**Looming Health Crisis**

**Overuse and misuse of antibiotics, often for viral infections where they are ineffective, fuels the develop-ment of resistant strains.**

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May 17, 2024

In the silent shadow of a global pandemic, another, potentially more devastating threat looms: Antimicrobial Resistance. This phenomenon, where bacteria and other microbes develop immunity to the very drugs designed to kill them, is rapidly escalating into a public health crisis in Pakistan and across the world.

Antimicrobial Resistance poses a severe threat by enabling antimicrobial-resistant organisms to eliminate beneficial microbes, allowing resistant traits to spread among pathogens. This issue is particularly acute in low- and middle-income countries (LMICs), where inadequate healthcare infrastructure and high infectious disease burdens intensify the challenge, leading to longer hospital stays, increased medical costs, and higher mortality rates. Globally, in 2019, an estimated 4.95 million people succumbed to drug-resistant infections, with Antimicrobial Resistance directly causing 1.27 million of those deaths. Alarmingly, 1 in 5 of these deaths occurred among children under 5 years old, highlighting the vulnerability of this age group.

In Pakistan, unfortunately, the impact of Antimicrobial Resistance is pronounced. In 2019 alone, the country witnessed 59,200 deaths directly attributable to Antimicrobial Resistance, with an additional 221,300 deaths associated with it. This translates to Pakistan having the 176th highest age-standardized mortality rate per 100,000 population associated with Antimicrobial Resistance across 204 countries. Even more concerning, the number of Antimicrobial Resistance deaths in Pakistan surpasses those caused by other major illnesses like neoplasms, respiratory infections and tuberculosis, enteric infections, diabetes and kidney diseases, and chronic respiratory diseases. Several factors contribute to this alarming situation. Overuse and misuse of antibiotics, often for viral infections where they are ineffective, fuels the development of resistant strains. The presence of counterfeit and low-quality antibiotics in the market further compromises treatment efficacy and accelerates resistance. Weak regulations and their insufficient enforcement create loopholes that allow the misuse of antibiotics to flourish.

Moreover, Antimicrobial Resistance compromises the immune system by allowing resistant infections to persist and spread, reducing the effectiveness of standard treatments and necessitating more complex and costly alternatives. The term “post-antibiotic era” describes a potential future where common infections could become lethal again due to ineffective antimicrobial treatments, jeopardizing the advances in surgeries and chronic disease management. Unchecked Antimicrobial Resistance (AMR) poses a catastrophic threat, jeopardizing both human health and economic stability. It can lead to prolonged illnesses, extended hospital stays, and limited treatment options for severe infections. This puts a significant strain on healthcare systems, driving up costs due to the need for more expensive medications and longer treatment durations. The World Bank estimates global GDP losses from AMR could reach US$3.4 trillion annually by 2030. Pakistan, like many countries, is not immune, facing substantial economic burdens due to escalating healthcare costs and lost productivity. Addressing this crisis requires a multi-pronged approach. To truly be effective, these strategies require a united effort across all levels. International organizations like the World Health Organization (WHO) play a crucial role in coordinating global research efforts, sharing best practices, and developing standardized guidelines for antibiotic use. National governments need to implement these guidelines, invest in healthcare infrastructure, and raise public awareness.

Furthermore, the role of education cannot be overstated. Training healthcare professionals in antimicrobial stewardship practices and providing ongoing education to both healthcare workers and the general public about the dangers of Antimicrobial Resistance and the importance of prudent antibiotic use are vital steps in combating this crisis.

While large-scale initiatives are essential, preventing antibiotic resistance also hinges on individual responsibility. First and foremost, using antibiotics only when truly necessary is crucial. This means consulting a doctor to confirm a bacterial infection before requesting antibiotics, and understanding that they won’t work for viral illnesses like the common cold. Second, adhering strictly to prescribed treatments is essential. Completing the entire course of antibiotics, even if symptoms improve early, ensures all bacteria are eliminated and prevents the development of resistance. Third, avoiding self-medication with leftover antibiotics is vital. Sharing or using leftover antibiotics from previous illnesses is not only ineffective but can also contribute to resistance. Finally, ensuring proper hygiene and infection control measures are paramount. Frequent handwashing, proper food handling, and practicing good cough etiquette significantly reduce the spread of infections, minimizing the overall need for antibiotics in the first place.

By adopting these practices, we can collectively contribute to curbing the rise of antibiotic resistance and safeguard the effectiveness of these life-saving medications for future generations.

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