



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT: ALLIED HEALTH SCIENCES
COURSE NAME: PEADIATRIC

Topic: Cold chain

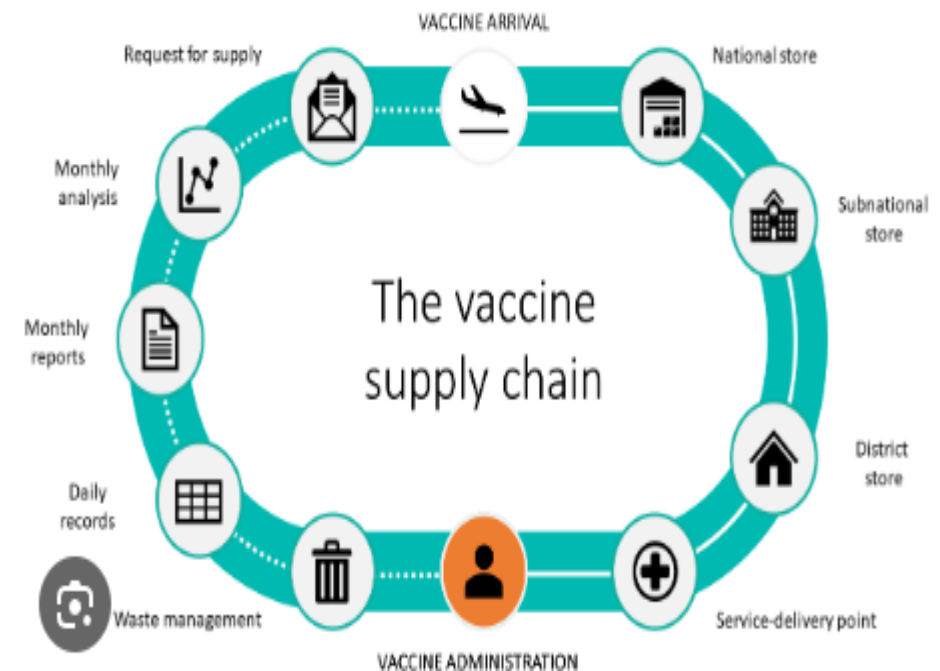


Introduction



Definition

"A system of storing and transporting the vaccine, at a low temperature from the place of manufacture to the actual vaccination site is called cold chain".





Importance of cold chain



Importance of cold chain

- 1. Obtaining the vaccines from the manufacturers
- 2. Storing and transporting the vaccines
- 3. Maintaining the supply of vaccines
- 4. Having information about essential equipments, supply of electricity etc
- 5. Keeping the vaccine at low temperature
- 6. Protecting the vaccine from sunlight exposure
- 7. Maintaining the potency of vaccines.

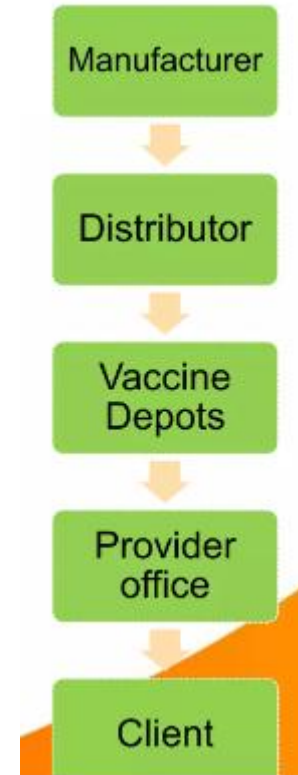


Components of cold chain



Components of cold chain

1. Apparatus/ equipments
2. Supplies
3. Manual efforts
4. Transportation
5. Communication





Apparatus



Apparatus

2 categories

1. Apparatus which keep the vaccine at 4 to 8 degree Celsius

2. Equipments which freezes the vaccines

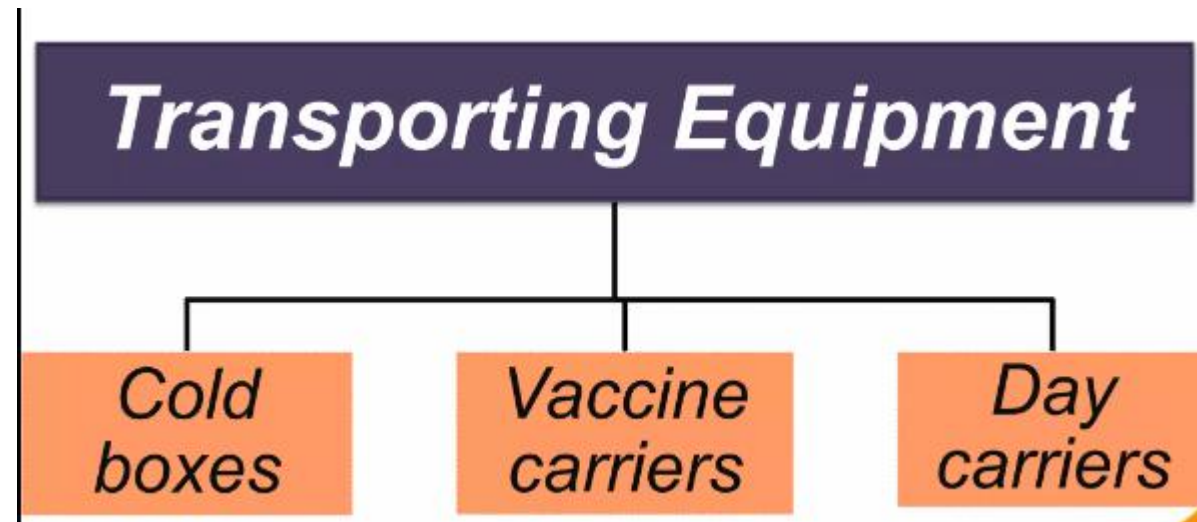
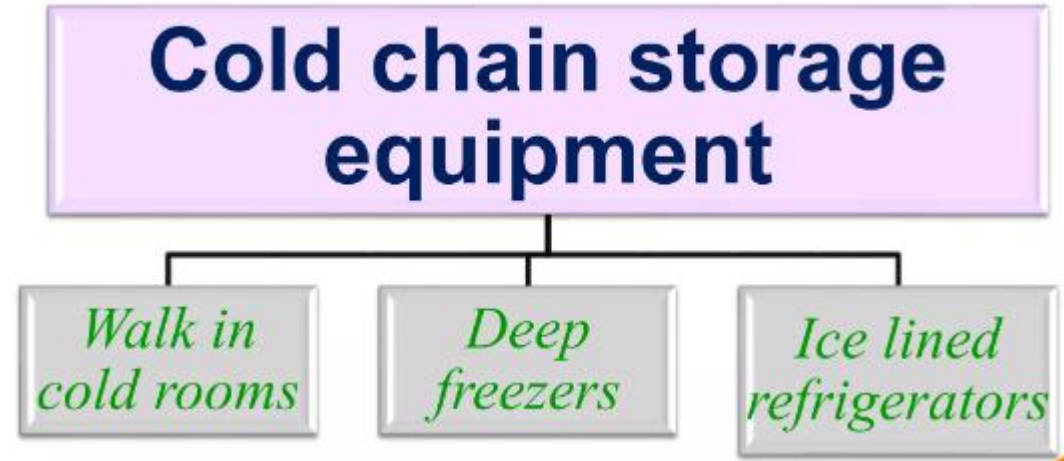




Types of equipments

Types of equipments

1. Vaccine carriers
2. Cold packs
3. Day carriers
4. Refrigerators
5. Walk in cooler
6. Others





Vaccine carrier



.Vaccine carrier

They are suitable to carry small quantities of vaccine to health sub centers, villages and small towns. i.e. 16 to 20 vials at a time.

- A square box made up of heat resistant material and light in weight
- Four packs of ice are kept in these, along all four sides
- Vaccines can kept up to 2 to 3 days





Cold box & Packs



Cold boxes

- This can transport large quantities of vaccines by vehicle to outreach sites.
- Box sizes are 5 liters and 20 liters
- It can preserve vaccine for up to 1 week without any power supply



Cold packs/ ice packs

- Flat bottles of plastic, which are filled with water. No salt should be added in the water.
- These are used in the vaccine carriers after freezing with water



Day carriers



Day carriers VACCINE BUSH

- These equipments are used to keep the vaccine for A DAY.
- Capacity is hold 6-8 vials for 12 hours.
- These include boxes of thermocol and thermos flasks contain 2 ice packs





Refrigerator Types:



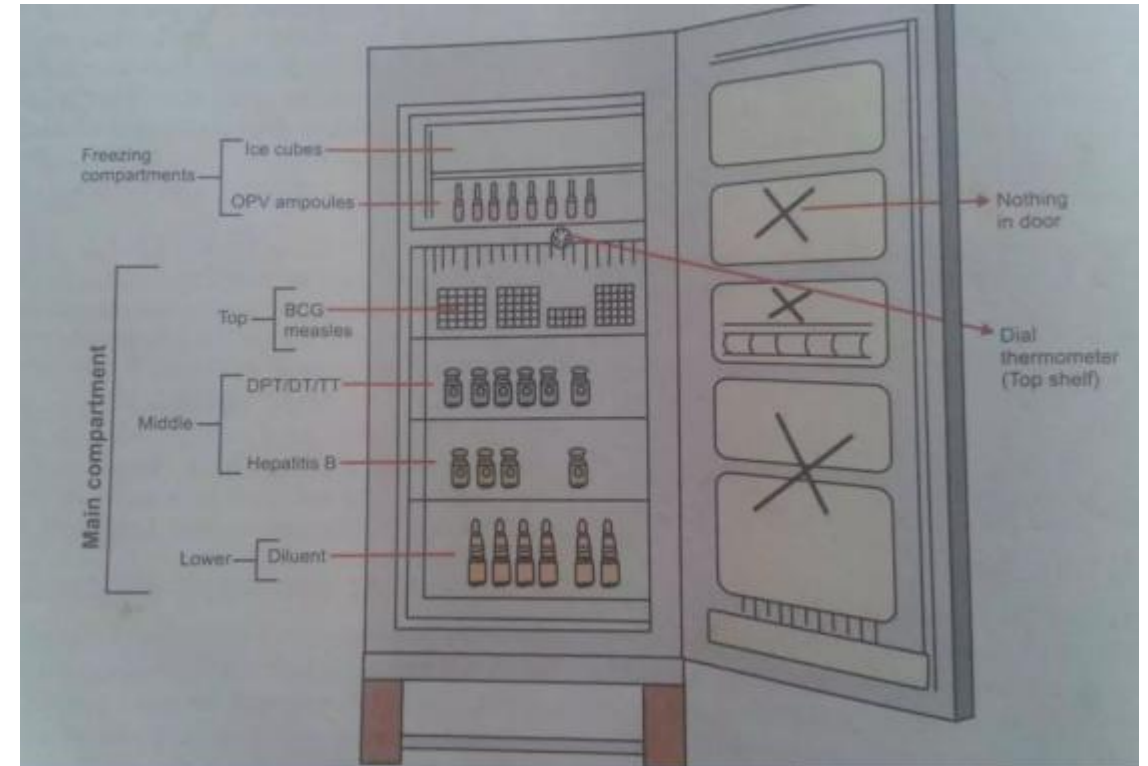
Refrigerator Types:

deep freezer, - 300liters ILR 300/240liters

Used in all district level. It is also used to make ice packs and for storing OPV & measles vaccines

small deep freezer or ILRs

Walk in cooler (WIC) • This is refrigerator of the size of a room in which all types of vaccines can be kept safe • It is used in district health centers





Supplies, Manual efforts & Transportation



Supplies

- Supplies are the vaccines and solvents
- They should be kept at low temperature

Manual efforts

People working with the manufacturer, health officers, health workers and those storing and transporting the vaccines, work together to maintain cold chain.

Transportation

To maintain the potency of vaccine rapid means of transport should be used in a specific temperature. Refrigerators should be arranged in the trucks with a heat resistant equipments. Aeroplanes are used to save time.



Inside of a truck





Methods of controlling cold chain



Communication

- All information and orders associated with cold chain should be immediately and clearly sent and received.

Methods of controlling cold chain

1. Keep the vaccine in appropriate conditions as suggested by manufacturer
2. Follow all the precautions while transporting vaccines
3. Record the temperature of storage place twice a day and preparing the temperature chart
4. Maintain the equipment of cold chain and the appropriate functioning of its components, conducting potency tests from time to time
5. Keep communication system effective and latest
6. Train all the people associated with vaccination, about the maintenance and control of cold chain.

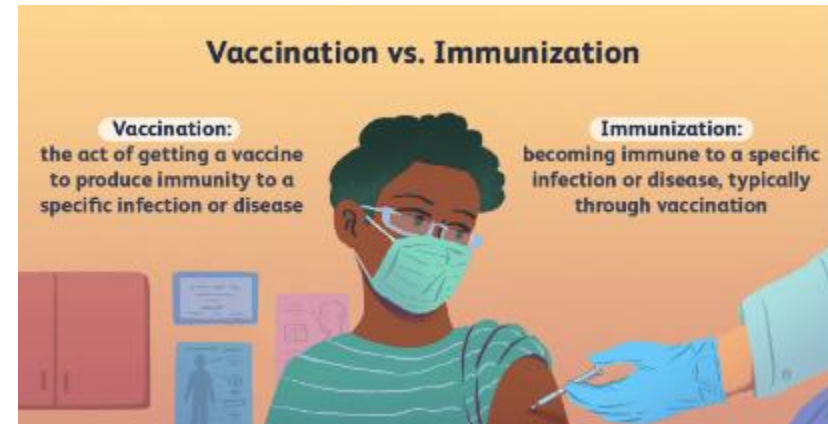


Immunization



Immunization is the process whereby a person is made immune to an infectious disease, typically by the administration of a vaccine.

- Controlling and eliminating life-threatening infectious diseases Estimated to avert between 2 and 3 million deaths each year.
- One of the most cost-effective health investments
- Accessible to even the most hard-to-reach and vulnerable populations.





Immunization schedule & Objectives

Immunization Schedule

VACCINE	WHEN TO GIVE	DOSE	ROUTE	SITE
FOR INFANTS				
BCG	At birth (for institutional deliveries) or along with DPT-1	0.1 ml (0.05ml for infant up to 1 month)	ID	Left Upper Arm
OPV-0	If delivery is in institution	2 drops	Oral	Oral
OPV 1,2 & 3	At 6, 10 & 14 weeks	2 drops	Oral	Oral
DPT- 1,2 & 3	At 6, 10 & 14 weeks	0.5 ml	IM	Antero-lateral side of mid-thigh
Hep B 1,2 & 3	At 6, 10 & 14 weeks**	0.5 ml	IM	Antero-lateral side of mid-thigh
Measles	9-12 months	0.5 ml	SC	Right upper Arm
Vitamin-A (1st Dose)	At 9 months with measles	1 ml (1 lakh IU)	Oral	Oral

NATIONAL IMMUNIZATION SCHEDULE				
VACCINE	WHEN TO GIVE	DOSE	ROUTE	SITE
FOR CHILDREN				
DPT Booster	16 -24 months	0.5ml	IM	Outer Mid thigh
OPV Booster	16-24 months	2 drops	Oral	Oral
Vitamin A (2 nd to 9 th dose)	16 months with DPT/OPV booster. Then, one dose every 6 months up to the age of 5 years.	2 ml (2 lakh IU)	Oral	Oral

Objectives of WHO in immunization-

- Accelerate control of vaccine- preventable diseases
- Introduce new and improved vaccines
- Strengthen routine immunization to meet vaccination coverage targets 2 mthe 50 yrs Pre-pregnancy 6 mthr 15-16y (10) 12 mthe 12-1(7) 18 mths ChomeP
- Spur research and development for the next generation of vaccines and technologies