

Post Graduate course

VMC 607: VACCINOLOGY

## Topic: Component of vaccine

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## Components of various types of vaccines

1. Active components
2. Adjuvants
3. Diluents
4. Stabilisers
5. Preservatives
6. Trace components

## Active components (Immunogen)

- Active component - vaccine 'antigen'/'Immunogen'.
  - modified or partial form of the virus, bacteria or the toxin that causes the disease against which the vaccine protects.
  - vaccine antigen is altered from its original form so it no longer causes disease but it can produce an immune response.

# Adjuvants

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- Adjuvants are used to enhance the immune response to a vaccine.
- They include various aluminum salts such as
  - aluminium hydroxide
  - aluminium phosphate
  - potassium aluminum sulphate (alum).
- One way adjuvants are thought to improve the immune response is by keeping the antigen(s) near the injection site so that they can be readily accessed by cells of the immune system.
- The use of aluminum adjuvants in vaccines generally means that less antigen per dose of vaccine is required.
- The presence of adjuvants in vaccines associated with the local reactions that occur at the injection site after vaccination

# Diluents

*“A diluent is a liquid provided separately and used to dilute a vaccine to the proper concentration prior to administration. This is usually sterile saline or sterile water.”*



# Stabiliser

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- Additives are used as stabilisers and help maintain a vaccine's effectiveness by keeping the antigen and other vaccine components stable during storage.
- Stabilisers prevent the vaccine components adhering to the side of the vaccine vial.
  - Lactose and sucrose (both sugars)
  - Glycine and monosodium glutamate (both of which are amino acids or salts of amino acids)
  - Human or bovine (cow) serum albumin (both proteins)
  - Gelatin

# Preservatives

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- Preservatives are used to prevent fungal and/or bacterial contamination of vaccines
- Preservatives used include
  - Thiomersal (also known as thimerosal),
  - Phenoxyethanol
  - Phenol.



# Vehicle

- **Delivery systems used to promote uptake...**
- **Lipid carrier systems**
- **Oral immunization**
- **Controlled release micro particles for vaccine development**
- **Single dose vaccine delivery systems using**
- **biodegradable polymers..**



***THANKS***

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