

Antibiotic and antimicrobial resistance

Joyce Sima Muttassa

Kinondoni Municipal Council, Tanzania

Abstract

The antibiotic resistance occurs when bacteria change in response to the use of these medicines. Bacteria, not humans or animals became antibiotic resistance. And the resistance occurs when bacteria in the same way that reduce or eliminates the effectiveness of drug, chemicals or other agents designed to cure or continue to multiply causing more harm. Bacteria can do this through several mechanisms are example of antibiotic resistance include methicilline resistance, staphylococcus aureus [ARSA]. Penicillin resistance enterococcus and multi-drug resistance mycobacterium tuberculosis [MDRTB] which is resistance to two tuberculosis drug isonized and rifampicin. while antimicrobial resistance happens when microorganism (such as bacteria, fungi, virus and parasite) change when they are exposed to antimicrobial drugs such as antibiotics, antifungals and anthelmintics. The microorganisms that develop antimicrobial resistance are sometimes referred to as 'superbugs'. As a result the medicines become ineffective and infections persist in the body increasing the risk of spread to others. Antimicrobial resistance is a global public health challenge, which has accelerated by the overuse of antibiotics worldwide. Increased antimicrobial resistance is the cause of severe infections, complications, longer hospital stays and increased mortality. Overprescribing of antibiotics is associated with an increased risk of adverse effects, more frequent re-attendance and increased medicalization of self-limiting conditions. Antibiotic overprescribing is a particular problem in primary care, where viruses cause most infections. About 90% of all antibiotic prescriptions are issued by general practitioners, and respiratory tract infections are the leading reason for prescribing. Multifaceted interventions to reduce overuse of antibiotics have been found to be effective and better than single initiatives. Interventions should encompass the enforcement of the policy of prohibiting the over-the-counter sale of antibiotics, the use of antimicrobial stewardship programmes, the active participation of clinicians in audits, the utilization of valid rapid point-of-care tests, the promotion of delayed antibiotic prescribing strategies, the enhancement of communication skills with patients with the aid of information brochures and the performance of more pragmatic studies in primary care

with outcomes that are of clinicians' interest, such as complications and clinical outcomes. While antibiotic resistance has predominantly been a clinical problem in hospital settings, recent data show resistant organisms have also been detected in patients in primary care [National Collaborating Centre for Infectious Diseases, 2010]. A recent report from the World Health Organization (WHO) clearly states that this is not a phenomenon occurring in just poor or developing countries; the problem of AMR is now found throughout the world [World Health Organization, 2014]. Diseases associated with AMR in primary care include tuberculosis, gonorrhoea (specifically *Neisseria gonorrhoeae*), typhoid fever and Group B streptococcus [Centers for Disease Control and Prevention, 2012]. Community-acquired AMR is of particular concern, as these infections can be common and easily transmitted. The most recent data from the European Antibiotic Surveillance Reports found that antibiotic resistance rates of *Escherichia coli* and/or *Klebsiella pneumoniae* vary markedly between countries. Rates of resistant *E. coli* varied 18-fold between Sweden (1.0%) and Greece (18.2%) and for *K. pneumoniae* the differences were even more pronounced, ranging from 0.7% in Sweden to 64.1% in Greece [European Centre for Disease Prevention and Control, 2011]. However, antibiotic resistance of *E. coli* and *Klebsiella* spp. is highest in Asia ($\geq 60\%$), with rates of 10–30% in Southern Europe, and 5–10% in Northern Europe, Australasia and North America [Livermore, 2012]. European data from 2011 demonstrate an alarming increase in the resistance of these organisms, with around a third of European countries showing a rise in combined resistance to third-generation cephalosporins, fluoroquinolones and aminoglycosides over the previous 4 years [European Centre for Disease Prevention and Control, 2011]. Some of these types of antibiotics are considered by the WHO as 'critically important antimicrobials' in medicine [World Health Organization, 2009], and these broad-spectrum antibiotics should be avoided when narrow-spectrum antibiotics remain effective, as they also increase the risk of *Clostridium difficile* infection, MRSA and resistant urinary tract infections [Public Health England, 2013]. The problem of resistance not only involves the community, it also affects the individual. A recent review describing patients with bacterial urinary tract and

Extended Abstract

respiratory tract infections treated with antibiotics reported that individual resistance may persist for up to 12 months post-treatment, thereby creating situations with the need of requiring second-line antibiotics [Costelloe et al. The rapid emergence of resistant bacteria is occurring worldwide, endangering the efficacy of antibiotics, which have transformed medicine and saved millions of lives.1–6 Many decades after the first patients were treated with antibiotics, bacterial infections have again become a threat.7 The antibiotic resistance crisis has been attributed to the overuse and misuse of these medications, as well as a lack of new drug development by the pharmaceutical industry due to reduced economic incentives and challenging regulatory requirements. The Centers for Disease Control and Prevention (CDC) has classified a number of bacteria as presenting urgent, serious, and concerning threats, many of which are already responsible for placing a substantial clinical and financial burden on the U.S. health care system, patients, and their families. Coordinated efforts to implement new policies, renew research efforts, and pursue steps to manage the crisis are greatly needed.

Biography:

Joyce Sima Muttassa has completed his Nurses Midwife at Kondo Nursing School, in 2018 and currently, working at the Government of Tanzania as a Nurse Midwife. She has published more than 16 papers in Wazo Dispensary

E-mail: joycedalton2018@gmail.com

