

Role of the Indian Association of Preventive and Social Medicine (IAPSM) in Combating Antimicrobial Resistance (AMR)

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Introduction:

Antimicrobials are medicines used to prevent and treat infectious diseases in humans, animals, and plants. They include antibiotics, antivirals, antifungals, and antiparasitics.<sup>[1]</sup> However, the effectiveness of these medicines is under threat due to the growing issue of Antimicrobial Resistance (AMR). Antimicrobial Resistance occurs when bacteria, viruses, fungi, and parasites evolve and no longer respond to antimicrobial treatments, rendering these drugs ineffective. This makes infections increasingly difficult, or even impossible, to treat, thereby raising the risk of disease spread, severe illness, disability, and death. Although AMR is a natural process driven by genetic changes in pathogens, its acceleration is largely fueled by human activity, particularly the misuse and overuse of antimicrobials across various sectors.<sup>[1, 2]</sup> As AMR continues to pose a global health threat, coordinated efforts to combat it have become crucial. Hence we are exploring the pivotal role of Community Medicine / Preventive and Social Medicine (PSM) in addressing the global challenge of antimicrobial resistance.


Burden of AMR

Antimicrobial resistance presents a major threat to global health, contributing to increased mortality

and morbidity rates. The World Health Organization (WHO) has declared AMR a “Silent Pandemic,” emphasizing the critical need to tackle this issue.<sup>[2]</sup> AMR poses a worldwide threat, with drug-resistant diseases claiming the lives of 4.71 million individuals in 2021, of which 1.14 million deaths were directly related to AMR.<sup>[3]</sup> In India, the impact of AMR is profound, with 987,254 deaths associated with AMR and 266,734 deaths attributable to AMR in 2021.<sup>[3]</sup> AMR adds to significant costs, for both health systems and national economies, posing a problem for all countries at all income levels. AMR creates the need for more expensive and intensive care, and affects the productivity of patients and caregivers through prolonged hospital stays.

History of IAPSM

The Indian Association of Preventive and Social Medicine (IAPSM) is a not-for-profit national-level professional body in the field of Community Medicine/ Preventive and Social Medicine/ Public Health, founded in 1974.<sup>[4]</sup> As on today, IAPSM has 8,800 plus members across India, serving in medical colleges, national and state government health departments, and various health institutes involved in research, training, epidemiology, and surveillance. Many of its members also work as experts with

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international development agencies, non-governmental organizations (NGOs), or as freelance public health consultants.

### **Role of IAPSM in Public Health**

IAPSM addresses a wide range of public health issues, including personal and environmental health, national health programs, communicable and non-communicable diseases, tobacco and alcohol control, adolescent and geriatric health, mental health, and health advocacy.<sup>[5]</sup> The association actively works to generate evidence for policy change while also training professionals in Community Medicine to strengthen the public health workforce. Its activities include organizing academic events such as national / state/ zonal conferences, workshops, webinars and seminars, offering courses, conducting research, and providing technical support. IAPSM is also involved in community intervention projects that tackle various public health challenges. These efforts are often carried out in collaboration with central and state government health authorities, international development agencies, NGOs, and corporate social responsibility (CSR) units of industries. Recognizing that health is inherently multisectoral, IAPSM collaborates with organizations from diverse fields such as agriculture, industry, urban planning, climate, and education to achieve its goal of fostering a healthier nation. Additionally, IAPSM plays a pivotal role in promoting research and evidence-based practices through its PubMed-indexed journal, the Indian Journal of Community Medicine, which serves as a vital platform for disseminating public health knowledge and advancing the field of public health.<sup>[5]</sup>

### **Challenges in addressing Antimicrobial Resistance**

Addressing AMR poses numerous challenges, requiring coordinated efforts across multiple sectors. These include the overuse and misuse of antibiotics in both human and veterinary medicine, non-prescription access to antibiotics, and irrational usage in community settings. The misuse of

antibiotics in agriculture, animals, and fisheries further exacerbates the issue, contributing to the spread of resistant pathogens through the food chain and environment.<sup>[6]</sup> Inadequate infection prevention and control measures in healthcare delivery systems at all levels primary, secondary, and tertiary complicate efforts to manage AMR effectively. Additionally, there is a lack of emphasis on AMR in medical education, insufficient research into new antimicrobials, and gaps in evidence due to inadequate surveillance and data quality. Innovation in antimicrobial development is slow, and the need for stronger policy advocacy to regulate antibiotic use and foster stewardship across sectors is urgent.<sup>[7]</sup> Tackling these challenges requires a comprehensive, multi-stakeholder approach involving public health professionals, policymakers, researchers, and industry leaders.

IAPSM is uniquely positioned to lead the fight against antimicrobial resistance in India. With a robust network of over 8,800 plus members spread across the country, It brings together professionals working in medical colleges, national and state governments and leading health institutes. Many of its members allowing IAPSM to leverage diverse expertise and experiences in its efforts to combat AMR. Additionally, the association's close collaboration with the Government of India on a variety of public health initiatives places it in a powerful position to influence policy, advocate for effective AMR strategies, and ensure the implementation of evidence-based interventions. This extensive reach and influence across multiple sectors make IAPSM a vital player in addressing the growing burden of AMR and driving the national response forward.

### **National Alliance of Medical Professionals on Antimicrobial Resistance (NAMP-AMR) - IAPSMs Key Contribution in the Fight Against AMR**

IAPSM plays a pivotal role as a key partner in the National Alliance of Medical Professionals on

Antimicrobial Resistance (NAMP-AMR), a groundbreaking initiative led by the Indian Medical Association (IMA) in collaboration with major stakeholders such as NITI Aayog, the Ministry of Health and Family Welfare (MoHFW), Directorate General of Health Services (DGHS), World Health Organization (WHO), National Centre for Disease Control (NCDC), National Accreditation Board for Hospitals and Healthcare Providers, and IAPSM itself<sup>[8]</sup>

As part of an alliance that unites 52 medical specialty organizations and associations, IAPSM has been instrumental in shaping comprehensive strategies to tackle AMR across various sectors. IAPSM Secretary General Prof. (Dr.) Purushottam Giri, was involved in deliberations with different stakeholders during the inaugural meeting of the National Alliance of Medical Professionals (NAMP) on Antimicrobial Resistance (AMR) at IMA Headquarter Delhi, on 07th July 2024. The alliance focuses on six critical areas: raising AMR awareness and advocacy, strengthening laboratory capacities and surveillance, enhancing infection prevention and control (IPC), optimizing antimicrobial use through stricter regulations and stewardship programs, advancing research and innovation, and fostering both national and international collaborations. IAPSM's deep-rooted involvement, through its members' expertise in public health, research, and epidemiology, positions it as a key driver in developing this collaborative roadmap, which strengthens India's response to AMR and supports the forthcoming National Action Plan on AMR 2.0. This strategic initiative not only bolsters India's efforts in combating AMR but also positions IAPSM as a leading force in global health efforts against this pressing challenge.

The NAMP- AMR meeting successfully established a framework for ongoing collaboration and outlined several actionable strategies for member associations to adopt. Among the key

recommendations is the allocation of specific sessions on AMR at every national and state conference, ensuring continuous focus on the latest research and developments in the field. Each member association is also encouraged to appoint an AMR Coordinator responsible for overseeing the implementation of AMR initiatives and ensuring the continuity of efforts. The promotion of the AMR Pledge among members aims to foster a culture of responsible antimicrobial use and stewardship. Additionally, AMR and infection prevention and control (IPC) are to be officially recognized as priority focus areas, with enhanced visibility across member websites to boost commitment and awareness.<sup>[8]</sup>

Active participation in World Antimicrobial Resistance Awareness Week was also recommended as a vital initiative to raise public and professional awareness of AMR challenges and advancements. To contribute to global knowledge, scientific publications on AMR should be encouraged, ensuring that evidence-based practices are widely shared. Capacity-building programs for members are crucial to enhancing their expertise in effective AMR management. Regular review meetings are necessary for assessing progress, sharing best practices, and refining strategies under the NAMP-AMR framework. IAPSM is fully committed to following these recommendations and has already taken significant steps in this direction. Recently, IAPSM Secretary General Prof. (Dr.) Purushottam Giri has delivered a keynote talk on the "Role of IAPSM in Combating AMR" at 29th Annual Andhra Pradesh State Joint Conference of IAPSM & IPHA, held at Sri Venkateswara Medical College, Tirupati on 31st August 2024, reinforcing its leadership in the fight against AMR.

### **Way Forward**

IAPSM holds significant potential to address AMR across various sectors, including primary healthcare, community settings, all levels of

healthcare delivery, academia, research, and policy advocacy. By leveraging its expertise and network, IAPSM can drive impactful initiatives that enhance awareness, improve antibiotic stewardship, and influence evidence-based policies to combat the growing threat of AMR.

### **AMR in Primary Healthcare Setting**

In primary healthcare settings, the challenge of AMR is exacerbated by factors such as the over-prescription of antibiotics, lack of adherence to treatment guidelines, and limited diagnostic capabilities, often leading to irrational antimicrobial use. This is where IAPSM can be a game-changer. By utilizing its vast network of public health professionals, IAPSM can promote effective antibiotic stewardship and enhance training for primary care providers, ensuring they have the knowledge and tools to prescribe antibiotics judiciously. Additionally, IAPSM can lead community-based education campaigns to raise awareness about the dangers of antibiotic misuse, ultimately reducing patient demand for unnecessary antibiotics and curbing the rise of resistance at the grassroots level.

### **AMR in Secondary and Tertiary Healthcare Settings**

In secondary and tertiary healthcare settings, the burden of AMR is intensified by factors such as inadequate infection prevention and control (IPC), overuse of broad-spectrum antibiotics, and insufficient antimicrobial stewardship programs.<sup>[9]</sup> These environments often serve as breeding grounds for resistant infections, further complicating patient outcomes and healthcare delivery. IAPSM, with its expertise in epidemiology, health management, and surveillance, can be a transformative force in addressing these challenges. By spearheading the implementation of robust IPC protocols and stewardship initiatives, IAPSM can help optimize antimicrobial use in hospitals and specialized care centers. Additionally, the association can promote regular AMR audits, training programs for healthcare

workers, and foster a culture of accountability and evidence-based practices, significantly reducing the spread of resistant infections in these critical care settings.

### **AMR in Academia**

In academia, the fight against AMR faces a different set of challenges due to the insufficient integration of antimicrobial resistance education into medical and public health curricula. Many future healthcare professionals graduate with a limited understanding of antibiotic stewardship and infection prevention, which perpetuates the cycle of misuse in clinical practice. IAPSM, closely working with the National Medical Commission (NMC) in recent times, is uniquely positioned to change this narrative. By advocating for the inclusion of comprehensive AMR modules in medical education and providing expert-driven training programs, IAPSM can ensure that the next generation of healthcare professionals is well-equipped to tackle AMR.

### **AMR in Research**

The global battle against AMR is hindered by a significant gap in research, with limited focus on developing new antimicrobials, innovative diagnostic tools, and alternative treatment strategies. Additionally, there is a lack of robust, localized data on resistance patterns, which impedes effective interventions. IAPSM can be a pivotal force in overcoming these challenges. With its vast network of experts in epidemiology, public health, and preventive medicine, IAPSM can foster collaborative research efforts aimed at generating critical evidence and developing novel solutions to combat AMR. By promoting research on antimicrobial stewardship, vaccinology, resistance mechanisms, and surveillance systems, IAPSM can help bridge the knowledge gap, guiding policymakers and healthcare providers in implementing evidence-based strategies to reduce the burden of AMR.



**Conclusion:**

In conclusion, the Indian Association of Preventive and Social Medicine stands at the forefront of India's battle against antimicrobial resistance, uniquely equipped to drive impactful change across the healthcare spectrum. With its extensive network of experts, strong collaborations with government bodies, and deep involvement in research, education, and policy advocacy, IAPSM is poised to address the multifaceted challenges of AMR. By fostering antibiotic stewardship in primary healthcare, enhancing infection prevention and control in secondary and tertiary settings, integrating AMR education in academic curricula, and promoting research and innovation, IAPSM can play a transformative role in shaping a coordinated, evidence-based response to AMR. As India faces the escalating threat of AMR, IAPSM's leadership is crucial in driving a national agenda that will not only combat this growing public health crisis but also set a global example of effective multisectoral collaboration.

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