

The control of bacterial infections is one of the most important achievements of modern medicine. However, we have failed to keep pace with microbes becoming increasingly resistant to antimicrobials. In fact, the increasing isolation of strains resistant to last resort antimicrobials has reduced, or in some settings completely removed, drugs available to treat patients with severe infections. This has sometimes led to deaths as patients can no longer be treated. Unfortunately, new classes of antimicrobials are rarely invented and antimicrobial resistance continues to spread uncontrollably. An attractive approach is to combine standard antimicrobials with unconventional therapeutic approaches that can make them more effective. One of the most promising strategies is to use viruses that can selectively infect and kill bacterial cells, and to give these viruses as treatment to patients in combination with antimicrobials. They can chew through tough bacterial cell walls and the slime that bacteria excrete during infection. We will investigate how to combine bacterial viruses and antimicrobials in the best way. We will check to see how they could be used both in lung and in urinary bladder infections. Both infections can be caused by the same type of bacteria, but they grow and cause disease differently. We will explore how these viruses can be used to clear infections and identify their potential side effects, such as development of resistance to antimicrobials or the bacterial viruses and if antibodies against the bacterial viruses are produced.