Editorial:

Prevention is Better than Cure: Antibiotic Resistance and Management of Infectious Diseases Mainul Haque

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Prevention is Better than Cure: Antibiotic Resistance and Management of Infectious Diseases

Homo sapiens are enjoying a better-quality life for the last seven to eight decades because of the invention of antimicrobials that have successfully treated many bacterial, fungal, protozoan, parasitic diseases around the globe.1 The easy availability of an antibiotic has promoted a lot of overuse of this important remedial agent called 'miracle drugs'2 all over the world, especially in lower and middle-income countries (LMICs), where, at many occasions' antimicrobials are often sold over the counter without any prescription.³ Additionally, World Health Organization reported that around 50% of antibiotics consumption is without any definite clinical need or irrationally or imprudent.⁴ Microbial drug resistance is a natural phenomenon when these small creatures are in contact with antimicrobials.5,6 Although antimicrobial resistance (AMR) considered as an evolutionary process of microbes of battling antimicrobial chemotherapy, for their ultimate existence learned over billons years; nevertheless, overuse, misuse, irrational, imprudent use of antimicrobials in last 60 years enhanced the process very fast. 7 It is often called "a manmade situation superimposed on nature; there is perhaps a no better example of the Darwinian notions of selection and survival."7 Consequently, AMR is a great concern public health issue of coast-to-coast and global of the present time and is expected to persist for a long time. Antimicrobial resistance is intensifying in a geometric progression that increases statistically significantly treatment-related expenses, both for individuals and of community, morbidity, and

mortality. Additionally, the situation getting worse because almost no new antimicrobials are in the pipeline to appear in the market very soon to counter the AMR.^{1,8,9} Currently, the situation AMR is horrifying as almost all available antibiotics or antimicrobials for clinical use are resistant. Even the last resort for infectious diseases the colistin similarly resistant.¹⁰⁻¹³ Mobile colistin gene (MCR) has nine different varieties and located all over the planet within a few years' time.^{14,15}

Now-a days, it has been advised that infection evasion is much significant than to treat pathogenic infectious diseases. 16,17 Thus, it recalls the famous English quote, "prevention is better than cure." All health professionals must prescribe antimicrobials only on documentary evidence infection, 18,19 and effort need enhance to minimize utilization of antimicrobials by averting healthcare-associated infections (HCAIs) as infection should not occur primarily and to stop transmission.^{20,21} Global Alliance for Infections in Surgery advised seven stratagems to avert HCAIs.22 Those policy and planning are "patient safety, following guidelines, antibiotic stewardship, surveillance, screening and cohorting patients, environmental hygiene, and hand hygiene."22 Prevention antibiotic resistance, especially in LMICs antibiotic stewardship and hand hygiene, are the most effective and equally cost-saving strategies.^{23,24} Antibiotic stewardship and hand hygiene both involve very-low budgetary issues to prevent antimicrobial resistance and management of infectious diseases; consequently, more suitable for resource-poor countries.^{25,26} Although multiple studies have been recommended that multidisciplinary approaches are required for preventing infectious diseases and to avert antibiotic resistance. 9,27,28 The society for healthcare

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epidemiology of America denotes antibiotic stewardship as "a set of coordinated strategies to improve the use of antimicrobial medications with the goal of enhancing patient health outcomes, reducing resistance to antibiotics, and decreasing unnecessary costs."29 Additionally, multiple studies revealed that execution of an antibiotic stewardship modus operandi as a constituent of an infection prevention program was correlated with a decline rate of resistance gram-negative HCAIs in intensive care units (ICU), statistically significant outcome of treatment, diminished hospital and ICU duration of stay, individual and institutional costs of treatment, and minimized overall 30day mortality.30-32 Hand washing is one of the oldest methods of infection prevention strategies and was introduced in obstetrics practice in the last century. 20,33-35 The Hungarian obstetrician Professor (Dr.) Ignaz Phillip Semmelweis first introduced chlorinated lime hand washing strategies in 1847 among obstetric hospital staffs that resulted in large improvements in maternal mortality rates by a significant reduction of puerperal sepsis.^{35,36} In a similar time in the USA,

Dr. Oliver Wendell Holmes implemented hand washing among health care workers (HCWs) to combat puerperal fever.^{35,37} Both Dr. Semmelweis and Dr. Wendell believed that contaminated HCWs hand introduces infection from one patient to another.35,38,39 Afterward, multiple studies around the sphere documented that hand washing itself reduces infection rate significantly and prevent antibiotic resistance. 20,35,40-42 Thereafter, LMICs like Bangladesh should adopt at least stringent handwashing and antibiotic stewardship policy and planning with stringent regulatory measures to prevent infectious diseases antimicrobials resistance, to total stoppage of over-the-counter antibiotic sale and promote prudent utilization of antimicrobials currently available in market through prescription only medicine.

Conflict of Interest

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