FIND
Diagnosis for all

PREVENTING ANTIMICROBIAL RESISTANCE TOGETHER:

BREAKING SILOS FOR CROSS-SECTOR COLLABORATION

23 November, 2022

Le Meridien, Desire, New Delhi, India

Overview

Antimicrobial resistance (AMR) is now one of the top 10 global health threats, responsible for more deaths annually than HIV and malaria combined. Fuelled by rampant misuse of antibiotics, the death toll is projected to reach 10 million per year by 2050, with 2 million of those deaths occurring in India. Year-on-year, resistance to the most common, broad-spectrum antibiotics is growing in India, undoing decades of medical progress. There is now a very real possibility that, if AMR is left unchecked, even the simplest infection could become untreatable.

Considerable efforts have been made in India in recent years, both at policy and programmatic levels, to implement antimicrobial stewardship and strengthen AMR surveillance. While there has been significant progress, particularly in surveillance at the tertiary care level, the COVID-19 pandemic adversely impacted the progress made in the space of AMR, reducing both funding and focus. There remains a genuine need for fit-to-purpose diagnostic tests that can guide precise antibiotic prescription, as well as decentralized surveillance systems that can provide the data needed to inform policy decisions and public health action. These tools are essential to slow AMR and preserve the effectiveness of existing and new antimicrobial agents.

FIND recently convened esteemed stakeholders from across public and private sectors to discuss ways in which the growing problem of AMR can be tackled in India by breaking silos and enhancing cross-sector collaboration. The meeting featured two insightful discussion panels, the first focusing on ***AMR stewardship: an integrated response to the AMR crisis*** and the second on ***One Health and diagnostics***. Integrated solutions have the potential to reduce inappropriate use of antibiotics across human, animal, and environmental channels and curb the spread of AMR. By leveraging opportunities to work with partners on-ground across India, we can combat the scourge of AMR and protect patient and public health.

Key takeaways:

1. Across India, efforts must be directed towards making general population aware about the growing challenge of AMR.
2. There exists an urgent need to educate medical professionals on evidence based antimicrobial prescription and enforcing regulation to discourage over-the-counter availability of antibiotics.
3. Decentralized and systematic use of fit-for-purpose diagnostics at point-of-care will allow healthcare providers at all levels to practice rational antimicrobial prescription.
4. Robust AMR surveillance from the community level up to the tertiary level is needed to inform policy and public health action.
5. Digitization of diagnostic data will facilitate country-wide integration to ensure a consistent data-driven approach.
6. Efforts to tackle AMR must be collaborative, utilizing diverse resources and knowledge from all relevant sectors.
7. Diagnostic tests provide actionable information that enable reasonable use of antimicrobials. The diagnostic industry has a key role to play in the battle against AMR and show the true medical and economic value of diagnostics to support antibiotic stewardship, preserving the efficacy of antibiotics and improving patient care today and for future generations.

Availability of diagnostic tools and rational use of antimicrobials are vital tools in tackling AMR

> **AMR stewardship cannot be carried out by one single organization, it has to be a handshake approach between the public, doctors, the pharmaceutical industry, pharmacists, policy makers, lab leaders and the entire ecosystem, which involves other countries too.**
>
> Dr Yogendra Kumar Gupta,
> *Principal Advisor India Strategy Development,*
> *Global Antibiotic Research and Development Partnerships (GARDP)*

- ***Following the COVID-19 pandemic there is an increased need for education on appropriate antibiotic use:*** antibiotic use in India dramatically increased in the early days of the COVID-19 pandemic, driven by the hypothesis that these agents could be used to treat COVID-19 and its secondary infections. This perception, which was originally based on incomplete and immature evidence and was eventually found to be incorrect, counteracted much of the pre-pandemic education among patients and healthcare professionals regarding the appropriate use of antibiotics. As such, wide-reaching education is now required to ensure every individual understands the importance of rational antibiotic use.
- ***AMR stewardship must go hand-in-hand with effective diagnostics:*** recent data from Indian Council of Medical Research (ICMR) led national surveillance exercise has shown that broad-spectrum antibiotics are widely used across tertiary hospitals in India. These practices are underpinned by low availability and usage of diagnostic tests to guide prescribing practices. To change the physician's behaviour and promote the use of appropriate antibiotics, it is critical to implement effective diagnostic tools and strategies to definitively identify causative organisms and reduce the period of doubt, during which broad-spectrum antibiotics are often used.

> **Our best bet at this time is that we should reduce usage from broad spectrum to narrow spectrum antimicrobials, and that is something that should be practised across all hospitals.**
>
> Dr Kamini Walia,
> *Senior Scientist, ICMR*

- ***Decentralized diagnosis and surveillance are key to monitoring and slowing AMR:*** effective use of diagnostics and continuous surveillance of diseases such as HIV and tuberculosis (TB) in communities across Africa have enabled point-of-care treatment options to be adapted in response to AMR patterns. To roll out similarly decentralised programmes to tackle AMR in India, diagnostics must be made available at primary and secondary healthcare facilities. This will require appropriate pricing to ensure these tools are affordable, as well as strengthening of supply chain and procurement, throughout the healthcare system.

> **Broadly speaking, we need to look at access, affordability, and availability of diagnostics. From there, we can ensure optimal use of the available tools.**
>
> Dr Terence Fusire,
> *Technical Officer, Essential Drugs and Medicines,*
> *Department of Health Systems Development, WHO SEARO*

> **Building indigenous innovations is going to be one of the most important factors in addressing AMR in India.**
>
> Dr Taslimarif Saiyed,
> *CEO and Director, C-CAMP*

- ***The Centre for Cellular and Molecular Platforms (C-CAMP) is working to support the fight against AMR:*** the India AMR Innovation Hub (IAIH) is a collaborative platform of national and global stakeholders working together with the aim of reducing the AMR burden in India. Its vision is to pilot innovative interventions that, if successful, can be disseminated across the country.

- ***Science and technology innovations must play lateral roles in combatting AMR:*** AMR stewardship practices must be carried out in line with the most up-to-date scientific knowledge. For example, diagnostics developed based on current understanding of infections, can be useful in guiding infection treatment. Alongside scientific advances, technology has several roles to play in slowing AMR. These include communicating AMR awareness at both clinical and community levels, developing rapid but affordable diagnostic tests, such as the rapid antimicrobial susceptibility tests (and ensuring widespread distribution of antimicrobials.

- ***Leveraging existing capabilities can support indigenous solutions to AMR in India:*** initiatives such as the Indigenisation of Diagnostics (InDx), were set up in response to the COVID-19 pandemic. As a result of such initiatives, India now has the capacity to manufacture 1 million COVID-19 diagnostic tests per day. The infrastructure supporting this capacity can be leveraged to mass produce and disseminate diagnostics and antimicrobials for use in the space of infectious diseases.

- ***Rapid development and approval of new and effective antimicrobials is now needed:*** the cost of treating a drug-resistant infection in India is around 40% higher than that of a drug-susceptible one. In the face of rapidly rising AMR, new antimicrobials to treat resistant diseases are needed to reduce mortality across India. In order to prioritize the approval and availability of new antimicrobials, India needs a 'regulatory superhighway' whereby an accelerated pathway is used for those agents that are shown to be effective against drug-resistant bacteria.

> **We must recognise the role of every individual in tackling AMR.**
>
> Dr Terence Fusire,
> *Technical Officer, Essential Drugs and Medicines,*
> *Department of Health Systems Development, WHO SEARO*

- ***Affordability and accessibility of antimicrobials must be carefully balanced with the known potential for overuse:*** for the first time, AMR was a factor in decision making during development of the most recent essential medicines list in India. While there is broad acknowledgement that point-of-care availability of antibiotics saves lives, such accessibility to antibiotics is also known to fuel overuse, leading to growing AMR and, ultimately, AMR-related mortality. For this reason, any antibiotic use must be carefully partnered with robust antimicrobial stewardship – this means making and, importantly, implementing effective regulation.

- ***Lessons from the pandemic can be applied in the fight against AMR:*** during the pandemic, a concerted effort across the healthcare system in India was required to tackle the crisis. This included widespread digitisation, a firm emphasis on diagnostics, and governance models that were applied with high clarity from top down. Implementation of these highly effective strategies in the space of infectious diseases would be immensely beneficial in combatting AMR.

- ***AMR education must be widespread in order to drive behaviour change:*** antimicrobial stewardship begins with education of individuals at all levels. For progress to be made, there must be successful engagement with communities on the importance of AMR; peer-to-peer interactions are key in this regard. Indeed, surveillance efforts by ICMR have shown that in hospitals, just one doctor who understands the importance of AMR stewardship is enough to affect behaviour change.

Cross-sector collaboration is the key to tackling AMR in India

> **AMR has multiple challenges; its management requires a 360-degree approach.**
>
> Dr Shirshendu Mukherjee,
> *Mission Director, Grand Challenges India, BIRAC*

- ***Tackling AMR requires a cross-sector approach:*** the fight against AMR is associated with multiple challenges requiring innovative approaches at each stage, from communication, through design of rapid, highly sensitive, affordable diagnostic tools, to development of new antimicrobials and AMR surveillance. To make such multi-stage innovation a reality, a truly collaborative One Health approach is needed across human and animal health sectors.

- ***Clear, well-costed national action plans are needed:*** at a country level, AMR should be prioritized, realistic and achievable, and well-costed action plans must be developed. These should have a clear starting point

and clear objectives to attract much-needed funding.

- ***Decentralised availability of diagnostics can be supported by digital innovations:*** to curb AMR, effective, reliable, and easy-to-use diagnostics must be provided at all levels, beginning with primary care. In India, policy decisions and investment into equipment and infrastructure are required to support implementation at this level. Collaboration with the private sector and use of digital tools are vital to make decentralised diagnostics a reality.

- ***Integrated surveillance systems are required to ensure ongoing collection of comprehensive, up-to-date AMR data:*** to leverage the potential of artificial intelligence (AI) and machine learning in the space of AMR, surveillance data must be strengthened and decentralized. Digitization of surveillance systems will be useful in allowing integration and common approaches to build robust datasets. Further, data sharing policies must be flexible and effectively implemented to allow timely dissemination of data to all parties. A clear, robust, and wide-reaching dataset will not only support prescribing decisions but is also likely to attract policy makers and encourage investment.

> **Digital tools can enable consistent, timely and accurate collection of diagnostic data at the primary healthcare level to inform decisions on the ground.**
>
> Ms Rigveda Kadam,
> *Deputy Director, Digital Health, FIND*

- ***Tailored communication is needed to achieve widespread behaviour change:*** a thorough understanding of physician and patient behaviours surrounding antimicrobial use will help to tailor communication accordingly to influence knowledge, attitude and ultimately, practice.

- ***Clinical decision support tools have been successful in rationalizing antibiotic use in other countries:*** in other low-and-middle-income countries, including Senegal, FIND has worked with local stakeholders to develop clinical support tools which not only support surveillance, but also provide guidance on interpreting diagnostic results and appropriately prescribing antibiotics. Such programmes dramatically reduce the rate of antibiotic prescribing.

> **To curb AMR, we have to start at grass roots because a lot of antibiotic abuse happens there.**
>
> Dr Debkishore Gupta,
> *Head – Medical Affairs South Asia, BioMérieux*

Annexure 1: Agenda

REGISTRATION
09:30 am to 10:00 am

INTRODUCTION AND CONTEXT SETTING
10:00 am to 10:15 am

Dr Sanjay Sarin,
Vice President, Access, FIND

FIND'S AMR STRATEGY: FOCUS INDIA
10:15 am to 10:30 am

Dr Sarabjit Chadha,
Regional Technical Director,
India and South East Asia, FIND

FIND GLOBAL AMR VIDEO
10:30 am to 10:35 am

PANEL 1 – AMR STEWARDSHIP: AN INTEGRATED RESPONSE TO THE AMR CRISIS
10:35 am to 11:35 am

1. **Dr Y K Gupta,** Principal Advisor India Strategy Development, Global Antibiotic Research and Development Partnerships (GARDP)
2. **Dr Kamini Walia,** Senior Scientist, ICMR
3. **Dr Terence Fusire,** Technical Officer, Essential Drugs and Medicines, Department of Health Systems Development, WHO SEARO
4. **Dr Taslimarif Saiyed,** CEO and Director, C-CAMP
5. **Dr Sharad Goswami,** Senior Director Global Policy and International Public Affairs, Pfizer
6. **MODERATOR: Rajashree Sen,** Senior Manager, Country Programs, FIND

TEA/COFFEE BREAK (11:35 am – 11:45 am)

PANEL 2 – SPOTLIGHT: ONE HEATH AND DIAGNOSTICS
11:45 am to 12:45 pm

1. **Dr Shirshendu Mukherjee,** Mission Director, Grand Challenges India, BIRAC
2. **Mr. Suhel Bidani,** Lead Digital Health, Bill & Melinda Gates Foundation
3. **Dr Vikas Aggarwal,** South Asia Regional Lead, Fleming Fund Grants Programme, Mott Macdonald
4. **Dr Debkishore Gupta,** Head - Medical Affairs South Asia, BioMérieux
5. **Ms Rigveda Kadam,** Deputy Director, Digital Health, FIND
6. **MODERATOR: Dr Archana Beri,** Medical Officer, FIND

VOTE OF THANKS (12:45 pm to 12:50 pm)

Dr Preethi Jain, Head of Resource Mobilization, FIND (India)

NETWORKING LUNCH

Annexure 2

Panel 1: AMR stewardship: an integrated response to the AMR crisis

AMR threatens the core of modern medicine, jeopardising the gains made in effective treatment of infectious diseases. Systematic misuse and overuse of antimicrobial medicines in human medicine and food production have fuelled AMR, putting every nation at risk. Without harmonised and immediate action on a global scale, the world is heading towards a post-antibiotic era in which common infections could once again, kill. This session explored the steps required to implement effective AMR stewardship in India and examined the ways in which these programmes can rationalise the use of antibiotics to tackle the growing crisis of AMR.

From left to right: Rajashree sen, Dr Yogendra Kumar Gupta, Dr Kamini Walia, Dr Terence Fusire, Dr Taslimarif Saiyed and Dr. Sharad Goswami. Copyright: FIND

Moderator:

Ms Rajashree Sen,
Senior Manager, Country Programmes, FIND

Rajashree has a post-graduate diploma in business administration from the Indian School of Business (ISB), and a Masters in Biochemistry from McGill University. Prior to joining FIND, Rajashree was at Max Healthcare for two years. Initially part of the leadership programme, she was selected to join the new business and growth team as Senior Manager where she played a key role in the planning and launch of their digitally enabled “out of hospital” service line. Before completing her ISB diploma, Rajashree worked as a Research and Administrative Assistant in the Orthopedic Research Laboratory at McGill University. As part of her role, she coordinated the design-level risk management for commercialization and CE qualification of a medical device.

Speakers:

Dr Yogendra Kumar Gupta,
Principal Advisor India Strategy Development, GARDP

Prof. Yogendra Kumar Gupta positions include president, All India Institute of Medical Sciences (AIIMS), Jammu and Bhopal, and principal advisor, India Strategy Development, GARDP and Drugs for Neglected Diseases Initiative (DNDi) alliance. He was previously the head and dean of Pharmacology, AIIMS, New Delhi. For the last four decades he has contributed significantly to the area of medicine safety, clinical research, drug regulation and developing policies to make quality medicines available at an affordable cost. His efforts in advocating the rational use of drugs and his visionary approach towards the silent pandemic of AMR have been recognized internationally.

Dr Kamini Walia,
Senior Scientist, Indian Council of Medical Research (ICMR)

Dr Kamini Walia is a senior scientist in the Division of Epidemiology and Communicable Diseases at ICMR and leads the institute's AMR initiative. The initiative focuses on various aspects including surveillance, antimicrobial stewardship, and One Health. During her 20 years of experience in the public health space, she has initiated and successfully steered numerous projects and programs of public health importance in the field of infectious diseases, reproductive and child health and noncommunicable diseases. She curated the National Essential Diagnostics for the country to improve availability of diagnostics at all levels of health care. She is a former member of the WHO Scientific Advisory Group of Experts on Essential Diagnostics and Commissioner on Lancet Commission on Diagnostics. She is a recipient of ICMR's Shakuntala Amir Chand award and Indian National Science academy, Young Scientist Award. She has received numerous fellowships and trainings from WHO, NIH, USA, IVI, Seoul, and Pasteur Institute, France.

Dr Terence Fusire,
Technical Officer, Essential Drugs and Medicines, Department of Health systems Development, WHO SEARO

Terence Fusire is the Technical Officer: Essential Drugs and other Medicines in the Regional Office for WHO South-East Asia and supports access to quality assured essential medicines in the region. His work revolves around promoting policies, building health system capacities, and providing evidence-based guidance to improve access and promote rational use of safe, efficacious, quality, and affordable essential medicines. Terence has more than 15 years supporting public health systems, procurement and supply chain management of health commodities and health systems strengthening. As a public health pharmacist, he has gained experience in managing essential medicines and other heath commodities in public sector and private sector organizations and NGOs. His ambition is to be involved in the development and implementation of global health solutions and ensuring universal health coverage.

Dr Taslimarif Saiyed,
CEO and Director, C-CAMP

Dr Taslimarif Saiyed is the CEO and director of C-CAMP. His initial training has been in neurosciences, where he received his PhD from Max-Planck Institute for Brain Research, Germany followed by postdoctoral training at University of California San Francisco (UCSF). At the same time, he also underwent training in management for Biotech and Innovation from QB3 at UC Santa Cruz, UC Berkeley and UC San Francisco. He has also completed a biotech management program for biotech executives at Wharton School of Management. In the Bay area, he served as a management consultant with QB3 New Biotech Venture Consulting and in an individual capacity, he also consulted for many biotech firms in the US. Dr Saiyed is an Adjunct Faculty at Indian Institute of Technology (IIT) Madras and also Amrita Institute - School of Biotechnology. He also heads the Discovery to Innovation Accelerator program at C-CAMP. He is actively involved in promoting innovation in life sciences/healthcare by supporting translation of discoveries to application, entrepreneurship and technology development.

Dr Sharad Goswami,
Senior Director Global Policy and International Public Affairs, Pfizer

A specialist in public affairs and strategic communications, Sharad's career spans over two decades. He leads corporate affairs at Pfizer in India and is responsible for government relations, public affairs, communications, corporate social responsibility, and patient advocacy. A member of Pfizer India's leadership team, Sharad represents the organization in its engagements with key external stakeholders, including policy experts and the government, with a focus on building partnerships, advocating for patient centric policy and advancing dialogue on access to healthcare and medicines. Sharad has led a number of flagship initiatives and partnerships for Pfizer in India including its association with ICMR on AMR, academia partnerships with the IITs and other technology institutes across India to support healthcare innovations and innovators.

Panel 2: Spotlight: One Health and diagnostics

One Health recognises that human health is closely connected to the health of animals and our shared environment. Synonymous with cross-sector cooperation, One Health supports and encourages effective collaboration to deliver public health solutions. The growing AMR crisis has created an urgent need to bring together a diverse range of public and private sector stakeholders. This panel examined the complex problem of AMR through the lens of One Health and explored ways in which coordinated, country-level efforts can begin to curb the threat of AMR.

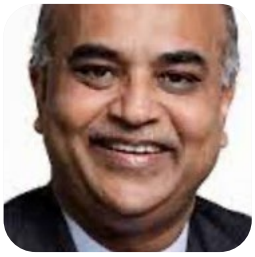
From left to right: Dr Archana Beri, Dr Shirshendu Mukherjee, Dr Vikas Aggarwal, Dr Debkishore Gupta and Dr Suhel Bidanii. Copyright: FIND

Moderator:

Dr Archana Beri,
Medical Officer, FIND

Dr Archana Beri joined FIND in January 2021 as Medical Officer. She is a clinical microbiologist trained in infectious diseases, laboratory medicine, and hospital and laboratory quality systems, with expertise in clinical research, public health development and health diplomacy. She brings with her more than 15 years' experience in international health, programme management, laboratory diagnosis, clinical medicine and artificial intelligence in life sciences. Dr Beri completed her MBBS from Lokmanya Tilak Municipal Medical College & Sion Hospital, Mumbai, and received her MD in Clinical Microbiology from T.N.M.C & B.Y.L. Nair Hospital, Mumbai.

Speakers:



Dr Shirshendu Mukherjee,
Mission Director, Grand Challenges India, BIRAC

Dr Shirshendu Mukherjee is a trained medical microbiologist, bringing 3 decades of experience to academic institutes, pharma companies and national, international philanthropic and government funding agencies, to support the innovation ecosystem in India and beyond. Apart from serving as the mission director of the Grand Challenges India, Dr Mukherjee also heads the intellectual property, technology transfer and communications division at BIRAC. Dr Mukherjee also leads the NBM (National Biopharma Mission) a joint initiative of World Bank - Department of Biotechnology (DBT), as well as Mission Covid Suraksha - an initiative of Government of India. Dr Mukherjee holds a PhD in Microbiology and is a Law graduate.

Dr Suhel Bidani,
Lead, Digital Health, Bill & Melinda Gates Foundation

Suhel Bidani is the lead for Digital and Supply Chain platforms in the India office of the Bill & Melinda Gates Foundation. In this role, he is responsible for the digital/ICT and supply chain interventions required across the foundation's programmatic work in India. His current work is focused on driving the Digital Health mission in India, working closely with government stakeholders, the private sector, and philanthropic partners in India. In his 20+-year professional career, he has worked extensively in business and technology advisory across 25+ countries. For the last decade, Suhel has spent his time on D4D (Digital for Development) initiatives in LMICs across Asia and Africa. Suhel holds a bachelors' degree in Commerce and an MBA in Strategy and Systems.

Dr Vikas Aggarwal,
South Asia Regional Lead, position

Dr Vikas Aggarwal is the Regional Health Lead - South Asia for Mott MacDonald. His prime role is to manage and coordinate Fleming Fund investments in 6 countries in the region, which aims to tackle AMR by strengthening surveillance through the One Health approach. In addition, he also manages Fleming Fund Strategic Alignment Grants that are implemented across Asia and Africa. Dr Aggarwal is a medical doctor with specialisation in public health management and has been working in international development for over 20 years in the South Asia region. He has vast experience of designing, managing and leading health and development projects that are focused on health system strengthening, disease control and prevention, community empowerment, improving access to health information and services by bridging the gap between supply and demand and shaping services as per community needs.

Dr Debkishore Gupta,
Head, Medical Affairs South Asia, BioMérieux

Dr Debkishore Gupta is currently the head of Medical Affairs, South Asia at BioMérieux and comes with over a decade's work experience. He is an MD in microbiology and is trained in infection control from New York State Department of Health and the State Education Department. Dr Debkishore played a pivotal role in setting up the first ever private lab and ward for H1N1 influenza, in West Bengal which was recognized by the national government. He completed post-graduation diploma in Infectious Diseases from Apollo Hospital, in collaboration with University of New South Wales, Australia. In his several previous roles he has served as Consultant Clinical Microbiologist and Head of Infection at CMRI and BM Birla Hospitals, respectively as well as Director, Medical Affairs at Cephied. He is a qualified as NABL assessor and took over as Head of Quality and Clinical Excellence of CMRI. A CAHO module developer and national speaker for Antimicrobial Stewardship program, Dr Debkishore has immense experience in hospital preparedness against Covid-19.

Ms Rigveda Kadam,
Deputy Director, Digital Health, FIND

Rigveda Kadam joined FIND in 2018 and is currently Head of Digital Access. As part of her work, she works with national and local governments, private sector laboratories, pharmaceutical and diagnostic device manufacturers and other development sector partners for increasing access to key commodities and services targeted at improving public health outcomes. Her work has involved conceptualizing projects and managing end-to-end execution, building partnerships, fundraising, laboratory capacity planning, assessment of diagnostic networks, forecasting, quantification and data analysis across several health areas.

Vote of thanks:

Dr Preethi Jain,
Head of Resource Mobilization,
FIND (India)

Context setting:

Dr Sanjay Sarin,
Vice President, Access,
FIND

FIND's AMR strategy: focus on India, presented by:

Dr Sarabjit Chadha,
Regional Technical Director,
India and Southeast Asia, FIND