



BOOK REVIEW

THE STATE OF THE WORLD'S ANTIBIOTICS 2015

PR SHANKAR¹, RM PIRYANI^{2*}, SPIRYANI²

¹ Xavier University School of Medicine, Aruba

² Chitwan Medical College Bharatpur, Nepal

***Correspondence to:** Dr. Rano Mal Piryani, Professor of Internal Medicine & Medical Education, Head- Department of Internal Medicine, Director- Health Professionals Education & Research Center, Chitwan Medical College, Bharatpur, Nepal, Cell No: 00977-9841269522, Email: rmpiryani@gmail.com.

Antibiotics play an important role in modern healthcare and the modern medical system is dangerously and solely dependent on them to fight and prevent infections. Antimicrobial resistance (AMR) is however, becoming increasingly common with the injudicious use of antibiotics being one of the common reasons. AMR is now attracting attention both in the lay and the scientific press and the grim possibility of a world without antibiotics is being visualized. The Center for Disease Dynamics, Economics and Policy, Washington DC, United States of America (USA) has recently published a report on the state of the world's antibiotics. Eight working groups of the Global Antibiotic Resistance Partnership (GARP), one each from India, Kenya, Mozambique, Nepal, South Africa, Tanzania, Uganda, and Vietnam have contributed to the report and Hellen Gelband, Molly Miller-Petrie, Suraj Pant, Sumanth Gandra, Jordan Levinson, Devra Barter, Andrea White and Ramanan Laxminarayan have authored the report. The authors of the report mention that two factors are driving the world's increased requirement for antibiotics. Rising incomes is increasing access to antibiotics and an increased demand for animal protein is resulting in intensification of agriculture and animal husbandry with a greater potential for antibiotic use. The book briefly mentions the tool, Resistance Map which brings together AMR statistics from a number of nations. There has been a huge increase in antibiotic consumption in livestock especially among developing nations.

Chapter 1 discusses antibiotic resistance in 2015. Methicillin-resistant *Staphylococcus aureus* (MRSA), extended-spectrum beta-lactamase producers (ESBL), carbapenem-resistant enterobacteriaceae,

are among the major organisms described and resistance is increasing among nearly all micro-organisms. Different countries have or are in the process of setting up AMR surveillance systems which are briefly described in the book.

Chapter 2 focuses on human use of antibiotics. Globally the consumption of the two groups of 'last resort' antibiotics, carbapenems and polymyxins has been rising. As mentioned previously the developing world has been witnessing huge increases in antibiotic consumption. The table showing public campaigns to improve use of antibiotics among outpatients provides an overview of important campaigns. Antibiotics in agriculture and the environment is the focus of chapter 3. Antibiotic use in agriculture is greater than their use among humans. Regulating antibiotic use in agriculture and animal husbandry is becoming a priority area globally.

Antibiotics lose effectiveness over time and the report mentions how each new generation of antibiotics has proven exponentially more expensive than its precursors. Issues of antibiotic quality (substandard and counterfeit medicines) persist in many areas of the world and reintroduction of older antibiotics could be an option as bacteria 'forget' about antibiotics which are not in common use.

Chapter 4 mentions about 1) the stewardship and effective public health measures contributing towards a decline in the use of antibiotics, and hence antibiotic resistance, 2) feasible and practicable interventions that could contribute in maintaining antibiotic effectiveness and 3) alternative and complementary approaches applied to control and treat infections.

Chapter 5 discusses what works at the country level. Vaccines could be an important initiative to reduce antibiotic use. It also describes the six strategies that contribute to slowing resistance and maintaining the effectiveness of current drugs.

Excellent maps and tables add to the information presented in the book. High production standards and effective use of color characterize this well-written and presented report. The list of references provided at the end of the book is comprehensive and will be of interest to readers interested in knowing more about the issues discussed. This book will be of interest to specialists in the field of AMR and to health professionals interested in preserving the power of antibiotics for future generations. The technical language used may make reading the book difficult for lay persons but those interested can still do so.

About the book: Center for Disease Dynamics, Economics & Policy. 2015. State of the World's Antibiotics, 2015. CDDEP: Washington, D.C. The report is freely available at http://cddep.org/publications/state_worlds_antibiotics_2015#sthash.RKLp0pcM.dpbs and can be downloaded for free from https://cddep.org/sites/default/files/swa_2015_final.pdf