

# Antibiotic Resistant Microorganisms Propagation in the Environment, Bullocks and Seawater

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## Introduction

Antibiotic resistance is one of the most significant challenges facing public health today. The overuse and misuse of antibiotics have resulted in the development of antibiotic-resistant bacteria, which pose a threat to human and animal health. Antibiotic-resistant bacteria are found not only in humans but also in wildlife, livestock, and water. In this article, we will discuss the dissemination of antibiotic-resistant bacteria in these three areas and the potential consequences of their spread. Wild animals have been identified as a potential reservoir of antibiotic-resistant bacteria. Many studies have shown that wild animals can carry antibiotic-resistant bacteria in their guts, on their skin, or in their mouths. These bacteria can be transmitted to humans through direct contact, such as bites or scratches, or indirectly through contaminated food or water [1].

The dissemination of antibiotic-resistant bacteria in wildlife can be attributed to several factors. One of the primary reasons is the use of antibiotics in livestock farming. Antibiotics are commonly used to promote growth and prevent diseases in livestock, and the overuse of antibiotics in this industry can lead to the development of antibiotic-resistant bacteria, which can then be spread to wildlife through the environment or food chain. Another reason for the dissemination of antibiotic-resistant bacteria in wildlife is the proximity of humans to wild animals. As human populations expand, their interactions with wildlife also increase, leading to the transmission of antibiotic-resistant bacteria. For example, tourists in wildlife reserves or hunters can come into contact with animals carrying antibiotic-resistant bacteria and inadvertently spread the bacteria to other areas [2].

The potential consequences of the dissemination of antibiotic-resistant bacteria in wildlife are significant. Wild animals can act as a reservoir of antibiotic-resistant bacteria and transmit them to humans or domestic animals, leading to the development of infections that are difficult to treat. Additionally, the transmission of antibiotic-resistant bacteria to wild animals can lead to the emergence of new strains of resistant bacteria that could spread rapidly in the environment. The use of antibiotics in livestock farming is one of the main drivers of antibiotic resistance in animals. The overuse of antibiotics in livestock farming can lead to the development of antibiotic-resistant bacteria that can be transmitted to humans through contaminated food or water. Additionally, antibiotic-resistant bacteria can spread from livestock to the environment through the excretion of manure [3].

The dissemination of antibiotic-resistant bacteria in livestock can be attributed to several factors. One of the primary reasons is the use of antibiotics as growth promoters. The use of antibiotics in livestock farming can lead to the development of antibiotic-resistant bacteria, which can then be transmitted to humans through food or water. Additionally, the use of antibiotics to prevent and treat diseases in livestock can also contribute to the development of antibiotic-resistant bacteria. Another reason for the dissemination of antibiotic-resistant bacteria in livestock is the lack of regulation and oversight in the use of antibiotics in livestock farming. Many countries do not have regulations in place to limit the use of antibiotics in

livestock farming, leading to the overuse and misuse of antibiotics.

The potential consequences of the dissemination of antibiotic-resistant bacteria in livestock are significant. The transmission of antibiotic-resistant bacteria from livestock to humans through contaminated food or water can lead to the development of infections that are difficult to treat. Additionally, the transmission of antibiotic-resistant bacteria to the environment through the excretion of manure can lead to the contamination of soil and water, posing a threat to human and animal health. Water is another potential reservoir of antibiotic-resistant bacteria. The dissemination of antibiotic-resistant bacteria in water can be attributed to several factors, including the discharge of untreated sewage into water bodies and the use of antibiotics in agriculture. The discharge of untreated sewage into water bodies can lead to the contamination of water with antibiotic-resistant bacteria. Wild animals, especially those living in close proximity to human populations, are increasingly being exposed to antibiotics and other antimicrobials. These exposures can occur through the direct use of antibiotics to treat infections or as prophylactic measures in captive animals, or through indirect exposure from the environment, including agricultural runoff, sewage, and wastewater treatment plant effluent [4].

## Description

A growing body of research has shown that antibiotic-resistant bacteria are present in a wide range of wildlife species, including birds, mammals, and reptiles. For example, studies have found antibiotic-resistant bacteria in wild birds such as gulls, pigeons, and waterfowl, which can carry these bacteria long distances and spread them across different habitats. Similarly, antibiotic-resistant bacteria have been found in wild mammals such as raccoons, deer, and rodents, which can act as reservoirs of these bacteria and spread them to other animals or humans. One of the main concerns about antibiotic-resistant bacteria in wildlife is the potential for transmission to humans. For example, hunters and wildlife professionals who handle and process wild game may be at risk of contracting antibiotic-resistant infections from these animals. Additionally, wildlife can serve as a reservoir for antibiotic-resistant bacteria that can spread to livestock or humans through the food chain or through contact with contaminated soil or water.

Livestock are a major source of antibiotic use and a reservoir for antibiotic-resistant bacteria. The use of antibiotics in livestock production is widespread, both for therapeutic purposes and as growth promoters. This has led to the emergence and spread of antibiotic-resistant bacteria in livestock, which can then be transmitted to humans through the consumption of contaminated meat, milk, and other animal products. Studies have shown that antibiotic-resistant bacteria are present in a wide range of livestock species, including poultry, swine, cattle, and fish. In some cases, the prevalence of antibiotic-resistant bacteria in livestock can be as high as 100%. This is particularly concerning in countries where regulations governing the use of antibiotics in livestock are weak or non-existent. One of the main routes of transmission of antibiotic-resistant bacteria from livestock to humans is through the food chain. This can occur when humans consume contaminated meat, milk, or other animal products. Additionally, livestock workers, veterinarians, and others who come into direct contact with animals can be at risk of contracting antibiotic-resistant infections [5].

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## Conclusion

Water is a key element in the transmission of antibiotic-resistant bacteria, as it can serve as a reservoir for these bacteria and facilitate their dissemination to other environments. The presence of antibiotic-resistant bacteria in water can be attributed to the discharge of wastewater from hospitals, households, and industrial sources, as well as the runoff from agricultural and livestock production.

Studies have shown that antibiotic-resistant bacteria are present in a wide range of water sources, including surface waters, groundwater, and drinking water. For example, a study conducted in the United States found that more than half of the samples taken from rivers and streams contained antibiotic-resistant bacteria. The dissemination of antibiotic-resistant bacteria in water are particularly concerning because of the potential for transmission to humans through consumption or contact with contaminated water. This can occur through the consumption of contaminated drinking water, recreational activities such as swimming or fishing, or through the consumption of contaminated seafood.

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None.

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## Conflict of Interest

There is no conflict of interest by author.

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