

**The rise of superbugs: Confronting antimicrobial resistance in Pakistan**

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Dear Madam, Antimicrobials are a collection of drugs, encompassing antibiotics, antifungals, antivirals, and antiparasitics, used to treat infectious diseases in humans, plants, and other animals.<sup>1</sup> In recent years, a common approach to any small infection is to start an antibiotic course without the consultation of a medical professional. This overuse of antimicrobials, rather misuse, has posed a great threat to the control of the ever-growing resistance of these pathogens, turning them into superbugs! AMR or Antimicrobial resistance refers to the phenomenon where these pathogens become unresponsive to the drugs being given to treat them.<sup>1</sup>

While pathogens naturally evolve to resist medications, the overuse of antimicrobials has accelerated this process. AMR might be regarded as the most serious threat to be faced in this century.<sup>2</sup> The question now arises: how does AMR among the people of Pakistan? In Pakistan, several people are unaware of the causative agent of their symptoms and tend to self-medicate with leftover antimicrobials in their households. People also have ready access to Over-The-Counter antimicrobials, which further instigates AMR. Another alarming reason is the aberrant prescription of Broad-Spectrum Antibiotics. In Karachi, Cephalosporins (37%) and Quinolones (11%) are the most commonly prescribed antibiotics, while at Lady Reading Hospital Peshawar, Meropenem (31%) and Ceftriaxone (11%) were the most commonly prescribed antibiotics.<sup>3</sup>

Pakistan, unfortunately, is also a high consumer of antibiotics due to unsanitary conditions in hospitals, consumption of polluted water, and lack of infection control practices.<sup>4</sup> Pakistan witnessed a 65% increase in its antibiotic consumption between 2000 and 2015, earning it the title of the fourth highest consumer of antibiotics

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amongst the Lower Middle-Income Countries (LMIC) in 2015.<sup>5</sup>

These figures are alarming, considering how much further the situation can deteriorate if these numbers continue to rise. AMR will cause infections to become difficult to treat, chemotherapeutical processes and surgeries to become life-threatening, and defeat the advancements of modern medicine.<sup>1</sup> There is an urgent need for new guidelines on antimicrobial use, along with widespread education on antimicrobial resistance (AMR). The control of this situation is essential; otherwise, we may be on our way to a superbug apocalypse!

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