Minor Course under Vocational Education & Training:

Course Code: MSR3021

Orientation Module

Collect Information of Key persons at hospitals, pharmacies and dealers:

The healthcare supply chain plays a critical role in ensuring timely access to essential medications, medical equipment, and supplies for patients. Smooth operations within this chain rely on the coordinated efforts of various key personnel across different sectors: hospitals, pharmacies, and dealers.

Hospitals:

Hospital Administrator/CEO:

- ✓ Oversees the overall management and operations of the hospital.
- ✓ Sets budget and strategic direction to ensure adequate resources are procured and allocated efficiently.
- ✓ Plays a crucial role in establishing relationships with suppliers and ensuring compliance with regulations.

Chief Medical Officer (CMO):

- ✓ Leads the medical staff and oversees patient care quality.
- ✓ Implements quality control measures and ensures medications and equipment meet safety standards.
- ✓ Collaborates with department heads to ensure optimal utilization of resources.

Department Heads:

- ✓ Manage specific departments like Surgery, Nursing, Pharmacy, and Radiology.
- ✓ Oversee inventory levels within their departments and anticipate needs for medications, equipment, and supplies.
- ✓ Place timely orders and communicate requirements to procurement teams.

Physicians:

- ✓ Diagnose and treat patients, prescribing medications based on their expertise and familiarity with potential drug interactions.
- ✓ Play a vital role in determining the type and quantity of medications needed for patient care.

Nurses:

- ✓ Provide bedside care to patients, administering medications according to prescribed dosages.
- ✓ Monitor patient condition for adverse reactions to medications and report any concerns.

Pharmacist:

- ✓ Licensed professional responsible for dispensing medications accurately and safely.
- ✓ Verifies prescriptions, counsels patients on medication use, and monitors for potential drug interactions.
- ✓ Manages pharmacy inventory, ensuring adequate stock levels and timely procurement of new supplies.

Pharmacy Technician:

- ✓ Assists pharmacists with dispensing medications, maintaining inventory records, and providing patient information.
- ✓ Plays a crucial role in ensuring efficient pharmacy operations and timely medication delivery.

Wholesaler:

- ✓ Supplies pharmacies with medications and medical supplies in bulk quantities.
- ✓ Maintains a diverse inventory and ensures timely deliveries to meet pharmacy needs.

Dealers:

Medical Equipment Dealer:

- ✓ Sells medical equipment and supplies to hospitals and clinics.
- ✓ Provides technical expertise and ensures proper installation, maintenance, and calibration of equipment.
- ✓ Plays a vital role in ensuring the functionality and safety of medical equipment used in patient care.

Pharmaceutical Sales Representative:

- ✓ Promotes pharmaceutical products to doctors and pharmacies.
- ✓ Provides information about new medications, their benefits, and potential side effects.
- ✓ Contributes to the adoption of new medications and advancements in healthcare.

Additional Roles:

- ❖ **Researchers:** Develop new medications, medical devices, and technologies that improve patient care and treatment outcomes.

- ❖ **Logistics/Supply Chain Specialists:** Optimize transportation routes and schedules to ensure timely delivery of medications and supplies.
- ❖ **Regulatory Agencies:** Oversee the safety and efficacy of medications and medical devices, ensuring adherence to quality standards and regulations.

Importance of Collaboration:

- Effective communication and collaboration among these key personnel are critical for smooth operations within the healthcare supply chain.
- Hospitals need to clearly communicate their needs to pharmacies and dealers.
- Pharmacies rely on timely deliveries from wholesalers and accurate prescriptions from physicians.
- Medical equipment dealers require clear specifications from hospitals and proper training for healthcare professionals.

By working together effectively, these individuals ensure the efficient flow of medications and supplies, ultimately contributing to better patient care and improved healthcare outcomes.

Role	**Responsibilities**
Hospital Administrator/CEO	❖ Overssees overall hospital operations. ❖ Sets budget and strategic direction. ❖ Ensures compliance with regulations.
Chief Medical Officer (CMO)	❖ Leads medical staff and oversees patient care quality. ❖ Implements quality control measures. ❖ Makes treatment decisions in collaborations with physicians.
Department Heads	❖ Manage specific departments (e.g. Surgery, Nursing, Pharmacy). ❖ Oversee inventory levels and resource allocation within their departments. ❖ Place timely orders for medications, equipment and supplies.
Physicians	❖ Diagnose and treat patients. ❖ Prescribe medications based on expertise and drug interactions.

Nurses	❖ Provide bedside care to patients. ❖ Administer medications according to prescribed dosages. ❖ Monitor patient condition for adverse reactions.

Table: Bridge the roles and responsibilities for patient care and improved healthcare conditions

This list provides a starting point for further research on specific roles and their responsibilities within the healthcare supply chain.

Patient Care:

- ❖ Ensures timely access to essential medications, medical equipment, and supplies.
- ❖ Delays or shortages can directly impact treatment effectiveness and patient outcomes.

Cost Optimization:

- ❖ Streamlines processes, minimizes waste, and potentially reduces overall healthcare costs.
- ❖ Efficient logistics and inventory management can lead to significant cost savings.

Improved Efficiency:

- ❖ Enables healthcare providers to focus on patient care rather than logistical challenges.
- ❖ Well-coordinated supply chains ensure smooth operations and better resource utilization.

Resilience:

- ❖ Adapts to changing circumstances and unexpected disruptions.
- ❖ A robust supply chain can mitigate the impact of emergencies and shortages.

Innovation:

- ❖ Facilitates the timely delivery of new technologies and treatments to patients.
- ❖ Efficient distribution networks support the adoption of advancements in healthcare.

Visual Options:

Consider using an image depicting a connected network of hospitals, pharmacies, and suppliers.

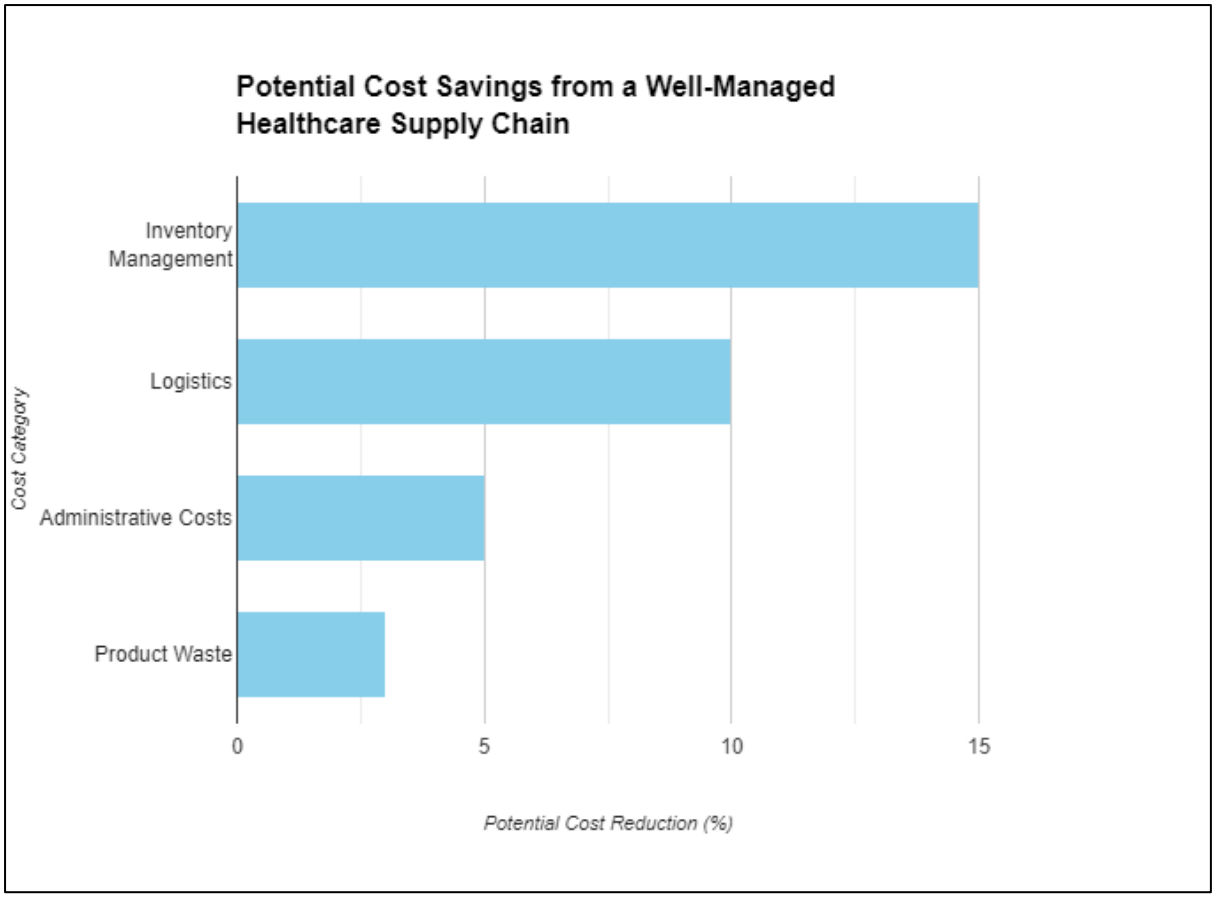

Figure: Healthcare supply chain

Pharmacy management system features:

There are different types of computer systems used by pharmacists.

Web-based ordering systems. Often provided by drug wholesalers, these systems allow pharmacists to order medications on a wholesaler's website.

Perpetual inventory systems

The use of perpetual systems (digital or not) is required by federal law for Schedule II controlled substances, and involves recording the quantity of medications continuously as the prescription is filled and dispensed. This way, the medication is automatically removed from inventory and you always have updated stock information.

Automatic dispensing systems

These are machines that automatically count and dispense pills for a pharmacist. Some complex systems even print the label apply it to the bottle.

A PMS usually performs the functions of a perpetual inventory system and provides additional features and integrations to manage all other processes.

Inventory management

Inventory management processes in the pharmacy are saddled with paperwork and manual checks. Order forms are filled out manually and sent to manufacturers via fax, barcodes are scanned daily to update stock information, unclaimed prescriptions must be put back in stock, and so forth. Of course, not all of these processes can be automated due to federal laws and the technical limitations of your suppliers, but a PMS is able to handle some routine tasks.

Stock organization and counting. Medication counts are done regularly, but even that can't help in the situation where drug amounts are counted incorrectly or not updated in the system on time. A PMS can keep a detailed log of your inventory that can be easily filtered by the required storage conditions and expiration date, allowing you to prevent dangerous errors.

Medication ordering

A PMS uses reorder points or par levels set up by the pharmacy to generate automatic orders. The system calculates how many items are needed to raise the stock level and adds this quantity to the order. The orders are then sent via an electronic data interchange (EDI) method.

Reporting

A PMS generates reports allowing pharmacists to easily determine the better performing wholesalers and vendors and understand what factors come into play when ordering medications. This can help them better prepare for the flu season when certain drugs are in demand, and automatically calculate par levels.

E-prescribing

The process of e-prescribing involves the electronic creation and transmission of a prescription between a prescriber and a pharmacy. Using an EHR or more particularly a computerized provider order entry (CPOE) system, a doctor creates a medication order and sends it to a patient's pharmacy via secure connection. The pharmacy can then communicate that the order was received and filled, and even

notify if the patient hasn't picked up their medication. Renewal requests can also be made in a couple of clicks.

This eliminates paperwork and helps ensure that the order is never lost or misunderstood -- the dosage is always accurate since the possibility of human error is minimized.

Compounding

Compounding features are tightly intertwined with inventory management and prescribing, so they're often presented as one solution. There are several ways in which a PMS can ensure accuracy in the process of drug dosing.

Scale integration

A PMS will be able to connect to scales and automatically log weight, even sending alerts when the weight is out of tolerance range.

Batch support and multi-batch compounding

Software can easily create compound batches, manage their quantities, and organize them. You can also combine batches into one prescription with all information detailed to easily track them down.

Automatic compound pricing and billing

The system will calculate prices for your compound items based on average wholesale prices of the ingredients.

Medication therapy management

In a previous article, we talked about the importance of patient engagement, particularly in a hospital setting and during patient-doctor interaction. The pharmacy environment presents even more capabilities to influence patients' adherence habits and consequently improve customer relationships. This set of services provided by pharmacists is known as Medication Therapy Management.

MTM includes such processes as:

- Creating a medication treatment plan
- Resolving drug-related problems
- Providing patient education and training

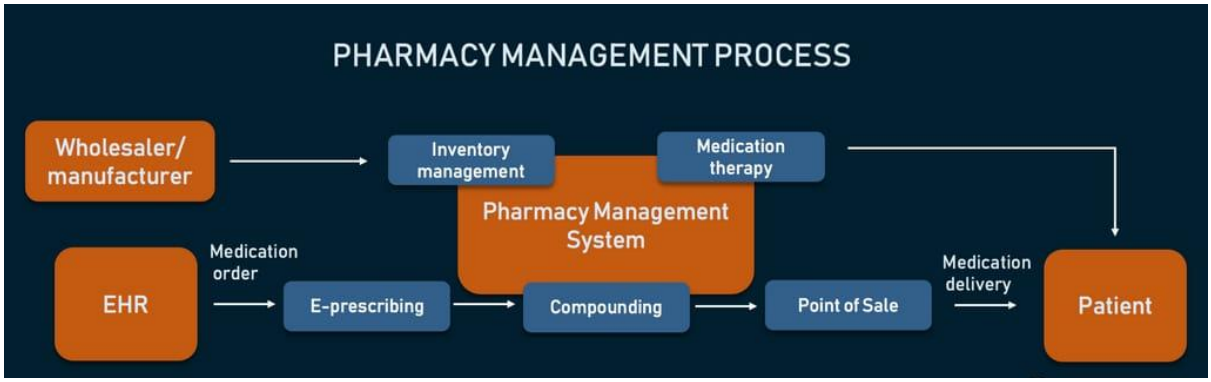

Figure: Pharmacy Management Process

Conclusion:

Understanding the key roles within the healthcare supply chain is vital for ensuring a well-functioning system that ultimately delivers optimal patient care. From hospital administrators setting strategic direction to nurses administering medications, each player contributes significantly. Hospitals rely on department heads to manage resource allocation, physicians to diagnose and prescribe, and pharmacists to dispense medications accurately. Pharmaceutical sales representatives and medical equipment dealers play crucial roles in introducing new technologies and ensuring equipment functionality. Appreciating the interconnectedness of these sectors reveals the intricate dance of communication and collaboration that keeps the supply chain moving. Each role, from hospitals to pharmacies and dealers, forms a vital link in the chain, ensuring the timely flow of medications and supplies that ultimately empowers healthcare professionals to deliver quality care to patients.

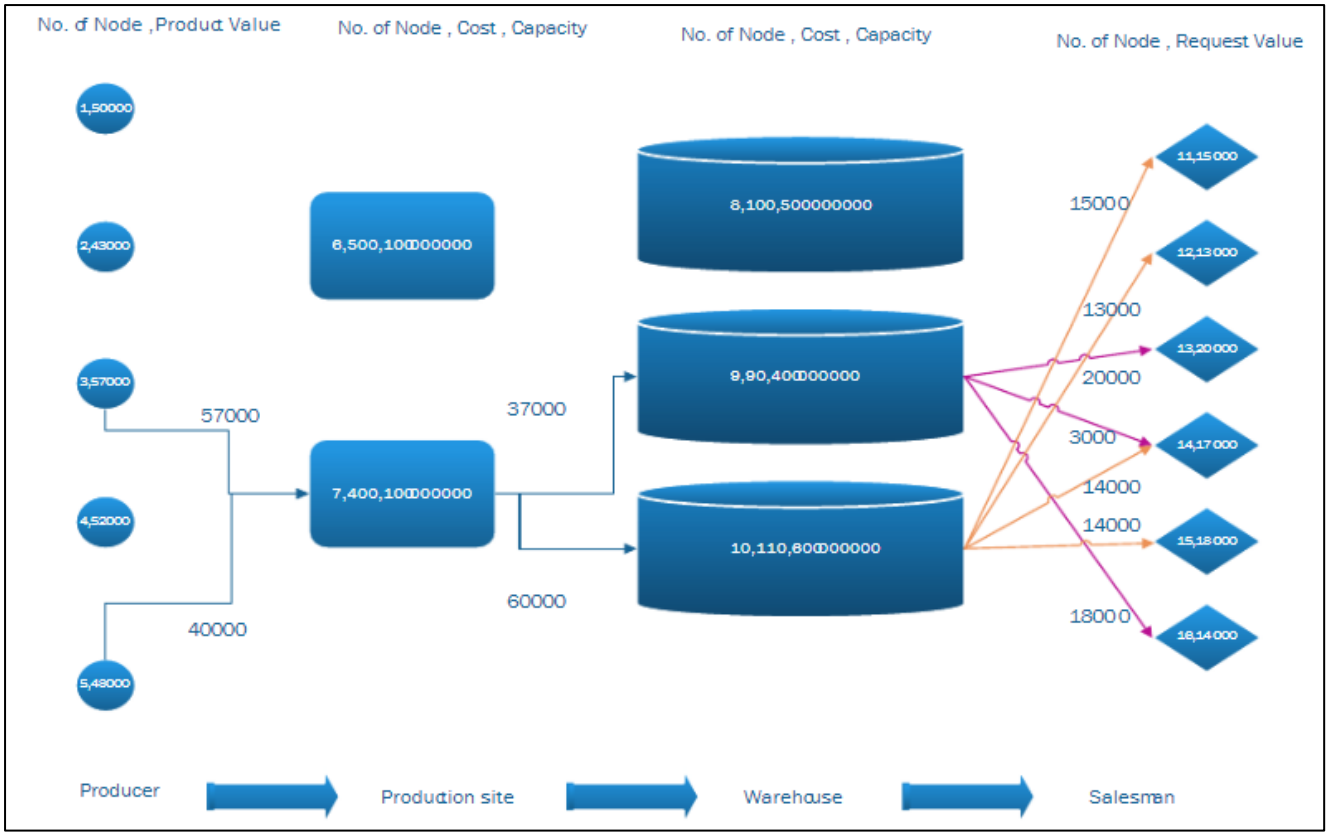

Figure: An example configuration of healthcare supply chain network

This diagram depicts the various entities involved in the healthcare supply chain and their interconnected relationships:

- **Hospitals:** Represent the central point of care, where patients receive medical services and utilize medications and equipment.
- **Pharmacies:** Dispense medications prescribed by physicians and maintain close communication with hospitals regarding inventory needs.
- **Dealers:** Supply medical equipment and technologies to hospitals, ensuring proper installation, training, and maintenance.
- **Wholesalers:** Act as intermediaries, providing pharmacies with bulk quantities of medications and medical supplies.
- **Manufacturers:** Develop and produce medications, equipment, and other essential healthcare products.
- **Regulatory Agencies:** Oversee the safety, quality, and efficacy of medications and medical devices.
- **Research Institutions:** Drive innovation by developing new drugs, technologies, and treatment approaches.