

Macro-securitization of Antimicrobial Resistance: An Indian Perspective

Gaurav Tyagi

Mr. Gaurav Tyagi is Assistant Professor at Special Center for National Security Studies, JNU.

Summary

Global leaders have discovered from COVID-19 that we cannot overlook the threats from infectious disease. One such impending threat is and which may have global repercussions is Antimicrobial Resistance. As per the securitization model, for an existential threat to become a security issue, it needs to have a speech act followed by a receptive audience and ultimately, a policy-driven solution by the government. Finding inadequacy of securitization theory, the concept of macro-securitization was introduced by the same author to understand the phenomenon.

Background:

The COVID-19 pandemic unleashed havoc on the world; today the number of deaths from COVID-19 globally stand at a staggering 67.4 lakh. Global leaders have learned from COVID-19 that we cannot ignore the threats from infectious disease. One such threat that is looming large and has global repercussions is Antimicrobial Resistance (AMR).

In this article, we have analyzed the threat of Antimicrobial Resistance in India from the lens of securitization, as suggested by Barry Buzan, Ole Wæver, and Jaap de Wilde in 1998. As per the securitization model, for an existential threat to become a security issue, it needs to have a speech act (notably by government, politicians, bureaucrats, etc.) followed by a receptive audience and ultimately, a policy-driven solution by the government. It was found that the securitization theory was not sufficient for security issues that are global in nature; hence Barry Buzan and Ole Wæver (2009) came up with the concept of macro-securitization which is an “overarching securitization that relates, organizes, and possibly subsumes a host of other middle-level securitizations.”

Result: The speech act, audience, and policy-driven solutions are part of India’s response in tackling AMR, and it has become a security issue for healthcare professionals. The need of the hour is to educate primary health caregivers in Indian villages and the general population. Close coordination is required between the Centre and state governments.

Antimicrobial Resistance: An Introduction

As per the World Health Organization (WHO), “Antimicrobial Resistance (AMR)

occurs when bacteria, viruses, fungi, and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death. As a result of drug resistance, antibiotics and other antimicrobial medicines become ineffective, and infections become increasingly difficult or impossible to treat.”

The threat of AMR is as old as discovering the first antibiotic itself. Penicillin was discovered by Alexander Fleming when he noticed that a contaminant, *Penicillium notatum* in his Petri dishes was able to ward off the growth of *Staphylococcus aureus*. Thus began the golden era of antibiotics, and soon it was assumed that the world would be able to treat most infectious diseases with the ‘golden bullet’. The emergence of antimicrobial resistance was almost simultaneous with the discovery of antibiotics, and in some cases, resistance to a newly introduced antibiotic emerged in less than a year. The total cost of treating a patient with drug resistant infection is approximately double that of the susceptible organism. It increases the mortality rate and length of hospital stay. The menace of Antimicrobial resistance is now one of the major talking points of many international political and scientific agendas as the pace of antimicrobial drug development is slower than that of the emergence of resistance. The situation further becomes a significant cause of concern for society because, since 1987, there has been a ‘discovery void’ of new antibiotics. As rightly pointed out by Sir Alexander Fleming, “public will demand [the drug and] then will begin an era ... of abuses.”

AMR – Global Perspective

As per the Review on Antimicrobial Resistance, mandated by the Government of UK, AMR would account for 10 million deaths by 2050, leading to a loss of economic

potential of \$100 trillion between 2015 and 2050.¹ The UN has envisioned 17 Sustainable development goals, of which the emergence of AMR threatens seven. The global burden of Antimicrobial resistance assessed in 2019 amongst 88 pathogen-drug combinations was estimated to be 4.95 million deaths, of which AMR was directly responsible for 1.27 million. The majority of AMR-related deaths were in lower- middle income group countries, making it a top priority for some of the world’s poorest countries

The WHO has identified *E.coli*, *S. aureus*, *K pneumoniae*, *S pneumoniae*, *A baumannii*, and *Pseudomonas aeruginosa* as priority pathogens concerning AMR. These pathogens each were responsible for more than 250000 deaths attributed to AMR. Three infectious disease syndromes were responsible for the highest disease burden associated with AMR i.e., thorax and lower respiratory infections, intra-abdominal infections, and bloodstream infections. Resistance to Beta-lactam antibiotics (Cephalosporins, Carbapenems and penicillin) and fluoroquinolones – the first line of therapy against severe infections – is associated with 70 per cent of deaths attributable to AMR.²

AMR– Indian Perspective

In line with global data, Indian studies have also found *E. coli* to be the most isolated pathogen, followed by *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus*.

The primary cause of worry for Indian policymakers is the rising patterns of Antimicrobial resistance in the Indian subcontinent. Thirty-six per cent of *E. coli*, 55 per cent of *Klebsiella pneumoniae*, and 87.5 per cent of *Acinetobacter baumannii*

isolates were found resistant to carbapenems (often considered a last resort antibiotic for drug-resistant gram-negative bacteria). *Methicillin resistance Staphylococcus aureus* (MRSA) emergence rate has increased from 28.4 per cent in 2016 to 42.6 per cent in 2021, an increase of about 50 per cent in just six years,³ thereby limiting the availability of treatment options to clinicians. Colistin resistance has also emerged in India, where dual resistance *Klebsiella pneumoniae* (Carbapenem-Colistin) had a mortality rate of 69.1 per cent.

Reasons for AMR

Antimicrobial resistance occurs naturally; it is a defence mechanism employed by bacteria to evade antibiotics, but misuse or inappropriate use of antibiotics accelerates the process. In one of the studies, it has been found that around 50 per cent of antibiotics used in acute care hospitals are inappropriate.⁴ It is common knowledge that antibiotics do not work against the common cold or flu; still, the flu season is a primary driver of antibiotic consumption across the globe.⁵ Another major reason for antimicrobial generation is the usage of antibiotics in animals. Over 70 per cent of antibiotics used today are for non-therapeutic use on animals,⁶ i.e., as a growth promoter. Other reasons for AMR include poor infection control in hospitals, lack of sanitation in households, non-availability of rapid diagnostics tests, etc.

Combating AMR

As per the Centre for Disease Control, to combat AMR globally, we need to have a multi-pronged approach, which should include:-

- a) Strict Implementation of infection prevention and control practices;
- b) Judicious use of antibiotics;

- c) Implementation of data and tracking systems and reporting resistance patterns locally and globally;
- d) Strengthening diagnostics lab for rapid identification of resistant bacteria.⁷

Apart from these, world leaders must ensure easy access to vaccines and diagnostics to lower income countries and more funding for developing new antibiotics and rapid diagnostic tests.

AMR Containment Policies

The year 2014 was pivotal in making AMR not just a concern for healthcare professionals but as a global political agenda. The then Prime Minister of UK, David Cameron appeared on BBC for an interview and stressed upon the urgency to tackle AMR and said that world will be “cast back into the dark ages of medicine” and “if we fail to act, we are looking at an almost unthinkable scenario where antibiotics no longer work, and we are cast back into the dark ages of medicine where treatable infections and injuries will kill once again.” He also mentioned during this interview that he discussed the issue of AMR with then-US President Barack Obama and German Chancellor Angela Merkel. President Obama issued an executive order in the same year in September and stressed that rise of AMR is a serious threat to public health and the economy and declared that “combating antibiotic-resistant bacteria is a national security priority.” Next year, during the G7 presidency, Germany took up the matter and convinced seven Heads of State for a “declaration on AMR”. The declaration stated that “Antimicrobials play a crucial role for the current and future success of human and veterinary medicine. We fully support the recently adopted WHO Global Action Plan on Antimicrobial Resistance. We will develop or review and effectively

implement our national action plans and support other countries as they develop their own national action plans.”⁸

Action Plan on AMR

To harmonize the efforts in combating AMR on a global scale, in May 2015 the WHO released a document called the *Global Action Plan (GAP)* on Antimicrobial Resistance and delineated the following five objectives:

- to improve awareness and understanding of antimicrobial resistance through effective communication, education and training;
- to strengthen the knowledge base and evidence through surveillance and research;
- to reduce the incidence of infections through effective sanitation, hygiene and infection prevention measures;
- to optimize the use of antimicrobial medicines in human and animal health; and
- to develop the case for sustainable investment that considers all countries’ needs and to increase investment in new medicines, diagnostic tools, vaccines and other interventions.⁹

Following the WHO’s GAP on AMR, many countries have formulated their own National Action Plan in combating AMR including India. India formulated its National Action Plan (NAP) on AMR in April 2017¹⁰ and submitted it at the 70th World Health Assembly at Geneva in 2017. In its NAP, India added one more objective to the strategies suggested by GAP; to “Strengthen India’s leadership on AMR through collaborations on AMR at international, national, and sub-national levels”. Three states have also formulated action plans for

AMR containment: Kerala, Delhi, and Madhya Pradesh. ¹¹

Prime Minister Narendra Modi, in his monthly ‘Mann ki baat’ to the nation, stressed on the judicious use of antibiotics. During the third Global High-Level Conference on Antimicrobial Resistance in Muscat, Oman, Union Minister of Health Bharti Pawar pointed out that antimicrobial resistance is a silent and invisible pandemic and countering it features prominently on the national health agenda and has garnered political will at the highest level.¹²

India has also established an AMR surveillance network that comprises 30 tertiary care hospitals, and to further strengthen it, 36 sites from different states have been included in the surveillance network. Concerned ministries have supported the Delhi Declaration on AMR, an inter-ministerial initiative for AMR containment. ¹³

Conclusion

Antimicrobial resistance is an existential threat and the policy response of Government of India in securitizing this threat will help in tackling the menace of Antimicrobial resistance. Pronouncements have been made at the highest level by the Government, Prime Minister Modi himself saying that “India recognizes anti-microbial resistance as one of the major global threats to public health¹⁴”. The Government of India has also implemented various policies as suggested by the WHO. But the challenge of AMR in India requires greater coordinated efforts at the state level. Health is a state subject and state governments need to act swiftly and effectively. As argued in the context of China, one of the shortcomings of the macro-securitization theory is that insufficient power is accorded to sub-state and sub-national actors.¹⁵ It also holds true in the Indian context, as the focal point of

policy implementation is at the state level. We require sustained efforts at state and central level to tackle the AMR more effectively. One of the important aspects of the macro-securitization theory is the receptive audience and “effective securitization is audience-centred¹⁶” There have been efforts at the national level and in some cases, at the state level, but sensitization of the audience and clinicians concerning AMR is still a work in progress and requires more sensitization programmes from the Government. India was the highest consumer of antibiotics in 2010,¹⁷ and there have also been reports regarding the rampant over-the-counter sale of antibiotics in India.

Endnotes:

- ¹ J. Chair O’Neill, “Tackling Drug-Resistant Infections Globally: Final Report and Recommendations”, *Review on Antimicrobial Resistance*, London, UK, 2016, pp. 1-84.
- ² “Global Burden of Bacterial Antimicrobial Resistance in 2019: A Systematic Analysis”, *Antimicrobial Resistance Collaborators, Lancet*, 12 February 2022,399 (10325), pp.629-655, doi: 10.1016/S0140-6736(21)02724-0. Epub 19 January 2022. Erratum in *Lancet*. 1 October 2022, 400(10358), 1102. PMID: 35065702; PMCID: PMC8841637.
- ³ “India’s Antimicrobial Resistance Surveillance & Research Initiative”, 5th Annual Report, ICMR.
- ⁴ T.H. Dellit, R.C. Owens, J.E. McGowan Jr., , “Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America guidelines for developing an institutional program to enhance antimicrobial stewardship”, *Clinical Infectious Diseases* 44, 2007, pp.159-77.
- ⁵ T.P. Van Boeckel, S. Gandra, A. Ashok, “Global antibiotic consumption 2000 to 2010: an analysis of national pharmaceutical sales data”, *The Lancet Infectious diseases*,.,14(8), 2014, pp. 742-750.
- ⁶ “Rapid Diagnostics: Stopping Unnecessary Use Of Antibiotics. The Review On Antimicrobial Resistance”, *O’Neill Report*, 2015.
- ⁷ “Global Strategies to Fight Antibiotic Resistance”, Centre for Disease Control at <https://www.cdc.gov/drugresistance/intl-activities/global-strategies.html> Accessed on 02-05-2023
- ⁸ H. Inoue, “Strategic approach for combating antimicrobial resistance (AMR)”, *Global Health and Medicine*,2019.
- ⁹ “Global action plan on antimicrobial resistance”, World Health Organisation at <https://www.who.int/publications/i/item/9789241509763> Accessed on 05-05-2023
- ¹⁰ “National Action Plan on Antimicrobial Resistance (NAP-AMR)” at [https://www.who.int/publications/m/item/india-national-action-plan-on-antimicrobial-resistance-\(nap-amr\)-2017-2021](https://www.who.int/publications/m/item/india-national-action-plan-on-antimicrobial-resistance-(nap-amr)-2017-2021) , Accessed on 05-05-2023
- ¹¹ “State Action Plan”, National Centre for Disease Control <https://ncdc.gov.in/index1.php?lang=1&level=3&sublinkid=584&lid=439> . Accessed on 14-05-2023
- ¹² “Antimicrobial Resistance Is a Silent, Invisible Pandemic: Union Minister Bharati Pawar”, *Outlook*, 24 November 2022 at <https://www.outlookindia.com/national/antimicrobial-resistance-is-a-silent-invisible-pandemic-union-minister-bharati-pawar-news-239857>. Accessed on 03-05-2023
- ¹³ “Antibiotic Stewardship Program (AMSP) on a pilot project basis in 20 tertiary care hospitals across India to control misuse and overuse of antibiotics in hospital wards and ICUs initiated by ICMR”, Press Information Bureau, 5 August 2022.
- ¹⁴ J. O’Neill “PM Modi Takes Pledge to Support AMR; Economic Cost Could Hit \$100 Tn By 2050.” *The Economic Times*, 24 May 2016.
- ¹⁵ N. Thomas, C. Yuk-ping Lo”The Macro-securitization of Antimicrobial Resistance in China”, *Journal of Global Security Studies*, Volume 5, Issue 2, 2019.
- ¹⁶ T. Balzacq “The Three Faces of Securitization: Political Agency, Audience and Context”, *European Journal of International Relations*, Volume 11, Issue 2, 2005.
- ¹⁷ T. Van Boeckel S. Gandra, A. Ashok, Q. Caudron, B. Grenfell, S. Levin, R. Laxminarayan, “Global Antibiotic Consumption 2000 to 2010: An Analysis of National Pharmaceutical Sales Data.” *The Lancet: Infectious Diseases*, 2014.