Editorial

iMedPub Journals
www.imedpub.com

Journal of Intensive and Critical Care
ISSN 2471-8505

2021
Vol.7 No.6:e127

# Causes and Prevention of Anti-Biotic Resistance

**Rowalt Joey***

Department of Health sciences, University of Florida, Florida, United states

***Corresponding author:** Rowalt Joey, Department of Health sciences, University of Florida, Florida, United states, Tel: +12358902456; E-mail: rowaltjoey@gmail.com

**Received date:** 01 June, 2021; **Accepted date:** 16 June, 2021; **Published date:** 25 June, 2021

**Citation:** Rowalt Joey (2021) Risk Factors in Veterinary Technicians in Specialty Teaching Hospitals, J Intensive & Crit Care Vol. 7 No. 6: e127

## Introduction

Anti-Microbial Resistance (AMR) occurs when microbes evolve mechanisms that protect them from the effects of antimicrobials. The term antibiotic resistance is a subset of AMR, as it applies to bacteria that become resistant to antibiotics. Resistant microbes are more difficult to treat, requiring higher doses, or alternative medications which may prove more toxic. These approaches may also be more expensive. Microbes resistant to multiple antimicrobials are called Multi Drug Resistant (MDR).

All classes of microbes can evolve resistance. Fungi evolve antifungal resistance. Viruses evolve antiviral resistance. Protozoa evolve antiprotozoal resistance, and bacteria evolve antibiotic resistance. Those bacteria that are considered Extensively Drug Resistant (XDR) or Totally Drug-Resistant (TDR) are sometimes called "superbugs". Resistance in bacteria can arise naturally, by genetic mutation, or by one species acquiring resistance from another. Resistance can appear spontaneously because of random mutations. However, extended use of antimicrobials appears to encourage selection for mutations which can render antimicrobials ineffective. Rising drug resistance is caused mainly by use of antimicrobials in humans and other animals, and spread of resistant strains between the two. Growing resistance has also been linked to dumping of inadequately treated effluents from the pharmaceutical industry, especially in countries where bulk drugs are manufactured. Antibiotics increase selective pressure in bacterial populations, causing vulnerable bacteria to die; this increases the percentage of resistant bacteria which continue growing. Even at very low levels of antibiotic, resistant bacteria can have a growth advantage and grow faster than vulnerable bacteria. With resistance to antibiotics becoming more common there is greater need for alternative treatments. Calls for new antibiotic therapies have been issued, but new drug development is becoming rarer. The WHO defines antimicrobial resistance as a microorganism's resistance to an antimicrobial drug that was once able to treat an infection by that microorganism. A person cannot become resistant to antibiotics. Resistance is a property of the microbe, not a person or other organism infected by a microbe.

Antibiotic resistance is a subset of antimicrobial resistance. This more specified resistance is linked to pathogenic bacteria and thus broken down into two further subsets, microbiological and clinical. Resistance linked microbiologically is the most common and occurs from genes, mutated or inherited, that allow the bacteria to resist the mechanism associated with certain antibiotics. Clinical resistance is shown through the failure of many therapeutic techniques where the bacteria that are normally susceptible to a treatment become resistant after surviving the outcome of the treatment. In both cases of acquired resistance, the bacteria can pass the genetic catalyst for resistance through conjugation, transduction, or transformation. This allows the resistance to spread across the same pathogen or even similar bacterial pathogens. Antimicrobial resistance is mainly caused by the overuse of antimicrobials. This leads to microbes either evolving a defense against drugs used to treat them, or certain strains of microbes that have a natural resistance to antimicrobials becoming much more prevalent than the ones that are easily defeated with medication. While antimicrobial resistance does occur naturally over time, the use of antimicrobial agents in a variety of settings both within the healthcare industry and outside of has led to antimicrobial resistance becoming increasingly more prevalent