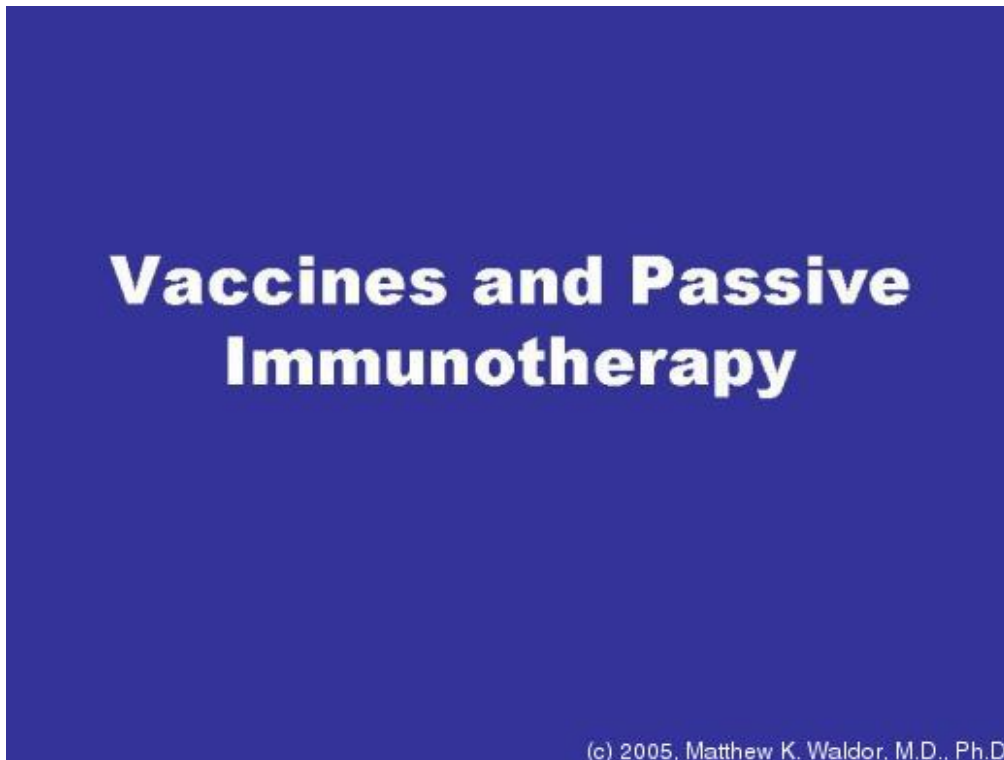
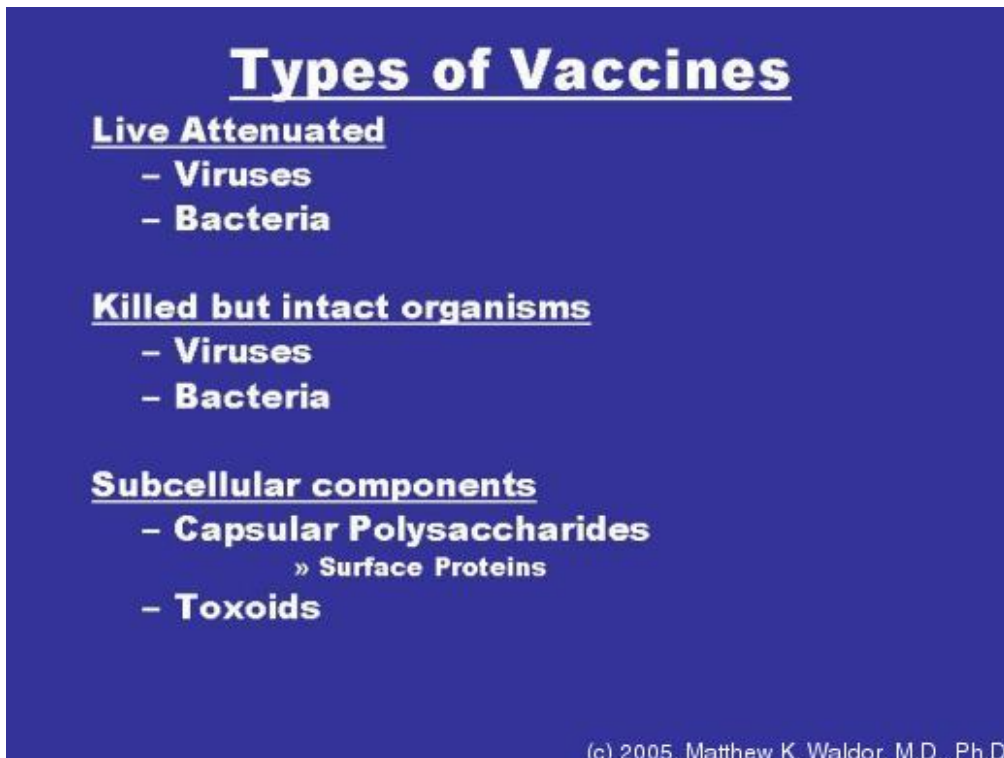


1. Vaccines and Passive Immunotherapy



2. Types of Vaccines



3. Live Attenuated Vaccines

Live Attenuated Vaccines

- Retain the ability to replicate within the host following administration**
- Usually no longer able to cause illness**

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4. Methods to make live attenuated viral vaccines

Methods to make live attenuated viral vaccines

- Host range mutants**
- Jennerian method**
- Identify naturally attenuated viruses**
- Isolate temperature sensitive mutants**
- Molecular approaches**

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5. Live attenuated viral vaccines

Live attenuated viral vaccines

Polio (Sabin; oral polio vaccine)

Measles, mumps, rubella

Yellow Fever

Varicella

Influenza

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6. Methods to make live attenuated bacterial vaccines

Methods to make live attenuated bacterial vaccines

Serial passage

Isolate conditional lethal mutants

Isolate auxotrophs

Genetic engineering

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7. Live attenuated bacterial vaccines

Live attenuated bacterial vaccines

BCG

Salmonella

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8. Inactivated (killed) vaccines

Inactivated (killed) vaccines

Cannot replicate

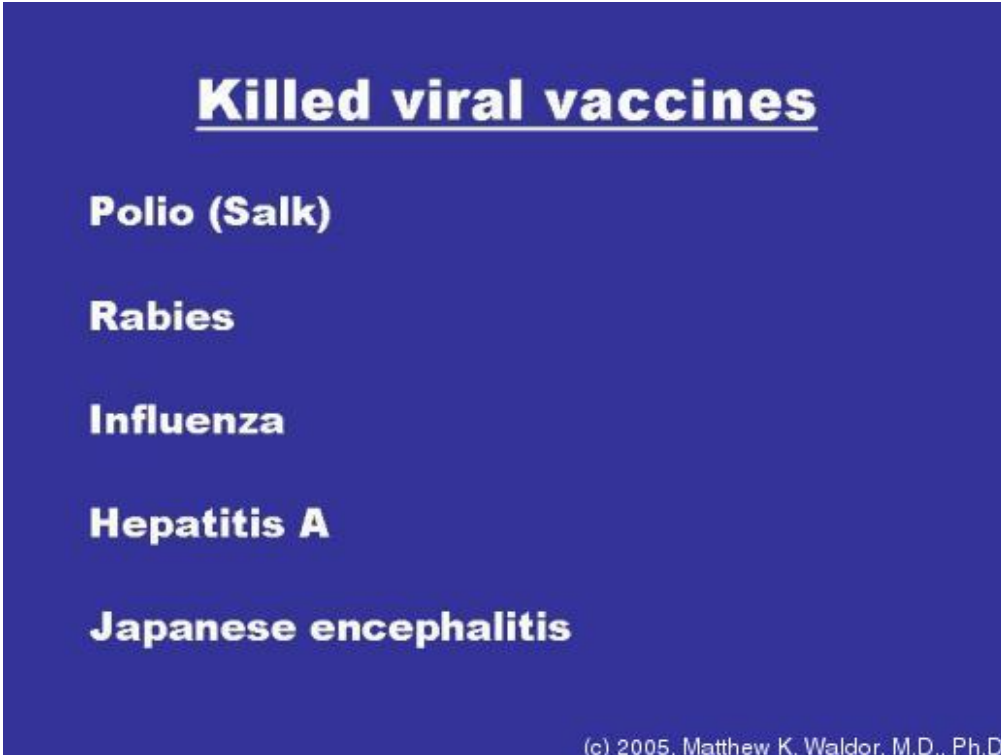
Cannot cause disease

Usually not as immunogenic as live vaccines

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9.

Killed viral vaccines



Killed viral vaccines

Polio (Salk)

Rabies

Influenza

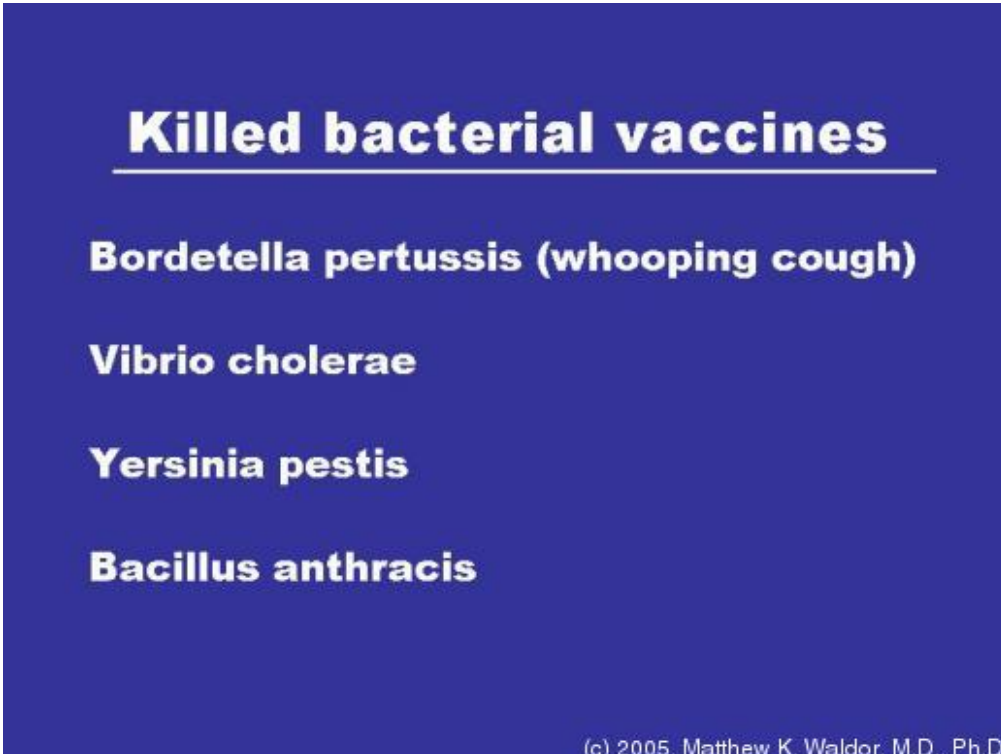
Hepatitis A

Japanese encephalitis

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10.

Killed bacterial vaccines



Killed bacterial vaccines

Bordetella pertussis (whooping cough)

Vibrio cholerae

Yersinia pestis

Bacillus anthracis

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11. Subunit vaccines: capsular polysaccharides

Subunit vaccines: capsular polysaccharides

S. pneumoniae (23 valent) adult

S. pneumoniae (7 valent) pediatric

N. meningitidis (A,C, Y, W-135)

H. influenza (type B)

S. typhi

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12. Subunit vaccines: surface proteins

Subunit vaccines: surface proteins

Hepatitis B

Acellular B. pertussis

Borrelia burgdorferi

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13. Toxoid vaccines

Toxoid vaccines

Tetanus

Diphtheria

Pertussis

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14. Vaccine safety: live vaccines

Vaccine safety: live vaccines

reversion to wild type

severe disease in immunodeficient individuals

hypersensitivity

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15. Vaccine safety: killed vaccines

Vaccine safety: killed vaccines

Vaccine not killed

Contamination

Hypersensitivity

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16. New approaches to vaccine development

New approaches to vaccine development

Peptide vaccines

Live attenuated bacteria and viruses as vectors

DNA vaccines

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