anandapur was conducted. The study was undertaken for a period of 2 months during the internship period in the month of May and June, 2021 with a sample size of 13,401 medicine indents returned which were raised in the wards of the hospital. The data collection was noted down and validated based on the process of indentation of drugs from the system using Oracle software, how they are again returned using the same software, how medicines are returned using extra manpower and observations were collected. The collected data was analyzed using MS Excel. The data collection along with overviewing was done under the guidance and permission taken from the respective department manager and other working stuffs. Though they did not allow to publish the whole data but important judgement and referencing could be done.

Results:-

Doctors prescribe the medicine to the concerned patient and the nurse in charge sits in front of the system software i.e. HIS to indent those medicines.

Sometimes the nurse is indenting wrong medicine without checking the formula, but by only seeing the brand name. Other times they are not even checking the available medicines in the bed side of the patient and indenting excessive amount for their job to become easy.

The indents are received in the respective IP pharmacy and the order is accepted leading to decrease in stock amount from the system software.

The Medicines indented are picked up accordingly and are kept in the racks provided. Then then with the help of a trolley transported by ward boy/nurse/housekeeping with the help of a cart to the patient.

Due to wrong and excessive indentation the medicines are coming back frequently from the wards leading to the usage of extra manpower, wastage of time and other energy misuse.

The returned medications might undergo spillage for mishandling, getting destroyed for not maintaining right temperature and environmental conditions.

The pharmacist in the lab has to refill the stock count in the system, recheck the medication body and put them in racks again. Again manpower is getting effected during the rush hours.

Data supporting the Case Report:-

	Return Data for the month of May and June			
	May		June	
Total items returned	7111		6291	
Line items returned more than once(duplicate items)	6364		5525	
Number of unique items	747		766	

Revenue involved in the process for the month of May and June:

	Total valuation of the returned items(Rs)	For Pharmaceutical Products(Rs)	For Medical Consumables(Rs)
May	6227279	5237545.7	989733.3
June	15099463	9617316.3	5482146.7

Revenue involved in the process:

From the above two data table it is understandable that for the month of May and June the total number of items returned are 7111 and 6291 respectively. Among these items, the items which are returned more than once are 6364 and 5525 respectively. These items are also known as Line items. The items which are just returned once are 747 and 766 respectively. Though we notice a decline in the return of total number of items from May to June, but the return of unique items have increased.

The revenues involved in the whole process is shown in the second table. The value of money which might be lost in the process of damage, spillage and manpower misuse can be hypothetically assumed.

Discussion:

In every floor bearing departments like MICU, CCU, ICU, etc. The nurses are given the responsibility for indenting medicines for the admitted patients. Every patient is prescribed respective medicines by the doctors and the nurses are responsible for their issue or indentation from the system available in every floor using HIS Software using their system.

The problem detected during such process is that the sisters or the nurses often does not check the availability of medicines in the patient bed-side and issue medicines more than the required quantity. During the duty handover of the nurses, they it is often seen they don't explain or sometimes may miss these very details to the next nurse. Whenever there is such misunderstandings, they indent medicines more than the required amount and end up returning those very medications which is hectic and time consuming.

The medications which are returned sometimes can be very valuable and costs are generally heavy. The time within which the extra indented material should be returned is within 12 hours to 24 hours. During this time the available medicine might lose its effectiveness and pharmaceutical potentiality as the right temperature and environmental conditions was not maintained. Another grave problem which can be of major concern are of financial managements. The inventory management is mostly controlled by Oracle software, when the ROL is run twice a week the software checks the database and orders stocks which are running low. These stocks are determined, and a PO is generated automatically and sent to the vendors. So when these extra indented medicines are being issued and the stock decreases the stock is

updated by automation which involves huge amount of financial investment. In this way the finance is getting effected.

Conclusion: -

From this case study it is observed that though new technology is adopted but there are issues and still a huge return in excessive indentation of medicines. As much as the medication mistakes or dispensing errors are crucial at the same time the delay and return in the learning on Turnaround Time of Indentation of Medicines is a major factor in Fortis Anandapur. Dispensing of the medical and non-medical items from the IP pharmacy to the wards is very essential. This study acts as an additional layer to the various other returns creating delays occurring in the pharmacy every day. Patient safety is ensured when every step of the process, from choosing the most appropriate medication, to writing the prescription, to dispensing the medication is optimized to prevent delays in therapy and medication errors.

Ultimately, it is most important that effective communication is very important to ensure accurate prescriptions and quality patient care. The results of this case study can come into help for any healthcare based organizations. In an organizational level, the results found in this study can be used to reduce the dispensing error and return of the excessive dispensed medicines and other consumables by the recommendations provided .Also, from this case report, we are able to obtain information about how indentation practices occur and proper indentation information could be quite useful by training requirements within the departments and organization. But more important, the outcome of this study will benefit in improving medication errors less and patient centric care more.

Recommendations: -

Thus, to above problems few solutions can be suggested. They are: -

1. The nurses should regularly check patient card in the bedside and then indent medicine from the respective ward.
2. The nurses should be properly trained and educated about medicines and the causes of their wrong indentation.
3. The nurses before indentation should check the already available medicines in the bedside.

4. The shift handover should be done taking proper time in hand with detailed explanation of the patients.
5. The best solution is to keep a pharmacist in each floor to check the medications issued to the patient and also keep a regular verification report against the newly indented and available medications.

References: -

1. About Us [Internet]. Fortis Healthcare Limited. [cited 2021 Jul 12]. Available from: https://www.fortishealthcare.com/about-us

2. Best Hospitals in Kolkata, West Bengal - Fortis Hospital in Anandapur, Kolkata | Fortis Healthcare [Internet]. [cited 2021 Jul 12]. Available from: https://www.fortishealthcare.com/india/fortis-hospital-in-anandapur-kolkata-west-bengal

3. A Brief History of Modern Supply Chain Management and Best Practices [Internet]. Spend Culture. 2014 [cited 2021 Jul 12]. Available from: https://blog.procurify.com/2014/12/17/brief-history-modern-supply-chain-management-supply-chain-management-best-practices/

4. Arora M, Gigras Y. Importance of Supply Chain Management in Healthcare of Third World Countries. Int J Supply Oper Manag. 2018 Feb 1;5(1):101–6.

5. Mehralian G, Rajabzadeh Gatari A, Morakabati M, Vatanpour H. Developing a suitable model for supplier selection based on supply chain risks: an empirical study from Iranian pharmaceutical companies. Iran J Pharm Res IJPR. 2012;11(1):209–19.

6. Palomar-Fernández C, Álvarez-Díaz A. Hospital Pharmacy Service: Facing the logistics of medicines procurement. Farm Hosp Organo Of Expresion Cient Soc Espanola Farm Hosp. 2020 Jun 12;44(7):17–20.

7. What is Procurement Management? | PLANERGY Software [Internet]. [cited 2021 Jul 12]. Available from: https://planergy.com/blog/procurement-management/

8. What is Inventory Management? | 10 guides to mastering commerce [Internet]. [cited 2021 Jul 12]. Available from: https://www.tradegecko.com/inventory-management

9. Shroff D, Dsouza B, Shetty A, Janodia MD. A study on turnaround time of online indentation of medicines in a tertiary care hospital. Int J Mech Eng Technol. 2019 Jan 1;(1):527–33.

10. Begum A, Fatima A, Rustum A, Adil M. ANALYSIS OF DRUGS AND NON-DRUGS INDENTS FOR TURN AROUND TIME (TAT) AND SHORTAGE RECEIVED IN IN-PATIENTS PHARMACY (IP) FROM VARIOUS DEPARTMENTS IN A TERTIARY CARE HOSPITAL. 2017 Mar 1;5:9–17.

11. Bettington E, Spinks J, Kelly F, Wheeler AJ. Returning unwanted medicines to pharmacies: prescribing to reduce waste. Aust Prescr. 2018 Jun;41(3):78–81.

12. Reiner G, Pierce SL, Flynn J. Wrong drug and wrong dose dispensing errors identified in pharmacist professional liability claims. J Am Pharm Assoc. 2020 Sep 1;60(5):e50–6.

13. Poon EG, Cina JL, Churchill W, Patel N, Featherstone E, Rothschild JM, et al. Medication Dispensing Errors and Potential Adverse Drug Events before and after Implementing Bar Code Technology in the Pharmacy. Ann Intern Med. 2006 Sep 19;145(6):426–34.

14. Errors in the medication process: frequency, type, and potential clinical consequences | International Journal for Quality in Health Care | Oxford Academic [Internet]. [cited 2021 Jul 12]. Available from: https://academic.oup.com/intqhc/article/17/1/15/1815273?login=true

15. Gariel C, Cogniat B, Desgranges F-P, Chassard D, Bouvet L. Incidence, characteristics, and predictive factors for medication errors in paediatric anaesthesia: a prospective incident monitoring study. Br J Anaesth. 2018 Mar 1;120(3):563–70.

16. Dr. Jibin Mathew. Medication error- Etiology and strategic methods to reduce the incide… [Internet]. 04:05:33 UTC [cited 2021 Jul 12]. Available from: https://www.slideshare.net/jibincottageranny/medication-error-etiology-and-strategic-methods-to-reduce-the-incidence-of-medication-errors

17. Ambwani S, Misra A, Kumar R. Medication Errors: Is it the Hidden Part of the Submerged Iceberg in Our Health-care System? Int J Sci Basic Appl Res IJSBAR. 2019 Jul 12;9.

18. (PDF) Medicine Returns from Wards to Pharmacies in Tertiary Care Hospital Setting of Karachi: Factor Analysis and its Effect on Pharmacy Services [Internet]. [cited 2021 Jul 12]. Available from: https://www.researchgate.net/publication/319528566_Medicine_Returns_from_Wards_to_Pharmacies_in_Tertiary_Care_Hospital_Setting_of_Karachi_Factor_Analysis_and_its_Effect_on_Pharmacy_Services

THANK YOU