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## ANTIBIOTIC RESISTANCE: A THREAT TO MODERN MEDICINE

### Reza Nassiri

Departments of Pharmacology and Toxicology, and, Family and Community Medicine, Michigan State University, East Lansing, Michigan, USA.



Global consumption of antibiotics has increased nearly 40% in the last decade. The incredible rapid antibiotic resistance which is taking place worldwide is not only a serious threat to the practice of modern medicine, but also a threat to global public health. This issue of bacterial resistance is so alarming that it caught the attention of G-20 Summit in both China (2016) and Germany (2017), let alone the U.N. Assembly in 2016 had called for a special meeting of “superbugs” which focused on the escalating drug resistance with respect to the sexually transmitted disease gonorrhea and carbapenem resistant Enterobacteriaceae. While the causes of antibiotic resistance are complex, certainly human behavior play a significant role in the spread of antibiotic resistant genes. In addition to the human behavior, the drivers of resistance include agriculture sector, animal husbandry, household and industry – these factors contribute significantly to the spread of the resistant genes within the ecosystem. Such resistant mechanisms are continuously emerging globally, which threatens our ability to treat common infections, resulting in increased death, disability and costs. Since the development and clinical use of penicillin, nearly 1000 resistant-related beta-lactamases that inactivate various types of antibiotics have been identified. There is also a global concern about the emergence of antibiotic resistant carried by the healthy individuals, the

commensal bacteria. The CDC and WHO surveillance data shows that the resistance in *E. coli* is generally and consistently the highest for antibacterial agents in both human and veterinary medicine. Within communities, resistant bacteria circulate from person to person or from animals and environment to person, or vice versa. With 1 billion people travelling each year, bacteria is becoming more mobile. The bacterial resistance can kill 700,000 worldwide each year and it's been estimated to kill 10 million by 2050. The WHO estimates 78 million people a year get gonorrhea, an STD that can infect the genitals, rectum and throat - there is a widespread resistance to the first-line medicine ciprofloxacin as well as increasing resistance to azithromycin. The emergence of resistance to last-resort treatments known as extended-spectrum cephalosporins (ESCs) is now eminent.

#### Biography

Nassiri, R. (Keynote Address). Antibiotic Resistance: A Global Crisis. 2017 OMED International Seminar, October 7, 2017. Philadelphia, Pennsylvania, USA. Departments of Pharmacology and Toxicology, and, Family and Community Medicine, Michigan State University, East Lansing, Michigan, USA.

[Reza.Nassiri@hc.msu.edu](mailto:Reza.Nassiri@hc.msu.edu)