

**A THREE DIMENSIONAL REVIEW ON HUMAN IGNORANCE**  
**REGARDING ANTIMICROBIAL RESISTANCE**

**Abstract:**

Antimicrobial resistance is one of the biggest threats to global health, food security and development today. Antimicrobial resistance can affect anyone, of any age, in any country. Antimicrobial resistance occurs naturally, but misuse of antibiotics in humans and animals is accelerating the process. A growing number of infections-such as tuberculosis, gonorrhoea, and salmonellosis-are becoming harder to treat as the antibiotics used to treat them become less effective. Antibiotic resistance leads to longer hospital stays, higher medical costs and increased mortality.

**Keywords:** antimicrobial resistance, chromosomal changes, vaccines, diagnostics sector.

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## **INTRODUCTION**

This article is mainly based on the human`s antimicrobial resistance in three different point of angles, Including private sector, public sector and by the world sector. Private sector by common individuals and its scope. [1] Public sector by professionals, agriculture, industry. World sector by World Health Organization (WHO), The Global Antibiotic Resistance Surveillance and System (GLASS), Global Antibiotic Research and Development Program(GADCP), International Coordination Group on Antimicrobial Resistance (IACG). [1]

Antimicrobials are medicine used to prevent and treat bacterial infections. Antibiotic resistance occurs when bacteria change in response to the use of these medicines.

Bacteria, not humans or animals, become antibiotic resistant. These bacteria may infect humans and animals and the infections they cause are harder to treat than those caused by non-resistant bacteria. [2] Antibiotic resistance leads to higher medical costs, prolonged hospital stays, and increased mortality.

### **SCOPE OF THE PROBLEM:**

Antibiotic resistance is rising to dangerously high levels in all parts of the world. New resistance mechanisms are emerging and spreading globally, threatening our ability to teat common infectious diseases.

In countries without standard treatment guidelines, antibiotics are often over prescribed by health workers and veterinarians and over used by the public

Without urgent action, we are heading for a post antibiotic era, in which common infections and minor injuries can once again kill. [3]

RESISTANT BACTERIAS:

S.aureus is an important bacteria which leads to cause of several hospital infections and also leads to antimicrobial resistance.

MRSA-Methicillin Resistant Staphylococcus Aureus,

VRSA-Vancomycin Resistant Staphylococcus Aureus,

These are resistant forms of staphylococcus aureus. Primary antibiotic resistance bacterial strain.

These are experimented with Baicaelin and Oxacillin. To check the virulence of antimicrobial activity. [4]

Some bacteria which lead to ampicillin resistance eg.E.Coli

Some of them are lead to Gram Negative infections.

Methicillin-resistant Staphylococcus aureus (MRSA) strains cause serious nosocomial infections all over the world. Overall, approximately 20% of S. aureus isolates in Europe are reported as methicillin resistant, whereas in US hospitals the prevalence ranges from 33% to 55%. [5]

The past few years have also witnessed an increase in life-threatening community-acquired infections caused by Panton–Valentine leukocidin-producing MRSA in the USA. [5]

Increasing use of glycopeptides for treatment of community acquired MRSA infections may result in higher rates of glycopeptide resistance.

Since 1996, five vancomycin-intermediate S. aureus (VISA; vancomycin MIC = 8–16 mg/L) strains have been identified in Europe, Asia and the USA, and vancomycin-resistant S. aureus (VRSA) strains (vancomycin). [5]

NEWER RESISTANCE EMERGERS:

CARBAPENEM RESISTANT KLEBSIELLA PNEUMONIAE. [6]

CEFTAZIDIME RESISTANT KLEBSIELLA PNEUNONIAE. [6]

The synthesis of large numbers of antibiotics over the past three decades has caused complacency about the threat of bacterial resistance. Bacteria have become resistant to antimicrobial agents as a result of chromosomal changes or the exchange of the exchange of genetic material via plasmids and transposons. Streptococcus pneumoniae, Streptococcus pyogenes, and staphylococci, organisms that cause respiratory and cutaneous infections, and members of the Enterobacteriaceae and Pseudomonas families, organisms that cause diarrhea, urinary infection, and sepsis, are now resistant to virtually all of the older antibiotics. [7]

PREVENTION AND CONTROL [1]

- Only use antibiotics when certified by health professional
- Never demand antibiotics if your health worker says you don't need them
- Always follow your health worker's advice when using antibiotics.
- Never share or use leftover antibiotics
- Prevent infections by regularly washing hands.

### HEALTH PROFESSIONALS [2]

- Prevent infections by ensuring your hands, instruments and environment are clean
- Only prescribe and dispense antibiotics when they are needed, according to current guidelines
- Report antibiotic resistant infections to surveillance teams
- Talk to your patients about how to take antibiotics correctly, antibiotic resistance and the dangers of misuse
- Talk to your parents about preventing infections because of their ignorance to AMR.
- Avoid overuse of antimicrobials, which leads to AMR.

### HEALTH CARE INDUSTRY [1, 4]

Invest in research and development of new antibiotics, vaccines, diagnostics sector can improve the feasibility in people

- Insufficient ability to access new test and approved.
- Production and excessive supply of products which leads to easy consuming of antimicrobials by patients.

### AGRICULTURE SECTOR [1, 3]

- Only give antibiotics to animals under veterinary supervision
- Not use antibiotics for growth promotion or to prevent diseases in healthy animals.
- Vaccinate animals to reduce the need for antibiotics and use alternatives to antibiotics when available

- Promote and apply good practices at all steps of production and processing of foods from animal and plant sources
- Improve biosecurity on farms and prevent infections through improved hygiene and animal welfare

### RECENT DEVELOPMENTS [1]

While there are some new antibiotics in development, none of them are expected to be effective against the most dangerous forms of antibiotics resistant bacteria

Given the ease and frequently with which people now travel, antibiotic resistance efforts from all nations and many sectors

### IMPACT [1]

When infections can no longer be treated by first line antibiotics, more expensive medicines must be used. A longer duration of illness and treatment often in hospitals, increases health care costs as well as the economic burden on family and societies

Antibiotic resistance putting the achievements of modern medicine at risk, Organ transplantations, chemotherapy and surgeries such as caesarean section become much more dangerous without effective antibiotics for the prevention and treatment infections.

### WHO RESPONSE: [1]

\_ Tackling antibiotic resistance is a high priority for WHO. A global action on antimicrobial resistance was endorsed at the World Health Assembly in May 2015. The global action plan aims to ensure prevention and treatment of infectious diseases with safe and effective medicines. [1]

It implies 5 strategic objectives:

- 1] To improve awareness and understanding of antimicrobial resistance
- 2] To strengthen surveillance and research
- 3] To reduce the incidence of infection
- 4] To optimize the use of antimicrobial medicines
- 5] To ensure sustainable investment in countering antimicrobial resistance.

#### WORLD ANTIBIOTIC AWARENESS WEEK

Held every November since 2015 with the theme `Antibiotics Handle with care` `the global multi-year campaign has increasing volume of activities during the week of the campaign

#### THE GLOBAL ANTIMICROBIAL RESISTANCE SURVEILLANCE SYSTEM {GLASS} [8]

The WHO supported system supports a standardized approach to the collection analysis and sharing of data related to antimicrobial resistance at a global level to inform decision making ,drive local, national and regional action.

The objectives of GLASS are to:

- Foster national AMR surveillance systems using harmonized global surveillance standards
- Assess and report on selected indicators of AMR
- Detect emerging resistance
- Inform and assess impact of interventions.

WHO seeks the collaboration with WHO collaborating centers, existing surveillance networks, partner technical institutions to support countries for GLASS implementation.

**GLOBAL ANTIBIOTIC RESEARCH AND DEVELOPMENT PARTNERSHIP {GARDP}**

A joint initiative of WHO and drugs for Neglected Diseases initiative (DNDi), GARDP encourages research and development through public-private partnership. By 2023, the partnership aims to develop and deliver up to four new treatments, of existing antibiotics and acceleration of the entry of new antibiotic drugs.

**INTEGRACY COORDINATION GROUP ON ANTIMICROBIAL RESISTANCE (IACG)**

[1,9]

The United Nations Secretary-General has established IACG to improve coordination between international organizations and to ensure effective global action against this threat to health security. The IACG is co-chaired by the UN Deputy Secretary –General and the Director General of WHO and comprises high level representatives of relevant UN agencies, other international organizations and individual experts across different sectors.

**CONCLUSION:**

Here by concluding, the ignorance is the global negativeness that lead to a great medical danger. Thus, Doctors, Health care persons, Social interested people make awareness to the anti-microbial resistance to the common people that leads to extend the longevity of life.

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