



## Antibiotics - Our Life Savers?



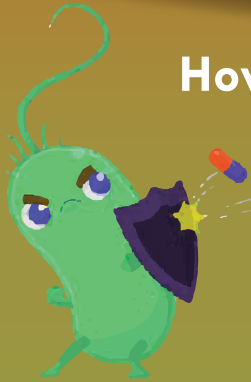
Since the dawn of life, humankind has been in a perpetual battle for survival. Millions of years of evolution has still not rendered us capable of emerging victorious over certain organisms about the size of a micron - bacterial epidemics like tuberculosis and pneumonia have claimed millions over these years.

In a discovery which revolutionised the field of medicine, and aided us in our battle, Alexander Fleming introduced to the world Penicillin, the first antibiotic. Several such “miracle” discoveries followed, paving the way for increased global populations, by virtue of increased life expectancies by a record 8 years within 3 decades.

In order to tackle the problem of feeding such huge a population, farmers realised that small doses of antibiotics could be used to enhance the nutritional value and health of livestock - plumper livestock resulted in cheaper and more accessible food supplies.



## However...



*“The dose is too small, the microbes will not be able to be killed, and there is a danger that it will be educated to resist Penicillin”*

- Alexander Fleming, 1945.

In addition to altering our regular gut flora, as Fleming predicted, extensive and unregulated use of antibiotics, which are believed to be our saviours, has given way to development of a “superbug”- antibiotic resistant bacteria which are practically invincible, since even manufacturing newer antibiotics to fight these proves ineffective, as they can develop resistance to the synthesised antibiotics with rapid ease.

The end of the 20th century witnessed a spike in the number of diseases caused by antibiotic resistant bacteria - in response to growing public concern in this regard, the US government banned the use of human drugs on livestock.



Improper administration of drugs, either by accident, or by plain ignorance, plays a significant role in speeding up the process of development of resistant bacteria. A dose that is incapable of wiping out the bacterial populace, and the remaining bacteria are now free to devise mechanisms of developing resistance. In livestock bred with antibiotic assistance, bacteria can easily develop resistance, and transfer the same to other strains, possibly those capable of infecting humans as well.

## Alternatives

Increased awareness of these critical issues has resulted in solutions to antibiotic resistance, and alternatives to antibiotics now being sought. Some possible alternatives include -

### Phage therapy

In this method, bacteriophages, viruses that specifically target bacteria can be engineered to be antibacterial therapeutic agents.

