



# IFMSA

International Federation of  
Medical Students' Associations

## IFMSA Policy Proposal Antimicrobial Resistance

**Proposed by Team of Officials**

**Presented to the IFMSA General Assembly March Meeting 2017 in Arusha, Tanzania**

### Policy Statement

#### Introduction

Antimicrobial resistance (AMR) is becoming one of the biggest health threats to the human population worldwide. The ever-increasing resistance of microbes to antimicrobials is already costing us many lives, and leading us rapidly to a post-antibiotic era, if no global action is taken.

Resistance is a natural biological phenomenon but its emergence is accelerated by various factors such as lack of sufficient infectious disease surveillance programs, insufficient standards of prescription policies, the overuse of antibiotics in livestock -breeding and self-medication. Therefore, AMR is a global issue that requires multisectoral collaboration between multiple stakeholders to face all the different factors contributing to its existence.

#### IFMSA position

IFMSA believes that the recent and continuing increase in antimicrobial resistance caused by antimicrobial abuse is one of the greatest challenges to global health today. IFMSA recognizes the importance of controlling antimicrobial resistance to protect public health and reduce the associated premature mortality and morbidity as possible and commits to improve professional education, trainings and strengthen international collaboration. Public education contributes to preventing misuse of antimicrobials. Nevertheless, educating healthcare providers on appropriate antimicrobial use is key in reducing resistance, and IFMSA has been taking an active role in promoting the awareness about antimicrobial resistance in the world. As antimicrobial resistance affects multiple disciplines, IFMSA stresses on the needs to be acted upon in a collaborative manner between all stakeholders.

#### Call to Action

Therefore, IFMSA calls on:

##### Governments to:

1. Control antimicrobial sales and reduce inappropriate use of antimicrobials.
  - a. Reduce self-medication through public awareness campaigns, legislation against antimicrobial sales without prescriptions, and enforcement of existing laws against self-medication.
  - c. Limit certain second- and third-line antimicrobials as exclusively for inpatient use.
  - d. Restrict the agricultural use of antibiotics through regulatory laws in accordance with prudent use guidelines involving a risk assessment approach.
  - e. Encourage healthcare providers to adhere to appropriate prescribing guidelines.
2. Encourage practices in local hospitals and clinics that would reduce the spread of antimicrobial resistance.
  - a. Invest in point-of-care resources that would allow rapid bedside identification of bacterial infections and identification of antibiotic susceptibility in order to encourage use of appropriate antibiotics.



# IFMSA

International Federation of  
Medical Students' Associations

- b. Ensure that infection control practices are in place in hospitals and are regularly inspected
  - c. Include measures such as inappropriate use of antibiotics, Clostridium difficile infection rates, and MRSA infection rates in performance measures and accreditation processes.
  - D. Establish evidence-based hygiene and sterility guidelines, and ensure their implementation
3. Engage in research related to antimicrobial resistance.
- a. Collaborate with other stakeholders including university researchers, private drug companies, and non-governmental organizations to develop new classes of antibiotics and vaccines to prevent infection.
  - b. Encourage development of appropriate prescribing guidelines based on local trends in antimicrobial resistance.
  - c. Monitor patterns of antimicrobial resistance and report this information to international organizations.
  - d) Guarantee public return, where public investments into R&D was made through conditions attached, such as but not limited to global access licensing models.
  - e) Engage in alternative business models such as Push-Pull-Pool mechanisms, collaborative not-for-profit R&D consortiums and De-Linkage models, where investment into R&D is delinked from potential revenue.

#### **The World Health Organization to:**

1. Unite Member States and multiple sectors to develop a coordinated response to antimicrobial resistance.
  - a. Develop global surveillance mechanisms to monitor new patterns of antimicrobial resistance.
2. Encourage all WHO members to strengthen national antimicrobial stewardship and develop policies to confront antibiotic resistance, and provide a forum for member states to share best practices.
3. Generate policy guidelines and provide technical support for Member States that require assistance, in order to provide all member states with access to tools necessary to address antimicrobial resistance.
4. Actively encourage innovation and research regarding methods of antimicrobial resistance and development of new antibiotics, diagnostics, and vaccines.
5. Implement a global, binding fund for antibiotic R&D.

#### **Medical faculties and other teaching settings to:**

1. Incorporate antimicrobial resistance and rational prescription of antimicrobials into all undergraduate medical curricula to ensure that graduates who enter clinical practice are able to prescribe antimicrobials appropriately to avoid contributing to antimicrobial resistance.
2. Implement an antimicrobial stewardship program in affiliated teaching hospitals that would monitor local susceptibility patterns and identify appropriate initial therapy to use for common infections (e.g. community-acquired pneumonia, urinary tract infection, etc.). Such information should be easily accessible by all learners.
3. Develop policy statements regarding antimicrobial resistance. Collaborate with practitioners and public health officials to educate the public regarding the dangers associated with over prescription of antimicrobials.
4. Encourage research regarding antimicrobial resistance; appropriate prescribing guidelines, and the development of new classes of antimicrobials, in collaboration with other stakeholders.
5. Ensure that infection control (e.g. hand hygiene, contact/droplet/airborne precautions) is taught in undergraduate medical curricula and that infection control protocols are implemented in affiliated teaching hospitals to prevent the spread of antibiotic resistance.

#### **IFMSA National Member Organizations (NMOs) and medical students to:**

medical  
**students**  
worldwide



# IFMSA

International Federation of  
Medical Students' Associations

1. Raise awareness and carry out campaigns about antimicrobial resistance and play an active role in shaping the public knowledge about the proper use of antimicrobials.
2. Engage and participate in reviewing the national health policies and plans on the use of antimicrobial drugs.
3. Implement the "One Health" approach in fighting against antimicrobial resistance by awareness campaigns and collaboration with other health student organizations.

## Position Paper

### Background

According to the World Health Organization (WHO), antimicrobial resistance happens when microorganisms (including bacteria, fungi, viruses and parasites) change when they are exposed to antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials and anthelmintics) used to treat the infections they cause. These are sometimes referred to as "superbugs". As a result, the medicines become ineffective and infections persist in the body, increasing the risk of spread to others. (4). Without effective treatment, many standard medical treatments will fail or turn into very high risk procedures. If Antimicrobial Resistance continues on its current trajectory, we may see an increase of deaths due to common bacterial infections. Antimicrobial Resistance can also increase duration of illness, increasing the likelihood of spread to others. In turn, this may increase the disease burden and health costs of infectious diseases.

### Discussion

#### How Antimicrobial Resistance is spreading:

Antimicrobial resistance (AMR) has multiple ways of spreading in the community. It represents one of the basic principles of evolution of bacteria and other pathogens.

Due to the selection of resistant bacteria, numerous species evolved in a way they can resist drugs previously used to combat them. Resistance has increasingly become a problem in recent years because the pace at which we are discovering novel antibiotics has slowed drastically, while antibiotic use is rising, yet at the same time, resistance is developing faster. . It is not just a problem confined to bacteria, but all microbes that have the potential to mutate and render our drugs ineffective. The great strides forward made over the past few decades to manage malaria and HIV could be reversed, with these diseases once again spiralling out of control. (1)

Overuse and misuse of antimicrobials is facilitated in many places by their availability over the counter (without prescription), but even where this is not the case prescribing practices vary significantly between (and often within) countries. Such issues are only made worse by large quantities of counterfeit and substandard antimicrobials permeating the pharmaceuticals markets in some regions. (1)

Human population is not the only one contributing to the spread of the resistance. Out of all the antibiotics used, only 30% are consumed by humans, and the rest are consumed by animals. Antibiotics are highly used in aquaculture, leaving residues of antibiotic remains inside fish products as well as remaining in the aquatic environment for a long period of time. For crops, antibiotics are not the main drugs used for the disease prevention; antifungals are, contributing to the spread of resistance to fungicides. (2)

Addressing the rising threat of AMR requires a holistic and multisectoral ("One Health") approach because antimicrobials used to treat various infectious diseases in animals may be the same or be similar to those used in humans. Resistant bacteria arising either in humans, animals or the environment



# IFMSA

International Federation of  
Medical Students' Associations

may spread from one to the other, and from one country to another. AMR does not recognize geographical borders, nor differentiate between humans and animals. (4)

Considering this information, there are several ways how resistance can spread:

1. Patients that use antibiotics can develop drug-resistant bacteria in their gut. These bacteria can then spread to other people as a result of poor hygiene or unclean facilities
2. Animals that are given antibiotics can develop drug-resistant bacteria in the gut. These bacteria reach humans through food, environment or direct contact.
3. Vegetables may be contaminated with antibiotic-resistant bacteria from animal manure used as fertilizer. The bacteria then spreads through food to humans and can eventually reach general public.
4. Individuals moving from one place to another (patient transfers, international travelling, mass migration, international trade) can carry drug-resistant bacteria from places with higher antimicrobial resistance to their country of destination. (3) We reiterate that the antimicrobial resistance does not recognize geographical boundaries, making it a problem that can be tackled only with global effort.

### **Consequences of Antimicrobial Resistance:**

Antimicrobial resistance has huge consequences, health and economic ones.

Research of the WHO estimates that a continued rise in resistance by 2050 would lead to 10 million people dying every year and a reduction of 2% to 3.5% in Gross Domestic Product (GDP). It would cost the world up to 100 trillion USD. (1)

Currently, when most surgery is undertaken, patients are given prophylactic antibiotics to reduce the risk of bacterial infections. In a world where antibiotics do not work, this measure would become largely useless and surgery would become far more dangerous. Many procedures, such as hip operations, which currently allow people to live longer active lives and may enable them to stay in the workforce, might become too risky to undertake. Modern cancer treatments often suppress patients' immune systems, making them more susceptible to infections. Therefore, without effective antibiotics to prevent or treat infection, chemotherapy would become a much riskier proposition. (1) This also applies to immunocompromised patients, who also use treatments which suppress the immune system.

### **Why doctors?**

In a majority of countries, antimicrobials are provided only if physician approved prescriptions are presented. They are available as over-the-counter medication in a few countries. Since most countries have a system where prescriptions come from physicians, emergence of resistance, due to irrational prescription and drug misuse is becoming a leading factor for AMR[1][3][4].

Antibiotics are the most prescribed out of all antimicrobial drugs, and according to the Centers for Disease Control and Prevention, at least 30% of prescribed antibiotics are not needed. Even with the remaining 70% of prescriptions, improvement in selection is needed to prescribe the most appropriate antibiotics[2].

Why do doctors prescribe antimicrobials in an irrational way?

There are many factors that lead doctors to prescribing antimicrobials when they are not needed, or simply to prescribing the wrong ones for the given situation. Following are some of the reasons recognized as major factors:

- 1- Pressure from the patient to prescribe antimicrobials, and be given a medication that is not an analgesic
- 2- Decreased time spent with the patient to communicate and explain the circumstances needed to prescribe antimicrobials, and when they are not necessary
- 3- Having some physicians not taking a full history, performing appropriate physical examination and ordering the right investigations, in order to save time and take in more patients
- 4- Lack of rapid diagnostic tools to aid in clinical diagnosis and to help differentiate between viral vs. bacterial causes.

These reasons, among others, are contributing to the emergence of antimicrobial Resistance[5][6][7][8].



# IFMSA

International Federation of  
Medical Students' Associations

## References

- (1) **Antimicrobial resistance: Tackling a crisis for the health and wealth of nations; The review on antimicrobial resistance; Chaired by Jim O'Neill; December 2014**
- (2) **Antimicrobials in agriculture and the environment: reducing unnecessary use and waste; The review on antimicrobial resistance; Chaired by Jim O'Neill; December 2015**
- (3) <http://www.who.int/antimicrobial-resistance/en/>
- (4) **WHO, FAO and OIE factsheet on antimicrobial resistance**
- (5) **ReAct facts; A fact sheet from ReAct - Action on Antibiotic Resistance; May 2012; [www.reactgroup.com](http://www.reactgroup.com)**
- (6) <http://www.who.int/mediacentre/factsheets/fs194/en/>
- (7) <http://www.cdc.gov/media/releases/2016/p0503-unnecessary-prescriptions.html>
- (8) <http://www.who.int/bulletin/volumes/88/12/10-079004/en/>