

# Systemic Review: Impact of Antibiotic Resistance and Current Scenario of Bangladesh

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## Abstract

In the last two decades, Antibiotics resistance is one of the major problems in worldwide. And Bangladesh is one of them. Bangladesh is a poor country with huge population. People of this country are mostly live in village and they have not a proper knowledge about the use of antibiotics. Most of them take antibiotic while they get a simple disease like fever or common cold. Due to lack of proper regulation by pharmacist or healthcare provider, people buy antibiotic from a local dispensary without any prescription and consume with overdose or misuse. Besides pharmacies not maintaining standard rules, and pharmacy shopkeepers randomly prescribing medicine without proper medical knowledge is the big cause of antibiotics resistance. Beta-lactamase producing organisms highly resistance to beta-lactams antibiotic. Three studies reported vancomycin susceptibility of enterococci, and the median susceptibility was 100% to Nalidixic acid and 32% Staphylococcus aureus shown resistant to oxacillin. This review article, we will summarize the present scenario of antibiotic resistance in Bangladesh

**Keywords:** Antibiotic; Bangladesh; Pharmacist; Beta-lactamase; Bacteria

## Introduction

An antibiotic is a drug that is made from bacteria or fungi which is used to destroy or prevent the spread of other harmful bacteria or fungi. Antibiotic resistance is a serious problem in this age of globalization, the harmful effects of which no one can escape. Its detrimental effects on the environment can make people uninhabitable, cause a variety of complex diseases and can cause serious complications in the treatment of humans and animals.

Decreasing the effectiveness of antibiotics used to destroy or stop the growth of harmful bacteria is called antibiotic resistance. All drugs lose efficacy; But losing the effectiveness of other drugs is different from losing the effectiveness of antibiotics. Because other drugs lose their effectiveness, the drug becomes ineffective when certain changes occur in the

human body. On the other hand, the loss of effectiveness of antibiotics means that the use of antibiotics results in changes in the germs; the germs gain the ability to survive against the antibiotic. As a result, the antibiotic becomes ineffective and useless.

The indiscriminate use of antibiotics in our country (Bangladesh) is increasing day by day. For common ailments like viral colds, coughs, fevers people take antibiotics without consulting a doctor or pharmacist. As a result, harmful bacteria in our body become change their bodies own genetic code in such a way that the antibiotic cannot destroy the bacteria or cannot prevent its growth. The main reason for fear is that bacteria spread rapidly, causing millions of resistant bacteria to form in a very short time.

Antibiotic abuse is most prevalent in the underdeveloped countries of the world like Bangladesh, Nepal, Sri Lanka and Pakistan. In these countries' antibiotics are taken almost everywhere without the advice of a doctor or pharmacist. According to a survey, only 6 percent of antibiotics are sold in rural area of Bangladesh with the advice of a register doctor [2]. This problem also exists in the developed world. A survey by the Centers for Disease Control (CDC) in the United States found that 30 percent of physicians' prescription for antibiotics were unnecessary for ear infections, 100 percent for common viral colds, and 50 percent for sore throats [3].

All over the world, especially in underdeveloped countries, farmers use arbitrary antibiotics in cattle and poultry in the hope of making more profit in less time. And the widespread use of these uncontrolled antibiotics poses a huge health risk to humans. Many farms are mixing antibiotics with food as a growth promoter for cattle fattening or broiler production. As a result, antibiotic-resistant germs are formed in the bodies of animals that are being fed small amounts of antibiotics and are spreading in the environment. There, other germs also come in contact with resistant bacteria and become resistant through gene transformation and mutations. Thus, an epidemic is happening silently.

Before the discovery of antibiotics, humans and animals would have died if they had been infected with pathogens due to a lack of proper treatment in the absence of antibiotics. Humans had no control over the destruction or reproduction of

pathogens. The discovery of antibiotics in 1928 marked a turning point in medicine. But as a result of its widespread use, germs are now becoming resistant to antibiotics. Antibiotics are losing their effectiveness against diseases caused by infectious bacteria. As a result, dying people and animals due to medical complications. This means that before the discovery of antibiotics, humans and animals would have died without antibiotics, and now, despite the availability of different types of antibiotics, its effectiveness against germs has diminished, making it impossible to save dying humans and animals. If this situation continues, it is estimated that by 2050, 10 million people will die each year due to antibiotic resistance in the world, while 7.2 million people will die from deadly diseases like cancer.[4] In this horrible situation we will go back to the era when antibiotics were not invented, when people would die of common colds, coughs, rashes.

No one is safe from this catastrophe. No one living in the deep forests of Africa is safe from this risk from the people of developed countries. Resistant bacteria can also be spread from one country to another through individuals or animals carrying antibiotic resistant bacteria, exported or imported animal and livestock products, fish and agricultural products. Various surveys show that the risk of antibiotic resistance is higher in underdeveloped or least developed countries.

The invention of new antibiotics is necessary for the treatment of a person infected with a bacterial disease. But the most frightening thing is that there is a stagnation in the world now in terms of the discovery of effective antibiotics. In order to keep the bacteria under control until the discovery of new antibiotics, everyone involved must use antibiotics very carefully. Antibiotics that have developed resistance should be discontinued and replaced with other antibiotics.

## Methods

We have collected the data by using, Research Gate, science world publication, PubMed, and Bangladesh Journals Online, Google Scholar. First, we have selected some keyword related to our review then we search them on website gradually. We also used a report which was conducted by Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM General Hospital), which is a seven hundred bed tertiary care hospital of Bangladesh. In their report, they had collected 27,069 samples obtained for culture and sensitivity tests both inpatient and outpatient department (2011-2014). Their collected Samples were mainly secretions, pus, blood, urine, respiratory and wound swab. Then these collected samples were cultured in a proper media for isolation of potential pathogens. Isolates were identified by standard methods by (BIRDEM).

## Results

We have collected 17 research paper and some online newspaper link where the antibacterial resistance report was published in different time. (2010-2020). Then we analyzed the research paper and report. We found most of the studies of antibacterial susceptibility were performed by two methods. This method included disk diffusion 61.14% and clinical laboratory standard institute guideline were followed 39.86%.

And we observed 50.6%-85% to third generation cephalosporin, 15.1-63% to aminoglycosides, 56-90.1% to ciprofloxacin, 58-80.3% to cotrimoxazole, 14.3-91.7% to nitrofurantoin, 20.8-81.4% to tazobactam+piperacillin and 2.2-16.4% to colistin in Gram negative bacteria. 62.0% Escherichia coli and 65% Klebsiella developed resistance to 3rd generation cephalosporins, 77% Escherichia coli to fluoroquinolones, 16% Klebsiella and 58% Pseudomonas to carbapenem, 92% Salmonella

Before this review, a group of students of Jahangirnagar University Bangladesh were review antibiotic scenario in Bangladesh where they analysis 46 research article and they found beta-lactamase producing organisms highly resistance to beta-lactams antibiotic. They also found in three studies reported vancomycin susceptibility of enterococci, and the median susceptibility was 100% to Nalidixic acid and 32% Staphylococcus aureus shown resistant to oxacillin.

## Conclusion

The purpose of this studies to increase the awareness about the proper use of antibiotic. We suggest the healthcare provider as well as government should take necessary step to reduce the antibiotic resistance highly suggest to do antibiotic awareness campaign in outside of city where most of the people are unemployment and have no knowledge about antibiotic. Besides the medicine shop and dispensary should be monitor by register pharmacist who have proper knowledge.

## References

1. Lucas PJ, Uddin MR, Khisa N, Akter SMS, Unicomb L (2019) Pathways to antibiotics in Bangladesh: A qualitative study investigating how and when households access medicine including antibiotics for humans or animals when they are ill. *Plosone* 14: e0225270
2. <https://www.cdc.gov/media/releases/2016/p0503-unnecessary-prescriptions.html>
3. <https://oneill.law.georgetown.edu/behind-the-headlines-10-million-antimicrobial-deaths-by-2050-or-not/>
4. Ahmed I, Rabbi MDB, Sultana S (2019) Antibiotic resistance in Bangladesh: A systematic review. *Int J Infect Dis* 80: 54-61.