Procurement and Supply (PSM) cycle

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Introduction to the supply chain cycle

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The Importance of SCM in healthcare

WHO states that "*a major obstacle confronting individuals who need pharmaceuticals is availability – the drug delivery infrastructure is often inadequate. Problems exist across the entire range of drug management, from procuring medicines at the national level, to ordering medicines at lower levels of the health-care system, to receipt, storage, distribution through to re-supply. If there is to be a shift away from reactive care models for acute conditions, it will be critically important to have well-functioning pharmaceutical management systems in place."*

Objectives of the Supply Chain

The goal of the health supply chain is to ensure every person is able to obtain and use quality essential health supplies whenever needed.

It is to deliver the *right product* of the *right quality* in the *right quantity*, at *right cost*, *right time* and the *right place*.

Its three main objectives can be listed as:

- Increase health service/program impact
- Enhance quality of care
- Improve cost efficiency and effectiveness

The Supply Chain Cycle

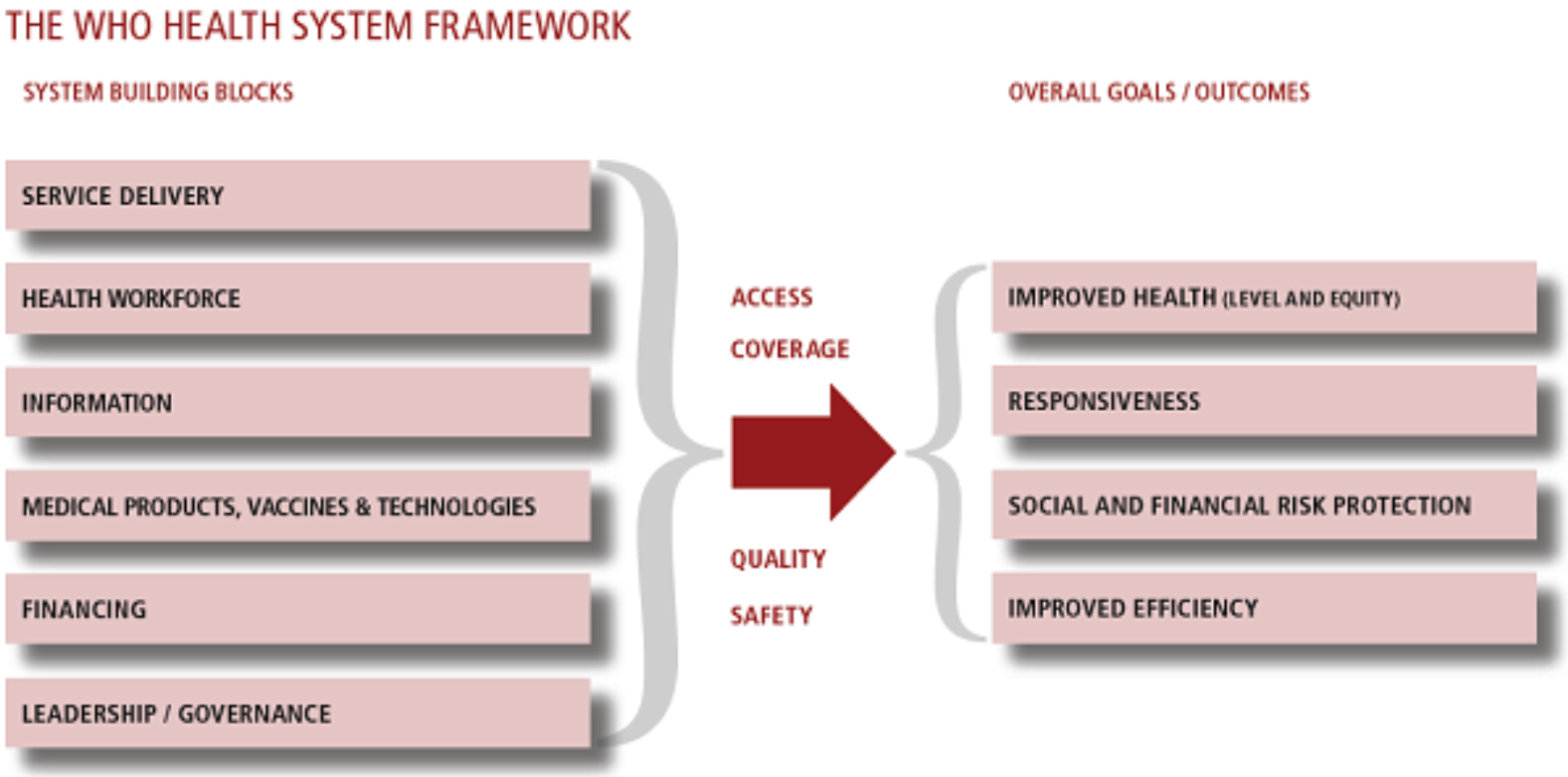
- Product Selection
- Forecasting
- Quantification
- Procurement
- Warehousing and distribution
- Rational Use

Management support for SCM

Core of supply chain and imperative for an efficient functioning of the system.

- Organization and human resource management
- Financing
- Logistics management and information system (LMIS)
- Monitoring and evaluation (M&E)

Priorities of SCM in Health Systems



Summary

- Efficient supply chain management can improve availability and affordability of medicines.
- The key supply chain activities are product selection, forecasting and quantification, procurement, warehouse and distribution, and rational use.
- Quality assurance, logistics management information system, monitoring and evaluation, financing, and human resources are at the core of management support.
- As a vital component of health system, an efficient, responsive and integrated supply chain system can lead to better quality of care.

Forecasting and Quantification

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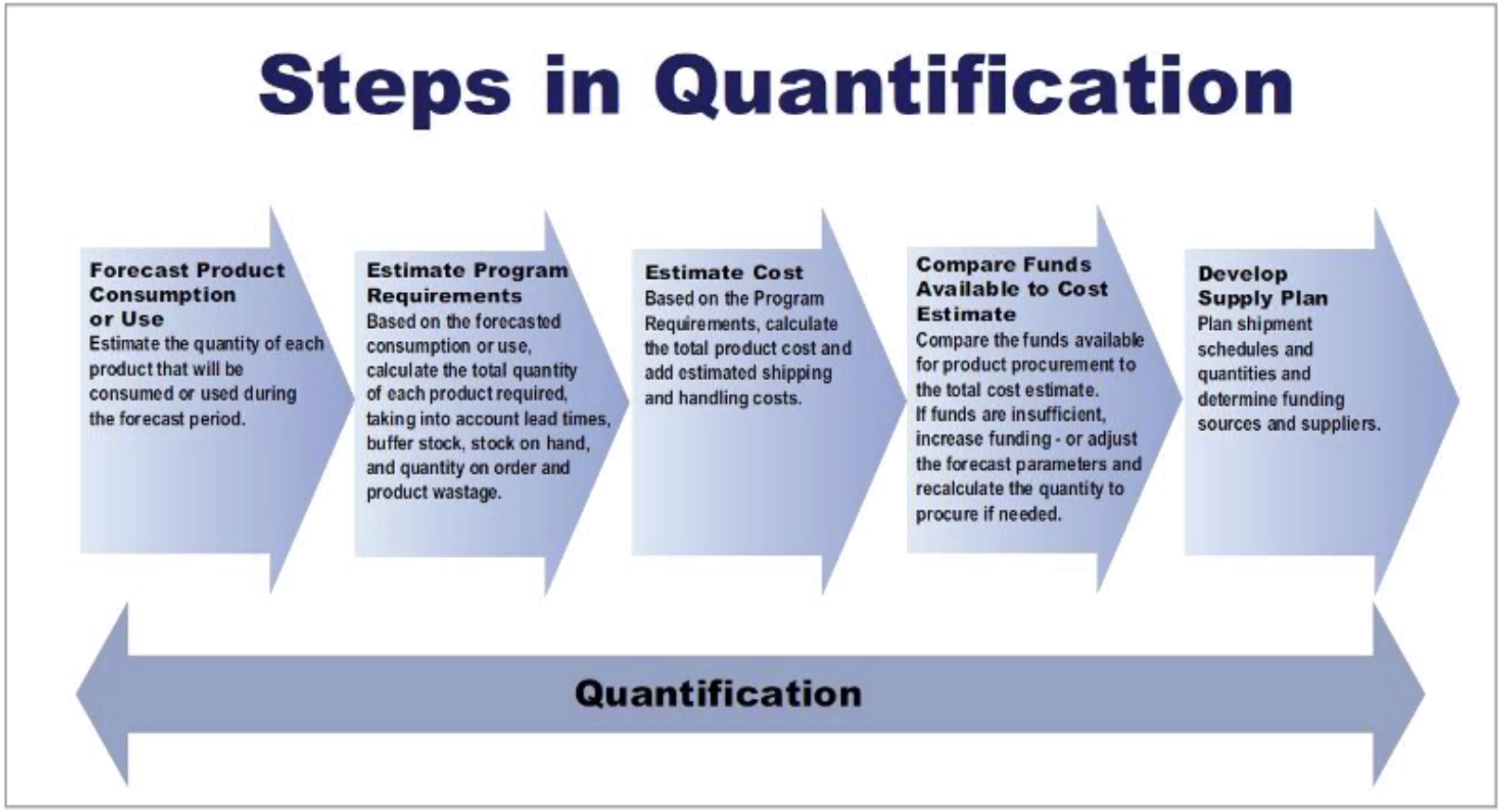
Forecasting and Quanitification

The forecasting and quantification process seeks to answer the question "how much of each medicine is needed". It follows the selection of medicines and is an important step ahead of procurement.

- **Forecasting** is estimating the quantity of health products required to meet population needs in a future period of time. It is the first step in the F&Q process.
- **Quantification** is estimating the quantity and the cost of health products required to meet demand for a specific period of time. Quantification is an essential step towards making an informed procurement plan.

The Quantification process



Common challenges and recommended strategies

Challenges in quantification	Recommended Strategies
Incomplete and unrelibale data	strengthen management information system including facility reporting
Aggregating data on services and commodities	link logistic management information system (LMIS) with health management information system (HMIS)
Changes in program targets and scaling up	planning and coordination through multi-stakeholder involvement e.g. committee
Multiple sources of funding	planning and coordination through multi-stakeholder involvement e.g. committee
Seasonal variations	taking into consideration as one of the assumptions
variation in prescribing pattern	strengthen adherence to treatment guidelines and promote rational use of medicines
limited capacity for quantification exercises	regular in-service trainings and inclusion into pre-service supply chain management curriculum

Summary

- Forecasting and quantification follows the selection of medicines and is a critical step in the medicines procurement.
- The main quantification methods are the consumption and morbidity method. Using the consumption method, one quantifies based on past consumption, whereas the morbidity method is based on the expected number of people to be treated (i.e. number of cases).
- Forecasting and quantification is a continuous process of reviewing, monitoring and updating the data and assumptions, based on program requirements and available funds.
- There are a number of challenges in quantification including, but not limited to, unreliable/incomplete data, poor inventory, variation in consumption data due to prescribing habits and seasonal changes, and limited capacity to perform quantification

Selection of Essential Medicines

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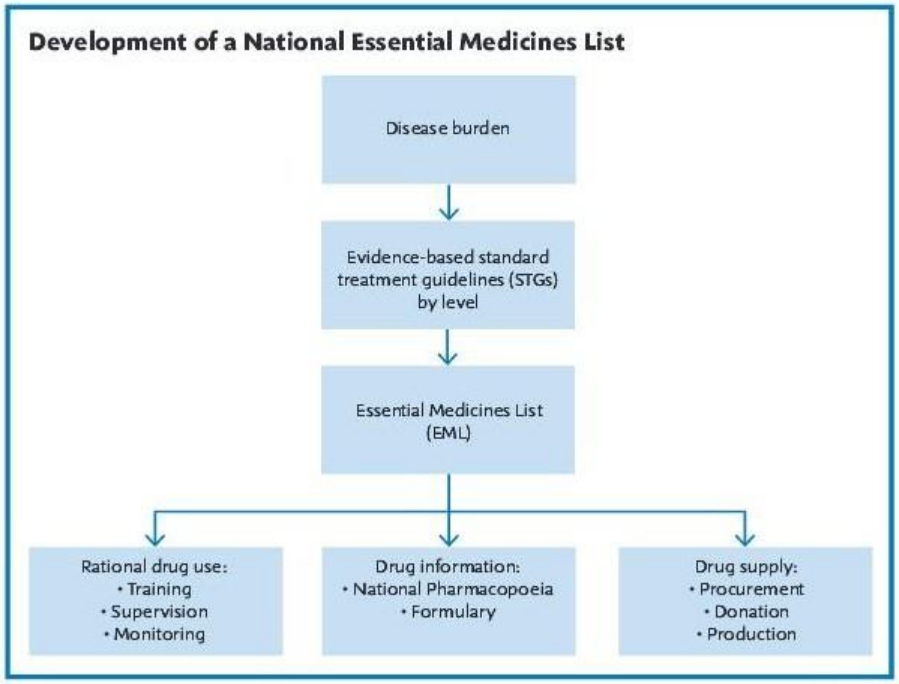
What are Essential Medicines?

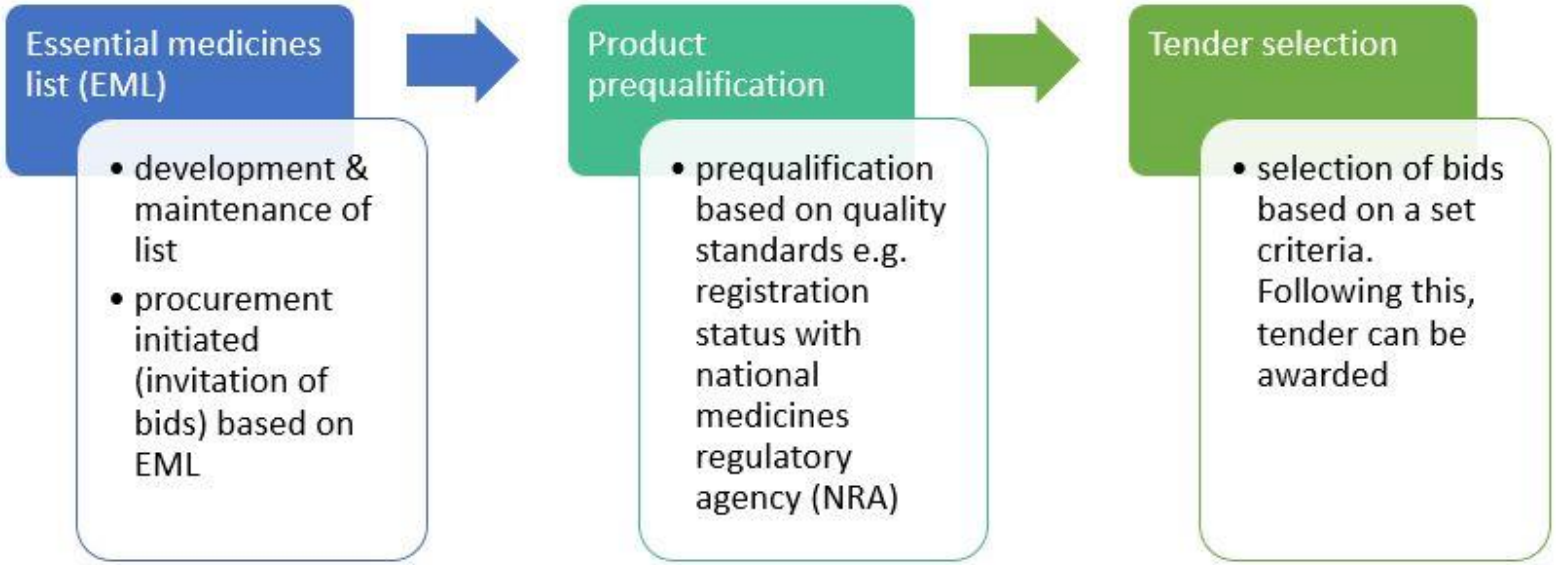
- An **Essential Medicines List (EML)** is a limited range of essential medicines that satisfy the priority health care needs of a given population and have been carefully selected with due regard to public health relevance, evidence on efficacy and safety, and comparative cost-effectiveness. The national EML of a country should be linked to national treatment guidelines, availability should be defined based on levels of care and regularly reviewed through a consultative process.



Criteria for selection of essential medicines

- Comparative effectiveness in a variety of clinical settings
- Comparative evidence of safety
- Comparative cost and cost-effectiveness
- Treatment details
- Regulatory status
- Internationally available
- Pharmacopoeial standards
- Relevant for public health

Product selection for procurement



Summary

- The concept of essential medicines aims to satisfy priority healthcare needs of the population.
- Procurement and supply management based on a selected list of medicines helps to prioritize resources, to improve the efficiency of supply chain management, to standardize treatment and to promote rational use of medicines.
- The WHO model list of essential medicines can be used as a guide for countries to develop their own list based on local context and needs.
- Product selection prior to procurement is guided by two main criteria: a clinical criteria such as inclusion in the national EML and a quality criteria: relevant quality standards defined by the country or procurement entity

Basic principles of medicine procurement

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What is procurement?

Procurement may be defined as the series of activities by which good quality cost-effective products are sourced at competitive prices through careful supplier selection and competition, employing efficient and transparent management.

Key characteristics of medicines and health commodities impacting procurement decisions

- International non-proprietary name (INN)
- Storage conditions
- Shelf life
- Type of packaging
- Labelling
- Quality standards
- Regulatory requirements
- Psychotropic/narcotics laws
- Intellectual property issues (patents)

Key principles of medicines procurement

- procurement limited to essential medicines list and by INN.
- supplier prequalification and monitoring
- competitive procurement
- quality assurance program
- cost-effectiveness and value for money
- transparency and written procedures
- technical capability
- good financial management

Procurement methods

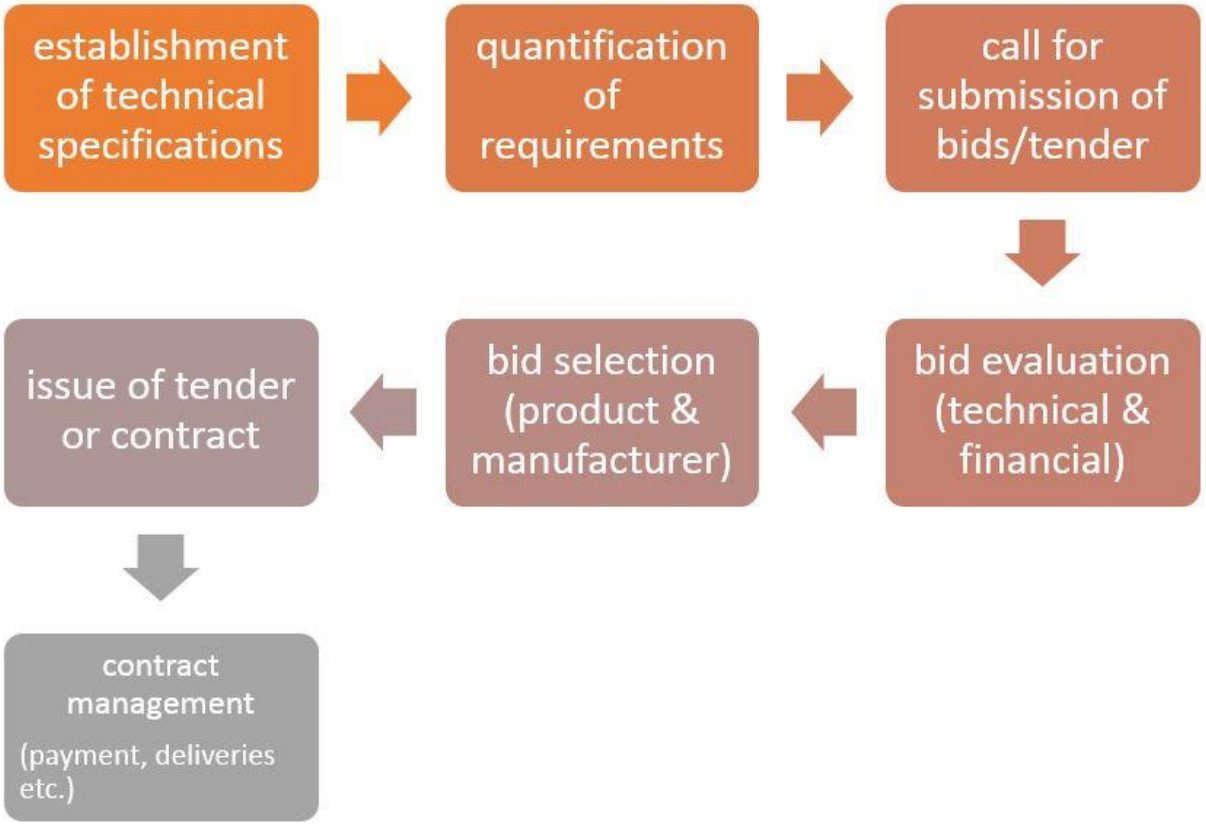
1. Open tender or invitation to competitive bids (ICB)
   - open to all manufacturers and suppliers
   - may be international or national

2. Restricted tender or closed bidding
   - only prequalified manufacturers or suppliers are invited to respond
   - more appropriate for health sector goods

3. Competitive negotiation
   - only a limited number of suppliers (minimum of 3) are invited to bid to compare price quotations

4. Direct procurement or shopping
   - products are directly obtained from a single source
   - not recommended unless there is only one source/manufacturer for that product
   - "reasonableness" of the price should be assessed and negotiated, if required

Procurement Process



Monitoring supplier performance

Criteria to assess performance:

- Tracking of lead-time (or compliance with delivery schedule)
- Delivery of full quantity ordered
- Quality of goods supplied
- Compliance with other relevant terms and conditions, as specified in the contract
- Flexibility in case of changes

Summary

- Medicines procurement should ensure that there is availability of essential quality-assured medicines at all times at an affordable price for the people.
- Public sector procurement models vary from one country to another and is typically defined by health system structure, financing models, and other factors affecting local context.
- Key steps in procurement include establishment of technical specifications and quantity required, invitation of bids, bid evaluation, bid selection and contract award and management.
- Clearly defined product specifications should form part of the bidding documents.
- Procurement functions must be executed through proper planning, supported and organized through competent staff, in accordance with policies and written procedures. Procurement staff must work in close collaboration with personnel from quality assurance, finance and others.
- All decision-making processes, including bid evaluation, should be transparent and well document.

Inventory management

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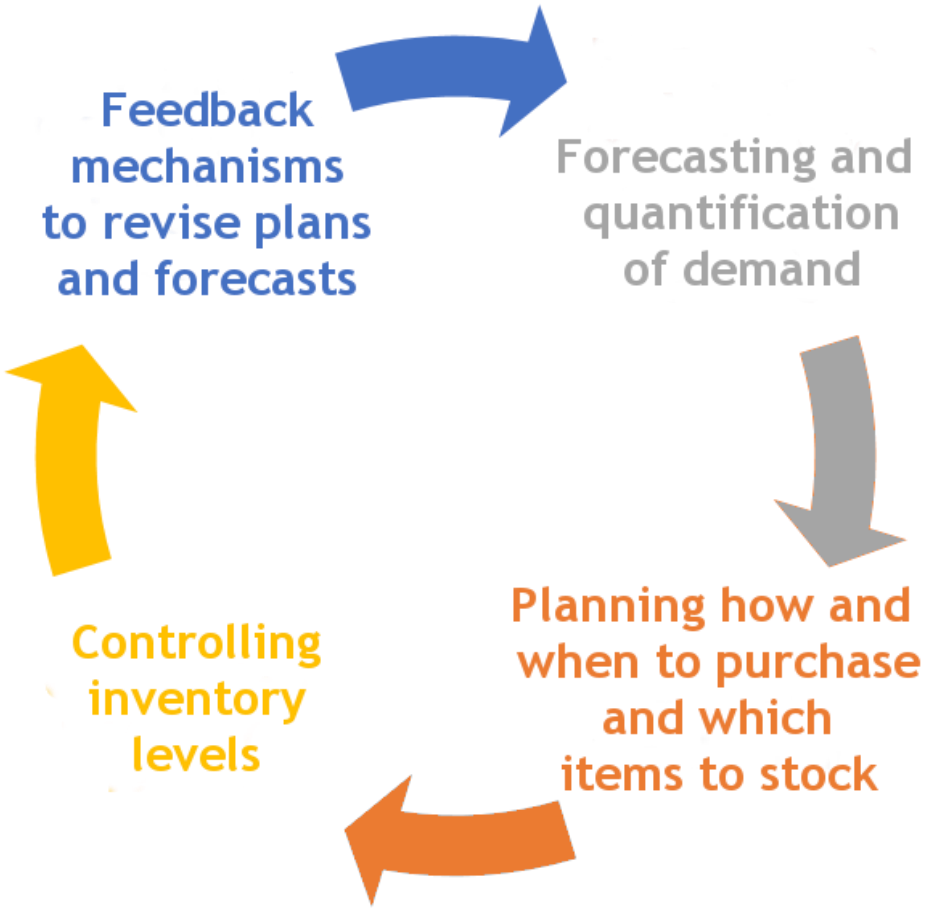
Inventory Management

3 main objectives:

- Provide the desired level of customer service.
- Achieve cost-efficient operations.
- Minimize inventory investment.

Inventory control



Controlling inventory levels

- Stock rotation
- Assessing stock status
- Physical inventory

Controlling inventory and techniques

Controlling inventory levels

- Stock rotation
- Assessing stock status
- Physical inventory

Inventory control techniques

- Maximum and minimum levels
- ABC analysis
- VEN analysis
- Economic Order Quantity

LMIS

A Logistics Management Information System (LMIS) is a system for collecting, processing, reporting and using information on commodities while they move through the supply chain.

Medexis is a next-generation logistics management tool for the (public) health services industry comprising all procurement, storage & distribution and health services operations on a single platform.
Where traditional LMIS systems are focused primarily on reporting, Medexis focuses on reporting as well as recording.

Summary

•In the supply chain, proper inventory management is needed to manage the complex flow of goods from manufacturer to the people. Inventory management is essential to provide desired customer service, achieve cost-efficient operations and minimize inventory costs.

•Inventory management relies on the concept of understanding what to order, when to order, how much to order and how much to stock.

•The common inventory control techniques include economic order quantity, ABC analysis, VEN analysis and maximum & minimum levels. Inventory levels should be controlled by regular stock assessment, physical inventory and stock rotation.

•Inventory management system can be either paper or web-based and revolve around data recording, reporting, analysis and giving feedback

Distibution

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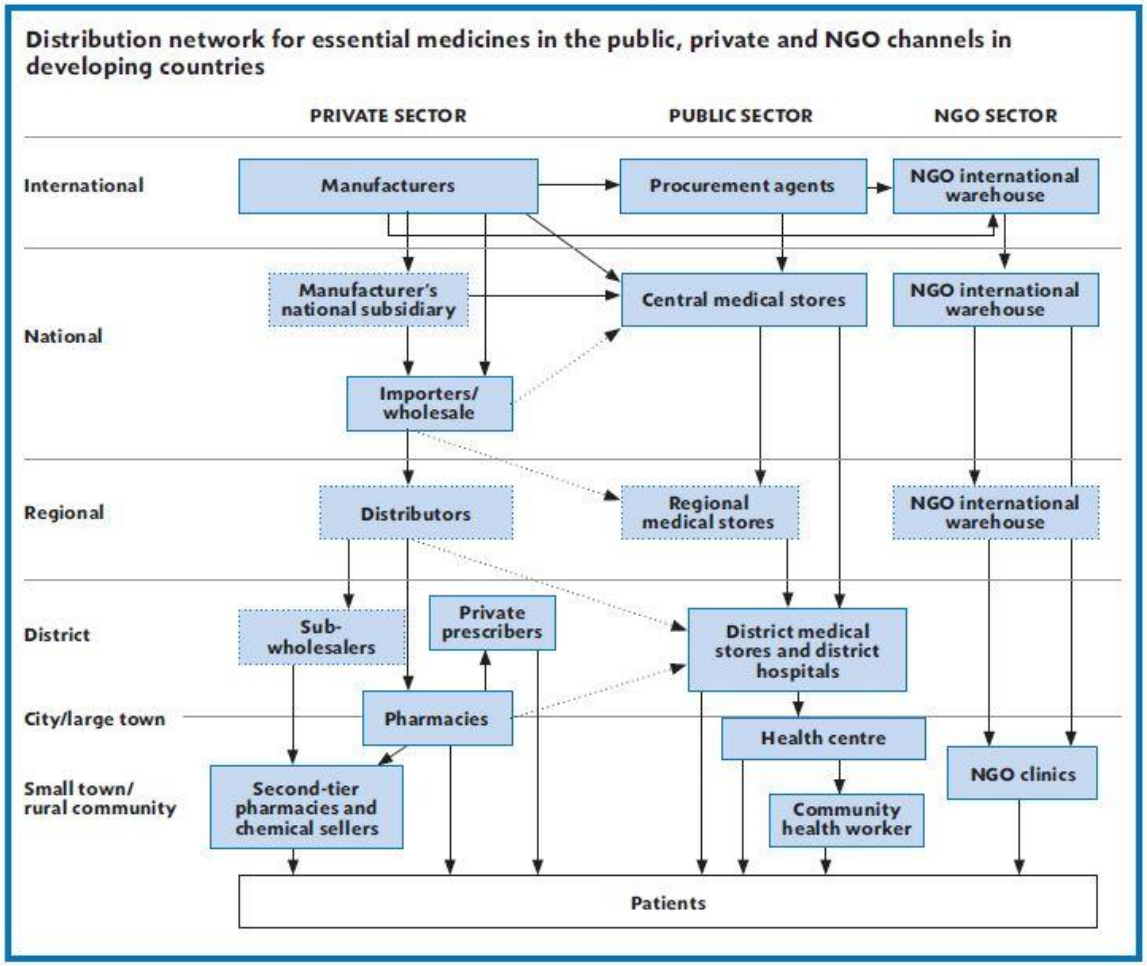
Distribution



Key elements of a distribution system

A number of key factors must be taken into consideration for system design of a distribution system

- coverage of the distribution network (national, regional, provincial)
- geographical factors (country's terrain, climate, road network)
- disease-specific factors (e.g. separate distribution for vertical programs such as HIV/AIDS programs)
- procurement cycle (distribution schedules will be tied to procurement cycles)
- storage or warehouse capacity
- transportation (number and state of fleet, mode of transportation etc.)
- inventory system (push system versus pull system)

Trends in Distribution

- **Informed push system** - a system where scheduled delivery of commodities is done directly to facilities. At the time of delivery, stock counting and estimation of re-fill quantity is done.
- **Direct delivery and cross-docking** - both of these are called level jumping in which all levels of health systems do not hold or manage stocks. In direct delivery, commodities are delivered directly from central warehouses to service delivery points (SDP). In cross-docking, orders are filled and packed for SDPs at the central level, then sent to a redistribution point before being sent to SDPs).
- **Distribution outsourcing** - a system in which distribution is managed by a private third party provider. Here is government's role is focused on monitoring and evaluation of distribution functions, rather than managing it directly.
- **Vendor-managed inventory (VMI)** - a system in which vendors or suppliers take responsibility for inventory management, i.e. manage the stock and makes decision for re-filling.

Good distribution practices

Each activity in the distribution of medicines shall be carried out according to the principles of Good Distribution Practices (GDP). Key principles of GDP are outlined below:

- clearly defined and systematically reviewed.
- sufficient competent personnel
- suitable and adequate premises, installations and equipment, so as to ensure proper storage and distribution of medicinal products.
- written documentation
- ensure the identity of the product and according to the information on the outer packaging.
- protected against breakage, adulteration and the, and to ensure that temperature conditions are maintained within acceptable limits during transport.

Summary

- Distribution is an essential step in the supply chain cycle.

- Distribution models vary from one country to another and ideally take into consideration geographical factors, coverage in the country, health systems structure and so on.

- The main challenges with distribution in developing countries are the lack of adequate facilities, of of resources and difficult geographical conditions.

- The WHO provides guidance on good distribution practices outlining procedures for ensuring the safety, efficacy and quality of medicines throughout the distribution process.

Supply Planning

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Supply Planning

A supply plan is a forward plan summary of expected purchases in the coming period and an estimation of the lead times.

- It is an essential part of the budget setting process
- It helps managers to plan resources (human, financial) for the identified period.
- It functions as a compass for mid- and longer term planning

Specifics of the annual supply plan (1)

There are specific components that need to be included when writing a supply plan.

- The plan must be rolling forward, it must be regularly reviewed, adjusted, and be flexible.
- Keep in mind that there might be continuing contracts from the previous period.
- Always check it against the current stock situation.
- Always perform a needs assessment for the items to be procured.
- It has to match with budget allocations and budget approval must be granted

Specifics of the annual supply plan (2)

There are specific components that need to be included when writing a supply plan.

- It should fit into the wider planning and as such has to be prepared well in advance.
- Consider the procurement mechanism to be used: internal department or an external Procurement Service Agent (PSA).
- Keep in mind that there will be funds required for customs clearance, distribution, storage, handling.
- An analysis of sourcing alternatives could be useful.
- Always undertake a lead time analysis: from origin to destination and based on desired delivery dates

The supply planning process (1)

- **Forecasting** - Needs assessment; which products need to be procured? This is often categorized by disease and by patient groups: adults, pediatrics, PMTCT (prevention mother to child transmission).
- **Funding** - Needs and funding reconciliation; from which sources will the funds be derived? Own funding, the government, donors, NGOs, public-private partnerships. Remember to include budgetting of funds required for customs clearance, distribution, storage, handling, etc
- **Planning** - Lead time analysis needs to be carried out. What is the lead time of the procurement process. What is the lead time of the production and delivery process. What is the shipping lead time. Calculate backwards at which date the procurement process should be initiated in order to be able to receive the products on time.

The supply planning process (2)

- **Procurement** - Which are the most appropriate procurement methods and suppliers? Analysis should be done to sourcing alternatives. What are the national regulations regarding issuance of tenders? What are the donor regulations?
- **Monitoring & Evaluation** - Measurement of the efficiency of the procurement plan. Are the correct products delivered at the right time? Was the funding in place in time? Were all internal goals met?

THANK YOU

Questions?