• rabies

Viral vaccines can contain either an **attenuated live virus** (one that exhibits decreased virulence); **an inactivated virus** that is **no longer capable** of producing disease but still retains the **immunogenicity** of the live virus; or parts of the whole virus (purified or synthetic). Vaccines containing attenuated live virus are **more effective** because they elicit all the innate and adaptive immune responses that the live virus would.

| Available vaccines for infectious diseases in humans | | | |
|---|---|---|---|
| **Bacterial diseases** | **Type of Vaccine** | **Viral diseases** | **Types of vaccine** |
| Diphtheria | Toxoid | Yellow fever | Attenuated virus |
| Tetanus | Toxoid | Measles | Attenuated virus |
| Pertussis | Killed bacteria, subunit vaccine composed of pertussis toxoid and other bacterial antigens | Mumps | Attenuated virus |
| Paratyphoid fever (Salmonella paratyphi) | Killed bacteria | Rubella | Attenuated virus |
| Typhus fever (Rickettsia prowazekii) | Killed bacteria | Polio | Attenuated virus (Sabin) or killed virus (Salk) |
| Cholera (Vibrio cholera) | Killed bacteria or cell extract | Varicella (chickenpox) | Attenuated virus |
| Plague (Yersinia pestis) | Killed bacteria or cell extract | Influenza | Inactivated virus; attenuated virus |
| Tuberculosis | Attenuated strain of bovine Mycobacterium tuberculosis (BCG) | Rabies | Inactivated virus |
| Typhoid fever (Salmonella typhi) | Vi polysaccharide subunit vaccines<br>Live-attenuated oral vaccine | Hepatitis A | Subunit vaccine (recombinant hepatitis antigen) |
| Meningitis (Neisseria meningitidis) | Purified capsular polysaccharide | Hepatitis B | Subunit vaccine (recombinant hepatitis antigen) |
| Bacterial pneumonia (Streptococcus pneumoniae) | Purified capsular polysaccharide | Human papillomavirus | Subunit vaccine (virus coat proteins) |
| Meningitis (Haemophilus influenzae | H. influenzae polysaccharide conjugated to protein | Rotavirus | Attenuated virus<br>Recombinant live virus |