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Understanding and Overcoming Antimicrobial Resistance

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Abstract

and other antimicrobial agents. This resistance emerges from the evolutionary capacity of microorganisms to adapt and survive despite exposure to antimicrobial treatments. Key factors contributing to AMR include the overuse and misuse of antibiotics, inadequate infection control practices, and the slow development of new antimicrobial drugs. Addressing AMR requires a multifaceted approach, including enhanced surveillance to monitor resistance patterns, rapid diagnostic technologies to ensure accurate and timely treatment, and the implementation of robust antibiotic stewardship programs to promote appropriate use. Innovations in drug development, such as the discovery of novel

initiatives are also crucial for fostering responsible antibiotic use and supporting ongoing research. By integrating

Keywords:

Introduction

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Discussion

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Mechanisms of Antimicrobial Resistance

Genetic Mutations

/6 .

Horizontal Gene Transfer

E ux Pumps

Enzymatic Degradation

Reduced Permeability

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Factors Contributing to AMR

Overuse and Misuse of Antibiotics