



NEWSLETTER



WORLD ANTIMICROBIAL AWARENESS WEEK

Nov 18 - 24, 2021

Amity Institute of Biotechnology (AIB) in collaboration with Microbiologists Society India (MSI)



ABOUT WAAW'21

Celebrated annually, the **World Antimicrobial Awareness Week (WAAW)** aims to increase awareness of global antimicrobial resistance and to encourage best practices among the general public, health workers and policy makers to avoid the further emergence and spread of drug-resistant infections.

The first WAAW was declared in the 68th World Health Assembly in May 2015 and since then it's celebrated from **18-24 November** every year, to educate and spread awareness in order to understand antimicrobial resistance, its effects and consequences by the means of active and effective communication and training.

The campaign this year is to "**Go Blue**" and the theme being "**Spread Awareness, Stop Resistance**" calls upon everyone to show active participation towards the awareness of antimicrobial resistance.

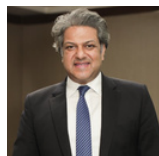
MESSAGE FROM DEAN-RESEARCH

Dr. Aparna Khanna

Dean-Research (Science and Technology)
Head, Centre for Computational Biology
and Translational Research
Director, AIB, AUM

WHO has declared Antimicrobial resistance (**AMR**) as one of the top 10 global public health threats affecting human race. AMR has health as well as economic impact in all sectors of society. Major reasons of AMR especially in India is due to lack of awareness among the general public. This event is being organized as an awareness campaign for the first time at AIB. Considering the emergence of antimicrobial resistance, we thought it would be an impactful way by asking the student community to participate in this awareness campaign and help reach the general public. We hope by being a part of this global campaign we would be able to create awareness at a significant level.

CHIEF PATRON



Dr. Aseem Chauhan
President, Amity University Mumbai

PATRONS



Lt. Gen VK Sharma,
AVSM (Retd), Officiating Vice
Chancellor, AUM



Dr. A W Santhosh Kumar
Pro Vice Chancellor, AUM

DIRECTOR



Dr. Aparna Khanna
Dean - Research (Science and Technology),
Director,
Amity Institute of Biotechnology (AIB)

CONVENERS



Dr. Renitta Jobby
Assistant Professor



**Dr. Vinothkannan
Ravichandran**
Assistant Professor

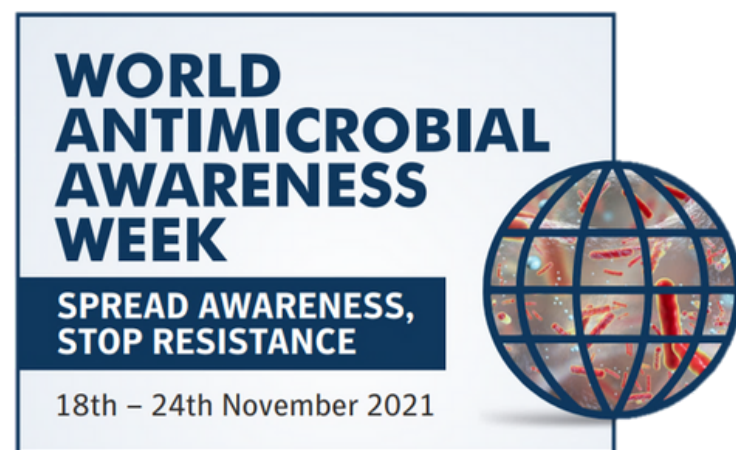


Dr. Shashank Kamble
Assistant Professor

HIGHLIGHTS OF THE EVENT

World Antimicrobial Awareness Week (WAAW) campaign was organized by Amity Institute of Biotechnology, Amity University Mumbai in collaboration with Microbiologists Society, India from November 18 to 24, 2021.

The campaign was inaugurated on **18th November** by **Dr. Nerges Mistry**, Director, The Foundation for Medical Research, Mumbai, India. She delivered a talk titled **"None so blind than those who will not see"**, highlighting the rise in AMR worldwide.

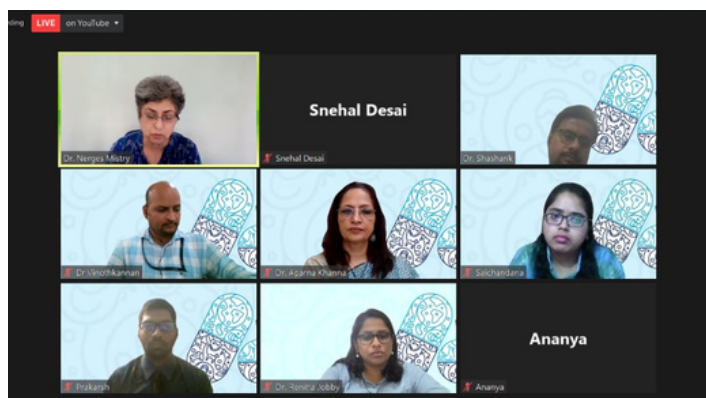


WEBINAR EVENTS

INAUGURATION AND KEYNOTE ADDRESS BY

Dr. Nerges Mistry
Director, The Foundation for Medical Research
Dr. Kantilal J. Sheth Memorial Building
84A, R.G.Thadani Marg, Worli, Mumbai, India.

Date: 18.11.2021 | Time: 11.00 AM – 12.30 PM



<https://www.youtube.com/watch?v=jvmRbHPPLxA>
Inauguration webinar video link

A panel discussion on 'AMR and its impact on health, environment and economics' was held on **24th November**.

The panelists included eminent personalities like **Anuj Sharma**, **Satya Sivaraman**, **Dr. Deshmukh**, **Dr. Sumana**, **Dr. Aruna Poojary** and **Dr. Kavita Milind Khadke**. Fruitful discussion on AMR and its effects took place and the panelists answered a number of queries put forth by the audience as well.

PANEL DISCUSSION ON ANTIMICROBIAL RESISTANCE (AMR) AND ITS IMPACT ON HEALTH, ENVIRONMENT, AND ECONOMICS

24.11.2021 | 12.30 PM - 2.00 PM

ESTEEMED PANELISTS

 Anuj Sharma , Technical officer – AMR, WHO, India.	 Satya Sivaraman , Communications Coordinator, ReAct Asia Pacific, India.	 A.M. Deshmukh , President, MSI, India.
 Sumana K. , Assistant Professor, Department of Microbiology, JSS Academy of Higher Education and Research Mysuru, Karnataka, India.	 Aruna Poojary , Head of Dept. Pathology & Microbiology, Breach Candy Hospital Trust, Mumbai, Maharashtra, India.	 Kavita Milind Khadke , Technical Director – Molecular Biology, HiMedia Laboratories Pvt Ltd.

Various online events organized by AIB during this week were open to UG, PG and PhD students all over India. A huge response was received for these events.

Event/ competition details:

19 Nov 2021 – Billboard'21 – Digital Poster Competition

22 Nov 2021 – Writers Against Drug Resistance – Article writing

23 Nov 2021 – What's Your Story? – Personal experience on AMR
[1min Video event]

24 Nov 2021 – Caution Before Action: Regional outlook on AMR Awareness [Video event in regional language]

The winners were awarded **e-certificates, trophies** (sponsored by **Mr. Santhosh Narayan Jathar**, PhD student, AIB-AUM, Municipal Analyst and Food Analyst, Municipal Analyst Laboratory, G/North Ward, Dadar West, Mumbai) and **customized T-shirts** (sponsored by **MSI and HiMedia**).



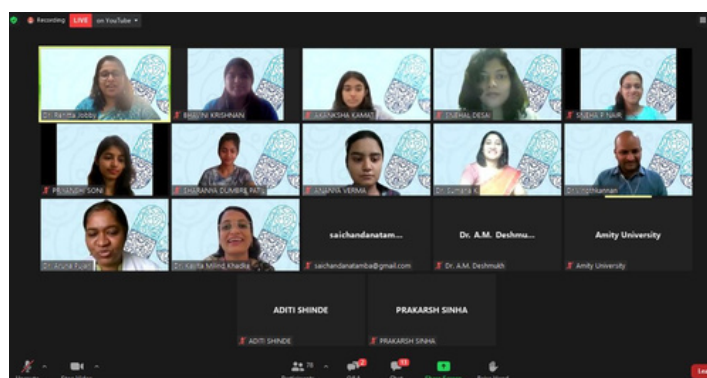
WAAW 18-24 Nov

Are you GOING BLUE today, 24 Nov?

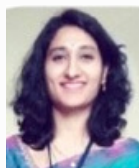
SPREAD AWARENESS STOP RESISTANCE

#WAAW #AMR #GoBlue
#AntimicrobialResistance
#WHO #WHOSEARO
sharmaan@who.int

https://www.youtube.com/watch?v=xjW0_IItAmCs
Panel discussion video link



ANTIMICROBIAL RESISTANCE (AMR) IN FOOD CHAIN



Dr. Sumana

Assistant Professor

Department of Microbiology, School of Life Sciences,
JSS Academy of Higher Education & Research, Mysuru

Antimicrobial Resistance (AMR) happens when microorganisms (such as viruses, bacteria, fungi, and parasites) are exposed to antimicrobial drugs indiscriminately (such as antibiotics, antifungals, antivirals, anti-malarials and anti-helminthics). AMR occurs naturally over time, usually through genetic changes. Moreover, injudicious use of antimicrobials is accelerating this process. Further, antibiotics are overused and misused for treating people and animals and are often given without professional intervention. As a result, these drugs have become ineffective, and infections are persisting and increasing the risk of spreading. New resistance mechanisms are emerging and spreading globally, threatening the ability to treat common infectious diseases and resulting in prolonged illness, disability and death. Foods of animal origin are considered as an important source of antimicrobial-resistant bacteria entering the food chain. AMR microorganisms in food are not only a major public health challenge, but also represent an economic risk. According to the reports (2013) more antibiotics go into the food we consume rather than using them as therapeutics. Around 80% of antibiotics sold are used in agriculture, animal husbandry and farm animals. Most animals are dosed regularly almost every day as a practice referred as "Subtherapeutic administration." This promotes the animals to grow faster, bigger and disease free when in pen / herd. Some

are used to treat infections and to keep disease free. Health advocates claim that there is rise in "Superbugs" and antibiotic – resistant infections in the society. According to the records of the Centers for Disease Control and Prevention (CDC) superbugs are appearing in alarming state, like Methicillin Resistant Staph aureus (MRSA) in pork, Salmonella in turkey etc., have become widespread across the world. The main focus of concern is the acquisition of antibiotic-resistant bacteria and AMR genes by the animal in the farm and their transmission to humans through the food chain.

Since decades, the AMR in food safety is an issue and is increasing since antibiotic-resistant bacteria and AMR genes are expected to spread from food animals to humans through the food chain. Nevertheless, the relative contribution of the food chain to the global burden of infections caused by antimicrobial-resistant microorganisms still remains unknown.

Research efforts must be devoted in the coming years to characterize the actual impact of the food chain on the total AMR figures worldwide. Implementation of more complete and coordinated surveillance systems, involving analysis of not only food of animal samples, but also foods of non-animal origin and environmental samples from primary production and food processing facilities, will facilitate this complex task and will allow the elucidation of the role of thus far



Courtesy: <https://www.fao.org/home/en>



STUDENT ORGANIZING TEAM - AIB, AUM



Abigail Fernandes
PhD student



Aditi Shinde
BTech III



Akanksha Kamath
BTech III



Ananya Verma
BTech III



Anurag Bari
MSc I



Aravind Panicker
MSc I



Bhavini Krishnan
MSc I



Lasitha Amara
MSc III



Prakarsh Sinha
MSc I



**Priyanshi Umesh
Soni**
MSc I



Saichandana Tamba
MSc I



Sarumati Krishnan
BTech III



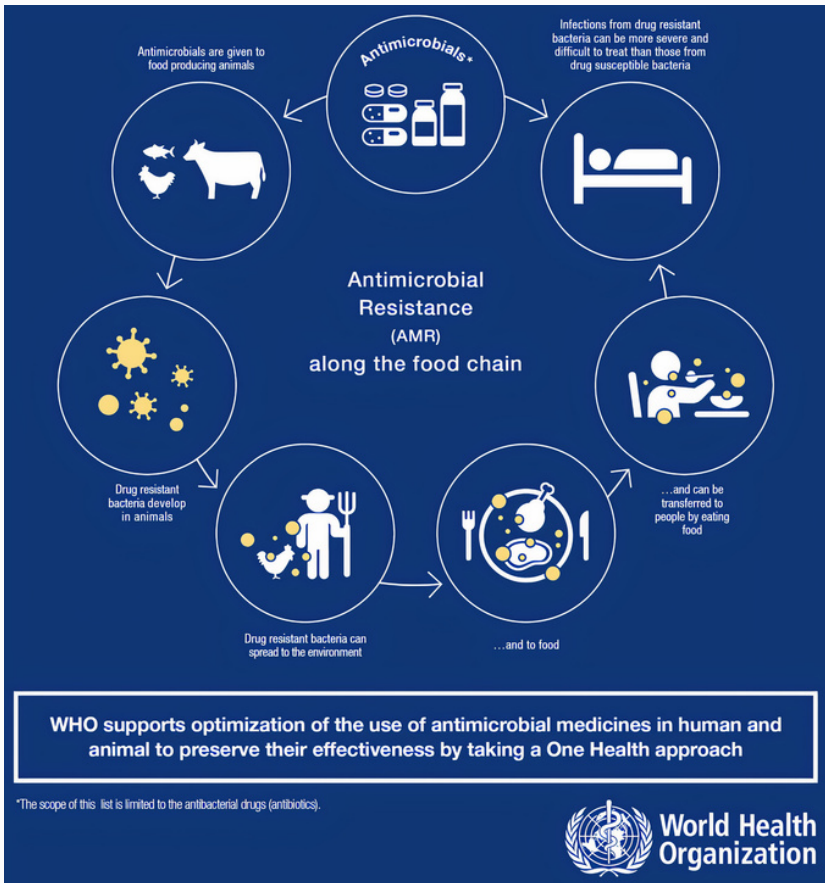
**Sharanya Ramesh
Dumbre Patil**
BTech III



Sneha P Nair
MSc I



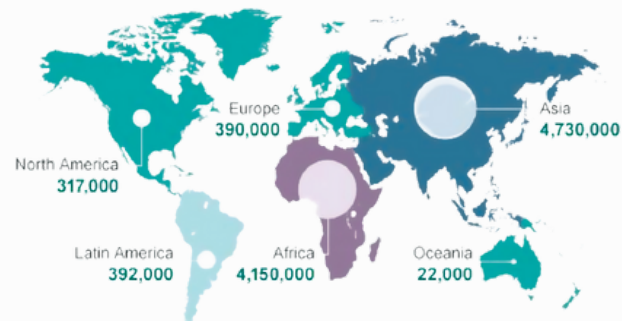
Snehal Desai
MSc III



Courtesy: <https://www.who.int/>

neglected routes of acquisition and spread of AMR. The integration of novel technologies, such as genomic and metagenomic tools into those surveillance systems will undoubtedly provide new clues for managing AMR leak in environment and food chain.

Developing country like INDIA, use of antibiotics has been in rise. Globally it is reported that about 67% of rise in antibiotic usage in agriculture is found between 2010-till date. Reports say that 76% of antibiotics approved are said to be medically important. Though still a niche in the food market, increasing consumer awareness is paving a way for growing antibiotic-free food in the markets. 86% consumers need antibiotic-free food and ready to pay more. WHO (World Health Organization) has action plans that involve - less antibiotic leak into environment.



Deaths attributable to AMR every year by 2050
Courtesy: Review on Antimicrobial Resistance, 2014

RECENT TRENDS IN AMR DIAGNOSTICS

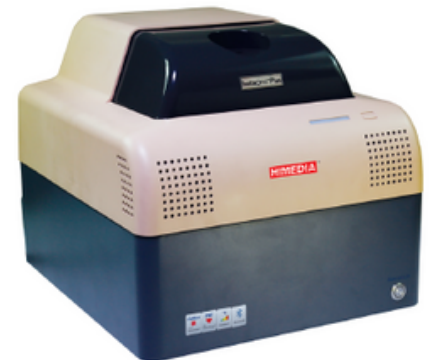


Dr. Kavitha Milind Khadke
HiMedia Laboratories, Mumbai

Real time PCR based diagnostics is the fastest, most sensitive & specific technique to stop this menace of Emerging AMR. **HigenoMB™** department at HiMedia has developed qualitative diagnostic AMR Multiplex PCR kits for Gram Negative [ESBL, Carbapenem & Colistin Resistant organisms] & Gram Positive [MRSA & Vancomycin Resistant organisms]. Along with diagnosing resistance to drugs like β -Lactams, Cephalosporins & Aztreonam, our **Hi-PCR®** ESBL gene quantification Probe PCR kit can also quantify the TEM, SHV, OXA10/11, CTX-M genes. We have also developed the Carbapenem & Colistin Resistance quantitation kits. These kits help the clinician to get results within 3 hours so that the exact drug with appropriate dosage can be immediately started. Thus, Multiplex Real time PCR assays save 24-48 hours of invaluable time compared to other modalities of diagnosis as complete automation at

HigenoMB™ requires only direct patient sample to be placed in their InstaNx® Mag series of extraction machines followed by Real time PCR using their **InstaQ96®** series of PCR machines.

Also the latest launch of Sequencing facility at HigenoMB™ will help decode the entire AMR genome and help in better & faster treatment along with detection, mapping & analysis of outbreaks.



InstaQ96® PCR series, HiMedia



Courtesy: <https://www.himedialabs.com/>

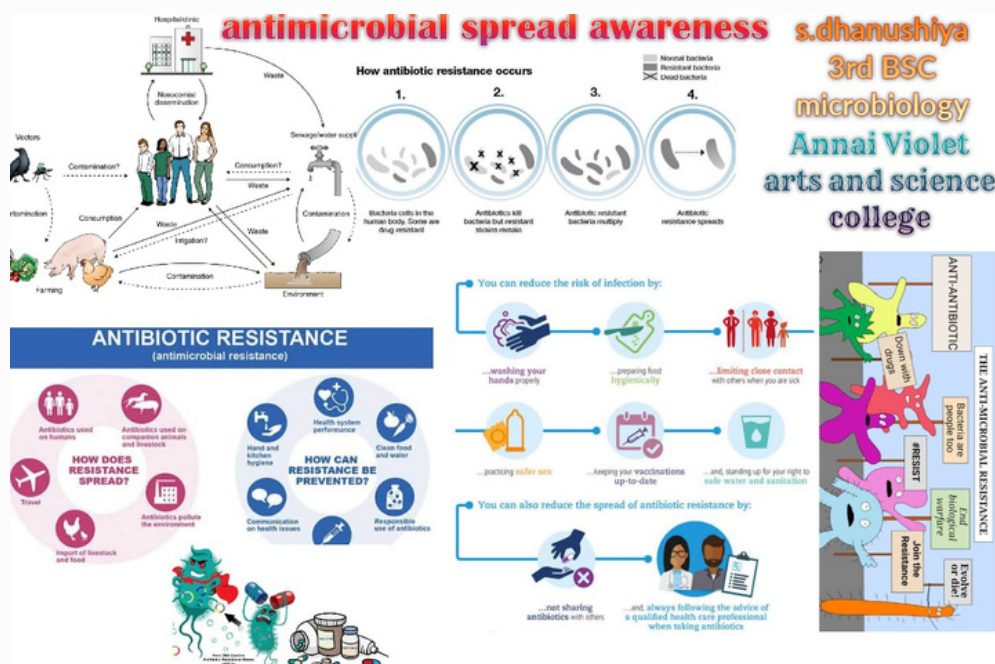
PRE-EVENTS RESULTS

BILLBOARD'21 - DIGITAL POSTER COMPETITION



FIRST PRIZE

S. DHANUSHIYA
ANNAI VIOLET ARTS AND
SCIENCE COLLEGE,
CHENNAI



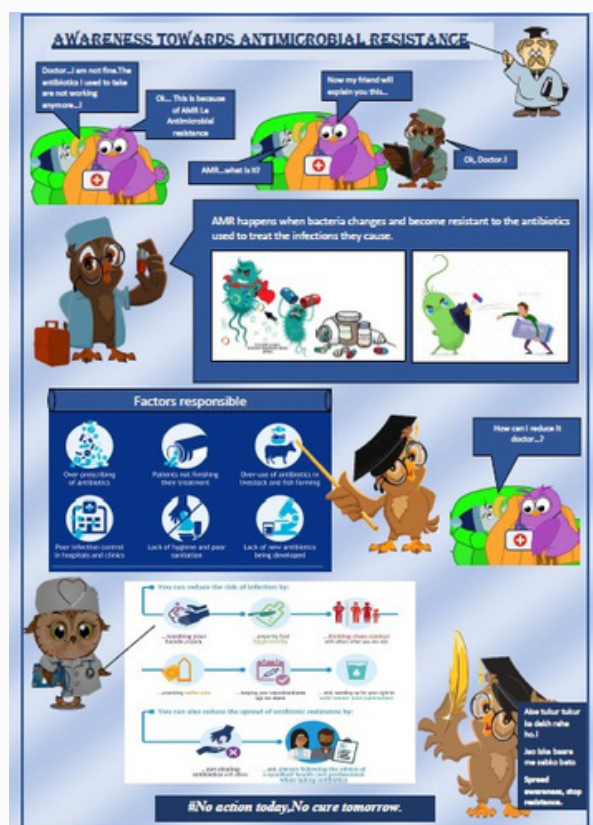
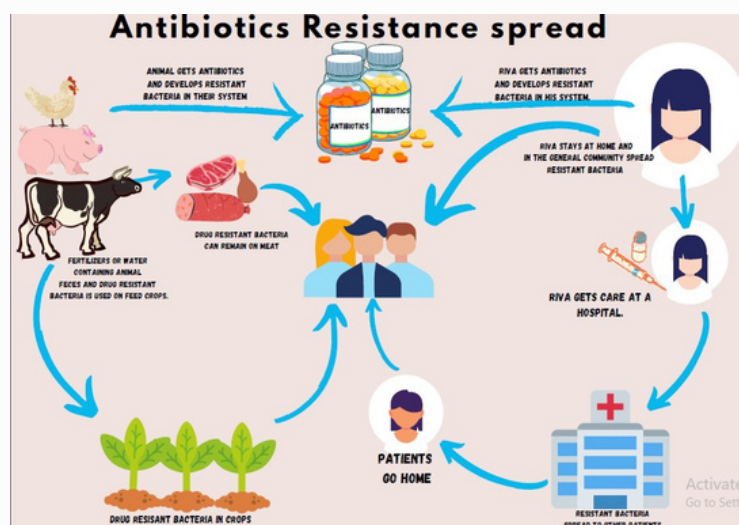
SECOND PRIZE

MADHU RANGBAHADUR SINGH
MGM INSTITUTE OF HEALTH
SCIENCES, NAVI MUMBAI



SECOND PRIZE

JOSHI KHUSHI PRADIPKUMAR
PRESIDENT SCIENCE COLLEGE,
GUJARAT



BILLBOARD'21 - DIGITAL POSTER COMPETITION

THIRD PRIZE

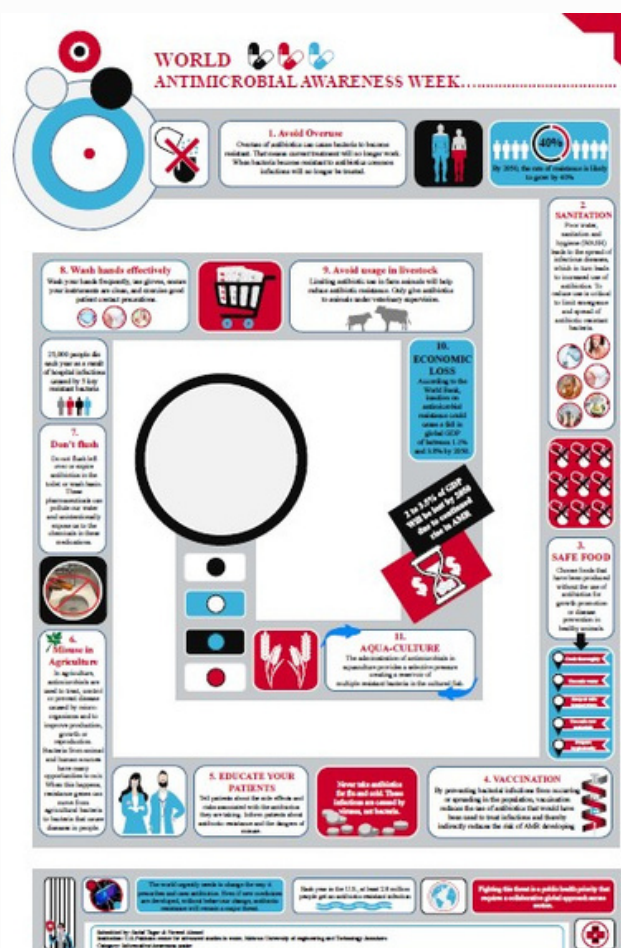
SHRUTI SHETTY

JAI HIND COLLEGE, MUMBAI



THIRD PRIZE

SADAF TAGAR AND NAVEED AHMED
MEHRAN UNIVERSITY OF ENGINEERING
AND TECHNOLOGY, PAKISTAN



WHAT'S YOUR STORY? - PERSONAL EXPERIENCES ON AMR [VIDEO EVENT]

BEST ENTRIES

Click on the winner's name to watch the video

BANKAR SNEHA

DHANAJI

VIDYA PRATISHTHAN'S ARTS, SCIENCE AND
COMMERCE COLLEGE, BARAMATI



M. JEEVITHA

AVINASHLINGAM INSTITUTE OF HOME
SCIENCES AND EDUCATION FOR WOMEN,
COIMBATORE

CAUTION BEFORE ACTION: A REGIONAL OUTLOOK ON AMR AWARENESS [VIDEO EVENT IN INDIAN REGIONAL LANGUAGE]

BEST ENTRIES

Click on the winners' name to watch the video

NEHA AILANI

SMT CHM COLLEGE, ULHASNAGAR

Video in **SINDHI** language



PARAMESHWAR SARDAR

RAIDIGHI COLLEGE, WEST BENGAL

Video in **BENGALI** language

SREELEKSHMI, PARVATHY, ANANTHANARAYANAN, ASWATHY

SREE AYYAPPA COLLEGE, KERALA

Video in **MALAYALAM** language

SANKETH C YELI, SAI SRINIVAS D, SIDDESH VS

JSS ACADEMY OF HIGHER EDUCATION AND RESEARCH, MYSURU

Video in **KANNADA** language

WRITERS AGAINST DRUG RESISTANCE - ARTICLE WRITING COMPETITION

SPREAD AWARENESS, STOP RESISTANCE



KETAKI NIRBHAVANE

VIDYA PRASARAK MANDAL'S B.N. BANDODKAR COLLEGE OF SCIENCE,
BARAMATI

What if there was a world where medicines didn't work? It sounds like the plot of a dystopian novel but it is the chilling reality of the world that we exist in now. Antimicrobial drug resistance (AMR) emanates when, viruses bacteria, fungi, and parasites no longer respond to medicines and modify over time.

Daphne Deckers, a Dutch author, and celebrity felt sick one day in 2014, her official diagnosis was a bladder infection, and with this came the prescribed antibiotics. When her symptoms failed to improve, she was hospitalized. She learned that she had a multi-drug resistant *E. Coli* infection. This infection can usually be treated with eight antibiotics. In her case, seven of those didn't work. The eighth antibiotic saved her life.

Reading about the personal struggles of people who've gone through this unnerving ordeal makes us realize how dangerous AMR is. The World Health Organization has reported that AMR is one of the top ten global public health threats facing humankind.

Doctors and epidemiologists all around the globe have been calling out for cognizance. Lack of hygiene and clean water, over prescription,

unfinished treatments, and inadequate infection prevention and control promotes the spread of microbes, some of which are resistant to antimicrobial treatment. The cost of AMR to the economy is consequential. In addition to disability and death, extended illnesses result in prolonged hospital stays meaning more expenses for the financially challenged.

The WHO has many committees and plans to tackle this crisis including Global Action Plan on Antimicrobial Resistance, Tripartite Joint Secretariat on Antimicrobial Resistance, World Antimicrobial Awareness Week and numerous more.

Erasmus once remarked "Prevention is better than cure" we can prevent AMR by limiting infection by following hygiene practices and getting vaccinated. But beyond that, I think we can take measures by spreading awareness and starting a dialogue. In my opinion, the preeminent step towards change is awareness. Awareness is comparable to the sun, when it shines, we are brought out of the dark, it is a colossal agent for change. This is a public health dilemma. We ought to spread awareness and stop resistance!

CAUSES OF ANTIBIOTIC RESISTANCE

Courtesy: <https://www.who.int/>



Over-prescribing
of antibiotics



Patients not finishing
their treatment



Over-use of antibiotics in
livestock and fish farming

Courtesy: <https://www.who.int/>

CAUSES OF ANTIBIOTIC RESISTANCE



DRUG RESISTANCE



SHREYANSH PAREEK

MAHARAJA GANGA SINGH UNIVERSITY, BIKANER

The World Health Organization cites antibiotic resistance as “one of the biggest threats to global health, food security, and development today”. The term “Drug Resistance” can be defined as the ability of the microorganisms like bacteria, fungi, or protozoans to prevent their inhibition by usually achievable systemic concentration of an antimicrobial agent which is designed to inhibit their growth and falls in the minimum inhibitory concentration (MIC) range. The drug resistance is distinct from the drug tolerance as drug tolerance can be developed by biofilms or slow growth of bacteria in certain conditions and lacks mechanism of antibiotic resistance.

The resistance can be of two types (Arzanlou et al., 2017):

1. Intrinsic and 2. Acquired

Intrinsic refers to the resistance which is naturally present in the microorganism, for example PPLO or Myoplasm are resistance to the drugs which act on the cell wall like Penicillins (which are the Beta- lactam antibiotics), Cephalosporins, Vanomycin. Acquired resistance refers to the change in genome either or mutation or horizontal gene transfer (HGT).

Types of Drugs (Willey et al., 2020) :

1. Antibacterial drugs : They possess high Therapeutic Index and they include many different types of drugs based on their mechanism of action.

Cell wall synthesis inhibitors: prevents Transpeptidation, includes Penicillins, vanomycins.

Protein synthesis inhibitor: binds to different ribosomal subunits and interfere with protein synthesis by causing pre termination and misreading of mRNA. They include Aminoglycosides, Tetracyclines, Macrolides and Oxazolidinones or Linezolid.

Nucleic acid synthesis inhibitors: inhibits the DNA replication and protein transcription by inhibiting the enzymes related to it like DNA gyrase or topoisomerase and DNA dependent RNA polymerase. It includes Fluroquinolones and Rifamycin.

Antimetabolites: They are structurally similar to the substrate of the key enzymes and compete with metabolites (competitive inhibition) for the binding site thus blocks the functioning of metabolic pathways. Examples include Sulfonamides and Trimethoprim.

2. Antiviral drugs : They target the

viral replication cycle, they simply limit the duration of the illness but completely properly cure. This category includes drugs like Oseltamivir (Tamiflu), Azidothymidine, Ritonavir, Foscarnet and cidofovir.

3. Antifungal and Antiprotozoan drugs: They both have low therapeutic index as they are eukaryotes and these drugs can negatively affect the human cell. Fungicides are made on the principle that fungus has Ergosterol in place of cholesterol in human cell membrane and the drugs includes Azoles and Polyenes. Quinine along with artemisinin are used as anti-protozoan drugs, quinine drug blocks the process of metabolism of toxic intermediate caused by the degradation of haemoglobin, hemazoin is not formed.

Mechanism of resistance (Reygaert, 2018):

a) Modification in Antibiotic target: methicillin-resistant *S. aureus* (MRSA) modifies its Transpeptidase or the penicillin binding protein that results in the altering the binding site of the beta -lactam antibiotics thus proving resistance (Ventola, 2015)

b) Drug Inactivation
The hydrolysis of the beta-lactam ring of penicillin by the beta-lactamase enzymes present in the microorganism providing penicillin resistance. Aminoglycosides can also be inactivated by acetylation of amino groups and phosphorylation.

c) Minimising the concentration of antibiotics in the cell. It can be achieved by altering the cell membrane composition in gram negative bacteria as they have 2-7 nm thin cell wall. Efflux pumps (antiporters) also provides multidrug resistance as they pump different drugs non-specifically.

How can we Overcome Drug resistance (Willey et al., 2020) ?

1. Tighter controls over indiscriminate drug use of antibiotics in animal feed must be act upon.

2. Drugs should be given in high enough concentration from the starting to prevent any spontaneous mutation.

3. The susceptible pathogen should be identified and proper narrow-spectrum drug must be employed in place of broad-spectrum drugs.

4. Broad-spectrum drugs must be restricted.

5. Culture based approach along with metagenomics should be used in order to develop susceptible target molecule.

ANTIMICROBIAL RESISTANCE



SAYALI KOCHERY

JAI HIND COLLEGE, MUMBAI

Humans are known for their evolution and adaptation abilities. But what about microbes?

Yes, Microbes! Even microbes are capable of adaptation and evolution. They evolve overtime and adapt according to their environment. Microbes naturally develop resistance to antimicrobial drugs.

However, inappropriate use or overuse or misuse of antimicrobial drugs can lead to rapid development of resistance to drugs in microbes.

What are Antimicrobial Drugs?

Antimicrobial drugs like antibiotics, antifungals, antivirals and antiparasitics are medicines used for forestallment and treatment of infections in humans, animals as well as plants.

What is AMR?

Antimicrobial resistance (AMR) is the ability developed over time by the microbes, in order to defeat and no longer respond to the drugs designed to kill them.

Why is antimicrobial resistance (AMR) one of the world's most pressing public health issues?

As new drug-resistant organisms emerge at a rapid rate, AMR is quickly becoming a global concern, posing a constant danger to our ability to treat common diseases. The increasing global expansion of multi- and pan-resistant bacteria, sometimes known as "superbugs," which cause diseases that are resistant to current antibiotic

treatments, is a particularly concerning development.

Who is affected by AMR, and what are the causes?

It has the potential to affect a wide range of environments, including communities, the healthcare industry, the veterinary industry, and agricultural enterprises. AMR has no age restrictions and can be detected at any stage of a person's life. The following are the main reasons of antimicrobial resistance antimicrobial misuse or overuse, lack of clean water, poor sanitation, disease prevention and control, inadequate access to medications and vaccines, lack of awareness and understanding and lack of legislative enforcement.

What treatments and alternatives are available?

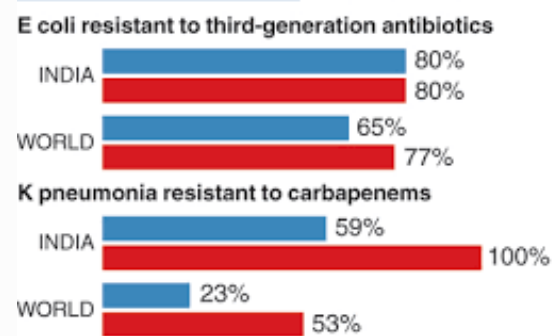
Multiple drug therapy, in which a patient is provided a combination of several pharmaceuticals, can be used as a treatment or alternative. Scientists are also developing novel approaches to tackle AMR, which are being tested for efficacy.

What measures are available?

AMR can be avoided by taking the following precautions understand your threat, ask questions, and take precautions, wash your hands, get vaccinated, be alert of changes in your health, use antibiotics appropriately, practice healthy practises around animals, maintain your health while visiting abroad; g. Avoid STDs.

Courtesy: Times of India news strip

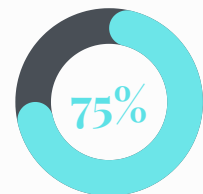
DRUG DEFIANCE



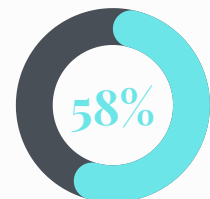
ALARMING STATISTICS

Courtesy: Times of India news strip

7 LAKH Estimated amount of deaths due to the antimicrobial resistant bacteria worldwide. Figure predicted to increase to 1 crore by 2050



of Indians in a WHO survey incorrectly thought that cold and flu can be treated by antibiotics.



Responded that they knew they should stop taking antibiotics only when the prescribed course is finished.

PILL DIDN'T KILL: USAGE OF HYDROXYCHLOROQUINE DUE TO MISINFORMATION DURING COVID-19



MARIA S ANTONY

AMRITA INSTITUTE OF MEDICAL SCIENCES, KERALA

The Whatsapp Institute of medical science states that, 'A few drops of lemon juice in the nose will cure COVID-19'. Although treatments such as lemon juice sound harmless, there is still no vaccine to cure the Covid 19 information epidemic, but if such a statement instructs the public to skip vaccination or ignore other guidelines, it could have serious consequences. Developing countries are the prime antibiotic consumer in the world and are most severely affected by the pandemic. The unregulated and uneven private sector accounts for antibiotic consumption, prescribing and dispensing practices.

The premature hype is a threat as people are so into self medication and do not understand that an antibiotic cannot fight a virus and the overuse of antibiotics can cause other bacterial infection which paves way to antimicrobial resistance. Overprescribing was seen as a result of emergence of telehealth which does not have a well set guideline. Hydroxychloroquine is a drug used for malaria, rheumatoid arthritis etc. Does not offer a medical help to fight Covid-19. Numerous worldwide public health organizations advised against use of hydroxychloroquine as a treatment



method as it didn't have much effect on the virus. The factors that can influence the AMR during Covid-19 are

1. Antibiotic use in the community.
2. Hygiene practices in the community.
3. Public health policy making, including One Health.

Misinformation affects the society as a whole and many worldwide public health organizations now use online platforms to bust the misinformation that is being spread through social media. It is important as the world is already burdened with antimicrobial resistance and Covid-19 makes it worse.

The fragile healthcare system has to spread awareness and stop resistance to fight pandemic and infodemic.



ANTIBIOTIC RESISTANCE WHAT YOU CAN DO



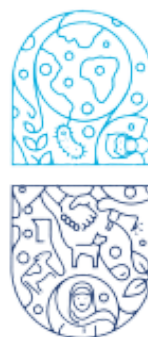
Antibiotic resistance happens when bacteria change and become resistant to the antibiotics used to treat the infections they cause.

- 1 Only use antibiotics when prescribed by a certified health professional
- 2 Always take the full prescription, even if you feel better
- 3 Never use left over antibiotics
- 4 Never share antibiotics with others
- 5 Prevent infections by regularly washing your hands, avoiding contact with sick people and keeping your vaccinations up to date

Courtesy: <https://www.who.int/>



*Join the movement
Let us protect our future against AMR*



World Antimicrobial Awareness Week

18-24 November

SPREAD AWARENESS
STOP RESISTANCE

ABOUT AIB

Amity Institute of Biotechnology (AIB) is a constituent unit of Amity University Mumbai, established in the year 2014 with the aim to promote research and development in the broader areas of biosciences and biotechnology. The key focus is to create industry ready manpower with high level of skills in biotechnology, food technology, bioinformatics etc. who can contribute to advancements in biotech research and startups in the coming years.

<https://www.amity.edu/mumbai/aib/>

ABOUT MSI

Microbiologists Society India (MSI) was established in March 1996 and registered in November 1996 in Satara, Maharashtra India (MAH/4814/SAT). Any person graduate in life science and interested in Microbiology can enroll as a member of Microbiologists society.

<http://microbiosociety.org/>

EDITORIAL TEAM

Ms. Bhavini Krishnan

Ms. Saichandana Tamba

Dr. Renitta Jobby

Dr. Vinothkannan Ravichandran


Dr. Shashank Kamble

#WAAW #AntimicrobialResistance #AMR #HandleWithCare

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VRE

MRSA

Carbapenem

ESBLs

HiMedia
HiGenoMB
Unzipping Genes

AMR Molecular Diagnostics

Qualitative & Quantitative
AMR Detection Kits

Hi-PCR® AMR Multiplex Probe PCR Kits

Type of AMR	Resistance to Antibiotics	Targets gene	Detection	Quantification
ESBL	β-Lactams, Cephalosporins, Aztreonam	CTX-M, TEM, SHV, OXA-10/11	MBPCR131*#	MBPCR226
Carbapenem	Cephalosporins, Carbapenems	<ul style="list-style-type: none"> Group1 - KPC, NDM, VIM, IMP Group2 - OXA-23, OXA-48, OXA-51, OXA-58 	MBPCR132*#	MBPCR227
MRSA	β-Lactams & related antibiotics	S. aureus, Staphylococcus spps, mecA, mecC	MBPCR133*	—
VRE	Vancomycin & Teicoplanin	vanA, vanB, Enterococcus spps	MBPCR134*	—
Colistin	Colistin	mcr-1	MBPCR209*	MBPCR228

* CE-IVD Approved Kits # Patent applied

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