

World Medical Journal

Official Journal of The World Medical Association, Inc.

Nr. 4, December 2023

vol. 69

Contents

Editorial	3
Valedictory Speech by the WMA President, Dr. Osahon Enabulele	4
Inaugural Address by the WMA President, Dr. Lujain Alqodmani	9
The 224th Council Session: A Glimpse into Global Medical Governance	12
WMA Declaration of Washington on Biological Weapons	16
WMA Declaration on the Ethical Use of Medical Technology	18
WMA Statement in Times of Armed Conflict and Other Situations of Violence	19
WMA Statement on Forced or Coerced Sterilisation	21
WMA Statement on Human Health as a Primary Policy Focus for Governments Worldwide	22
WMA Statement on International Medical Meetings	22
WMA Statement on Medical Ethics During Public Health Emergencies	23
WMA Statement on Natural Variations of Human Sexuality	25
WMA Statement on Primary Health Care	27
WMA Statement on Electronic Cigarettes and Other Electronic Nicotine Delivery Systems	29
WMA Resolution Condemning the Violence Against Physicians in Nepal	30
WMA Resolution for an Immediate Ceasefire in Sudan and the Protection of Health Care	31
WMA Resolution in Support of the Medical Associations in Latin America and the Caribbean	31
WMA Resolution on Acknowledgement and Condemnation of the Human Rights Violations Against the Uyghurs and Other Minorities in China	32
WMA Resolution on Anti-LGBTQ Legislation in Uganda	33
WMA Resolution on Human Rights Demonstrations in Iran	34
WMA Resolution on Medical Workforce	34
Update on the Revision of the WMA Declaration of Helsinki	37
Interview with the WMA President	38
A Few Words about WMA Associate Membership	42
Forming a Transdisciplinary Research Network to Address Diseases and their Syndemics	44
The Road to the Antimicrobial Resistance High-Level Meeting 2024	51
Advocating for Change: Junior Doctors' Role in Global Antimicrobial Resistance Initiatives	56
WMA Members Contribute Insight on Global Efforts to Combat Antimicrobial Resistance	58

WORLD MEDICAL ASSOCIATION OFFICERS, CHAIRPERSONS AND OFFICIALS

Dr. Lujain ALQODMANI
President
Kuwait Medical Association
123 Fifth Avenue,
1202
Kuwait

Dr. Ashok PHILIP
President-Elect
Malaysia Medical Association
4th Floor, MMA House,
124 Jalan Pahang
53000 Kuala Lumpur
Malaysia

Dr. Osahon ENABULELE
Immediate Past President
Nigerian Medical Association
8 Benghazi Street,
off Addis Ababa Crescent
Wuse Zone 4, P.O. Box 8829
Wuse, Abuja
Nigeria

Dr. Jung Yul PARK
Chairperson of Council
Korean Medical Association
Samgu B/D 7F 8F 40
Cheongpa-ro,
Yongsan-gu
04373 Seoul
Republic of Korea

Dr. Otmar KLOIBER
Secretary General
World Medical Association
13 chemin du Levant
01212 Ferney-Voltaire
France

Dr. Tohru KAKUTA
Vice-Chairperson of Council
Japan Medical Association
113-8621 Bunkyo-ku, Tokyo
Japan

Mr. Rudolf HENKE
Treasurer
German Medical Association
(Bundesärztekammer)
Herbert-Lewin-Platz 1
(Wegelystrasse)
10623 Berlin
Germany

**Dr. Steinunn
THÓRDARDÓTTIR**
Chairperson,
Medical Ethics Committee
Icelandic Medical Association
Hlidasmari 8
201 Kópavogur
Iceland

Dr. Jack RESNECK
Chairperson,
Finance and Planning Committee
American Medical Association
AMA Plaza, 330 N. Wabash,
Suite 39300
60611-5885 Chicago, Illinois
United States

Dr. Zion HAGAY
Chairperson,
Socio Medical Affairs Committee
Israeli Medical Association
2 Twin Towers, 35 Jabotinsky St.,
P.O. Box 3566
52136 Ramat-Gan
Israel

Dr. Jacques de HALLER
Chairperson,
Associate Members
Swiss Medical Association
(Fédération des Médecins Suisses)
Elfenstrasse 18, C.P. 300
3000 Berne 15
Switzerland

www.wma.net

OFFICIAL JOURNAL OF THE WORLD MEDICAL ASSOCIATION

Editor in Chief

Dr. Helena Chapman
Milken Institute School of Public Health, George Washington University, United States
editor-in-chief@wma.net

Assistant Editor

Mg. Health. sc. Maira Sudraba
Latvian Medical Association
lma@arstubiendriba.lv, editor-in-chief@wma.net

Journal design by

Erika Lekavica
dizains.el@gmail.com

Publisher

Latvian Medical Association
Skolas Street 3, Riga, Latvia
ISSN 0049-8122

Opinions expressed in this journal – especially those in authored contributions –
do not necessarily reflect WMA policies or positions



Editorial

Over the past 12 months, our global medical community has successfully led numerous robust clinical and public health initiatives and contributed to timely research collaborations, which have reinforced community stakeholder engagement with decision-makers and the public. These milestones have been widely recognised across the World Medical Association (WMA) and other professional medical societies, resulting in the preparation and revision of declarations (e.g. biological weapons, ethical use of medical technology), statements (e.g. e-cigarettes, primary health care), press releases (e.g. physicians' rights), and resolutions (e.g. human rights, workplace violence). Notably, these judicious efforts underscore the need for multidisciplinary collaborations to closely examine complex global challenges, driven by identifying disease or toxic hotspots and vulnerable populations, fostering networks and communicating with relevant stakeholders, and implementing ethical interventions to protect population health. For example, the WMA Resolution on Collaboration between Human and Veterinary Medicine highlights the One Health concept and describes ongoing collaborations with the World Health Professions Alliance and the World Veterinary Association.

Recently, WMA members have participated in several global meetings – including the UN General Assembly (UNGA78) (5-19 September), Group on Earth Observations (GEO) Ministerial Summit (6-10 November), and UN Climate Change Conference (Conference of the Parties, COP28) (30 November–12 December) – which aimed to raise awareness of urgent global health challenges (like climate change) and reestablish solidarity to reaching the ambitious targets of the 2030 Agenda for Sustainable Development. Simultaneously, national medical associations (NMAs) have coordinated activities related to three global events – One Health Day (3 November), World Antimicrobial Resistance (AMR) Awareness Week (18-24 November), and World AIDS Day (1 December) – which offered a platform to share research findings and clinical updates, identify existing challenges, expand collaborative networks, and ensure best practices and interventions to mitigate risk to population health. Notably, these WMA and NMA contributions can leverage clinical expertise to advance science, streamline health service delivery, support national health objectives, and ultimately strengthen global health security.

With special recognition to the Rwanda Medical Association, the 74th WMA General Assembly was held in Kigali, Rwanda, from 4-7 October 2023. At the event, WMA members contributed to important discussions on WMA statements and resolutions, learned from invited speakers on global health security topics, and connected with other NMAs and WMA members. Now, we eagerly await the 226th WMA Council Session, which will be held in Seoul, Korea, from 18-20 April 2023.

We are honoured to share this issue of the *World Medical Journal*, which presents the opportune adoption of WMA declarations, statements, and resolutions on topics, ranging from promoting the ethical use of medical technology to condemning violence against physicians, at the 224th WMA Council Session. In this issue, Ms. Magda Mihaila summarised the event proceedings, and Dr. Osahon Enabulele and Dr. Lujain Alqodmani offered energising speeches on WMA milestones. In an interview, Dr. Alqodmani expressed her viewpoints on global challenges within the medical community, shared upcoming WMA activities, and described the UN Decade of Action on Nutrition (2016-2025). The American Medical Association provided an update on the revision of the WMA Declaration of Helsinki. Dr. Jacques de Haller encouraged WMA members to join the WMA Associate Membership. Dr. Dennis Pérez Chacón and colleagues highlighted the inaugural meeting of the Transdisciplinary Research Network that aims to address diseases and their syndemics.

To support the World AMR Awareness Week 2023, three articles were specifically focused on global efforts to combat AMR. First, Dr. Pablo Estrella Porter, Dr. Caline Mattar, and Dr. Helena Chapman described the emerging threat of AMR and the upcoming 2024 UN High-Level Meeting on AMR. Second, Dr. Pablo Estrella Porter stressed the important role of junior doctors in the development and implementation of AMR initiatives. Finally, WMA members representing 20 countries from diverse geographic regions shared past and current policies as well as community activities that support World AMR Awareness Week 2023 and promote antimicrobial stewardship across human, animal, and agricultural sectors.

As we finalise the year, WMA members are reminded of our priceless role in leading clinical management, supporting community engagement, and contributing to robust collaborative research initiatives. Helen Keller expressed the value of these collective opportunities: “We live by each other and for each other. Alone we can do so little; together we can do so much.” Our expertise can help build upon the scientific literature to mitigate risk of emerging global health risks and protect community health and well-being. We wish you and your families a healthy and reflective holiday season, and we look forward to connecting at the 226th WMA Council Meeting in Seoul!

Helena Chapman, MD, MPH, PhD
Editor in Chief of the World Medical Journal
editor-in-chief@wma.net

Valedictory Speech by the WMA President, Dr. Osahon Enabulele *Kigali, 6 October, 2023*



Osahon Enabulele

Your Excellencies, Honoured Guests, The President-elect, Immediate Past President, Council Chair, the Secretary General, Council Members, and Members of the World Medical Association (WMA), The President of the Nigerian Medical Association, Dr. Uche Rowland Ojinmah, My lovely wife, Asso. Prof. Joan Enabulele, my Children, Efosa Enabulele, Omorovbiye Enabulele, and Osarumwense Enabulele, Dr. Patrick Okundia, Former Commissioner for Health, Edo State, and family. Dr. and Dr. (Mrs.) Ofunre Eboime,

Colleagues, Friends, Distinguished Ladies and Gentlemen.

So soon, I am here again on this rostrum, but this time not to deliver an inaugural presidential address, but a valedictory presidential address.

But before I proceed further, I wish to heartily welcome everyone to this auspicious ceremonial session of the 74th WMA General Assembly.

I congratulate the Rwanda Medical Association (RMA) for courageously hosting this Assembly.

As one who encouraged and supported the RMA to bid for the hosting of this General Assembly,

I feel very proud of them for their excellent hosting of the Assembly. On behalf of the WMA, I say thank you.

In some minutes from now, I shall be handing over the reins of the WMA presidential office, along with this presidential medallion (and all the WMA regional spirits surrounding it) to a worthy successor, Dr. Lujain Alqodmani.

When I informed some of my colleagues and my fellow country men and women that my presidential hand over was at hand, many drew back in consternation, and asked why the tenure was so short. In my response to them, I told them that it may have appeared so short because of the fact that my one-year tenure was characterised by engagements and activities that were undertaken at a frenetic pace. I had to console them with the common saying that **it is not how long or short a tenure is, but how well the tenure was put to use.**

When two years ago, in 2021, I sought your collective democratic mandate to serve you as President of WMA, I had no illusions that we could address all the issues and resolve all the challenges facing the WMA and health systems, globally, in just one year.

In my inaugural presidential address, I had pledged to make great efforts to consolidate upon the work of my predecessor in office, Dr. Heidi Stensmyren, and to work collaboratively with other leaders and members of WMA, to propel a progressive leadership that undertakes initiatives and actions that will enhance the visibility and fortunes of WMA.

In line with my pledge, we truly

consolidated upon our previous gains, and advanced initiatives that have transformed the WMA into a more visible organisation that resonates positively in international circles, in the minds of her constituent members, and individual physicians around the world.

Importantly, we were able to undertake the following, amongst others:

1) Intense Public Advocacy for Universal Health Coverage, Resilient Health Care Systems, and Resilient Health Workforce

In realisation of the great need to reposition health care systems in a post-COVID-19 era, we intensified our advocacy efforts for the building of more resilient health care systems with a robust Physician-led multidisciplinary primary healthcare system, improved commitment to Universal Health Coverage, “One Health,” and greater investments in the well-being, working conditions, security and safety of the Human Resource for Health.

While we note some gains from our advocacy efforts, we nevertheless admit that health disparities and inequities still exist across the world. It is therefore imperative that we sustain our advocacy efforts.

It is also imperative that the resolutions of the 76th World Health Assembly and the recently held United Nations (UN) High-Level Meetings on Universal Health Coverage and Pandemic Prevention, Preparedness and Response, **move beyond mere non-binding political declarations to real commitments** by governments to address the critical issues that confront global health, including the current global health

workforce deficit of 10 million and the burgeoning phenomenon of brain drain, burnt-out, and violence in the health sector.

2) Violence against Physicians and other Health Professionals

In the last one year, there were disturbing cases of violence against physicians and other health care professionals within and outside their workplaces. Everywhere I visited in the course of my tenure, there was an evident consensus that this issue of violence was of great concern to physicians.

I am happy to state that we took very decisive steps against these unwarranted assaults and violence against our colleagues, by showing solidarity with them and loudly condemning these despicable acts of violence which undermine our colleagues, our medical profession, patients, and the health care delivery systems of the affected countries.

While we must sustain our call on physicians to keep faith with our ethical codes, it is important to continuously demand of Governments and health institutions across the globe to take practical measures, including the enforcement of legal and policy instruments, and the recently launched Global Health and Care Worker Compact, to stop violence against physicians and other health professionals.

3) Development of New Initiatives

i) The WMA Roundtable and Leadership Series

One of the significant developments recorded during the tenure was the development of a new initiative called the **WMA Roundtable and Leadership Series**. This initiative seeks to directly interface with

physicians across the world, with the aim of improving their awareness and perception of the WMA, and impacting on their leadership, educational and professional development.

I am very happy to state that the maiden edition of the WMA Roundtable and Leadership Series which was centred on WMA's history, scope of work, membership, and role of National Medical Associations, was successfully held on Friday, 29 September 2023.

As observed by most participants, this maiden session was quite revealing and provided an added spark to further propel the initiative. I thank all those who worked with me to make this a reality.

ii) The WMA Global Healthcare Excellence Award Scheme

It is my hope that the proposal on the WMA Global Healthcare Excellence Award Scheme will some day be approved for expression in the WMA, particularly as it is primarily aimed at recognising the sense of duty, commitment and excellence of physicians and others who contribute to the development of healthcare systems, with the overall aim of motivating physicians and strengthening healthcare systems. I thank Prof. Joseph Ana and members of his team who worked with me to develop the proposed scheme.

4) Defence of our Colleagues in the Turkish Medical Association

During my tenure, we showed massive solidarity with our colleagues facing assaults from repressive regimes, including the Dr. Sebnem Korur Fincanci-led leadership of the Turkish Medical Association (TMA), who have been facing sustained assaults on their fundamental human rights,

their medical professional autonomy and clinical independence.

As a mark of solidarity with our colleagues in the TMA, I visited Ankara, capital of Turkey, where I physically witnessed with sadness, the court trial of leaders of the Turkish Medical Association that took place on Thursday, 22 June 2023, in the Ankara Diskapi Court House, 31st Civil Court, in Ankara, Turkey. **This unjust trial of our progressive colleagues was simply because they voiced out their opinions against the ills in the system.**

Before appearing in court, and with a strong reliance on my background experiences in struggles of this nature, I directly addressed a rally in support of our troubled colleagues, within the precincts of the court house. I also addressed a press conference to drive home our case against the oppression of our colleagues in Turkey.

I am happy to note that our physical presence added to the atmosphere in the court and sent a loud signal to the Turkish Government and the Judiciary that the WMA was robustly in support of our colleagues.

I urge us to remain united in our struggle against oppression of our colleagues and to stoutly resist attempts at undermining their fundamental human and labour rights, as well as their medical professional autonomy and clinical independence.

5) Improved Sense of Belonging

In line with our commitment to improve the sense of belonging amongst our members, we undertook several outreaches during my tenure.

I had the privilege to visit some National Medical Associations and regional bodies, including, amongst others:

- Swedish Medical Association,
- Japan Medical Association,
- Taiwan Medical Association,
- Israeli Medical Association,
- German Medical Association,
- British Medical Association,
- Turkish Medical Association,
- Austrian Chamber of Physicians,
- CMAAO,
- And my home base - Nigerian Medical Association.

I thank them for according me their warm hospitality during these visits.

I must admit that these visits, though gruelling, were important learning points and a source of value addition to the WMA, particularly as it helped to reinforce our oneness as professionals, and the commitment of our members to the WMA.

I cannot easily forget my experiences in Turkey when I visited the earthquake regions of Adana and Hatay Cities of Turkey, on Friday, 23 June, and Saturday, 24 June 2023, respectively. My visit to Hatay city was particularly revealing as I came in close contact with many displaced families, and orphans, living in various shelter camps and struggling for basic needs of life. I witnessed many devastated communities and had personal interactions with those who lost their loved ones.

I was particularly moved by the sad case of a Physician who lost his wife and children during the earthquake, but despite this, was still providing healthcare to other injured victims.

I once again express our deep sympathies and condolences to all those who lost loved ones in recent natural and man-made disasters. We pray for the eternal repose of the souls of all those lost in the wake of these disasters.

6) Partnerships and Collaborations

In the last one year, we worked hard to strengthen our association with our collaborating partners and bodies, including including the World Health Organization (WHO).

One of my first assignments was to visit the WHO headquarters in Geneva, to join our partners in the World Health Professions Alliance (WHPA), to sign a Memorandum of Understanding (MOU) with the Dr. Tedros Adhanom Ghebreyesus-led WHO on:

- Health workforce,
- Universal Health Coverage,
- Non-Communicable Diseases,
- Aging populations.

We also played our roles in the WHO 5th Global Forum on Human Resource for Health, the 76th World Health Assembly, and the High-Level Meetings of the 78th United Nations General Assembly.

We sustained our associations with the International Committee of the Red Cross, World Veterinary Association, World Psychiatry Association, amongst others. **It is my hope that in due course, we would have a formal partnership with the Commonwealth Medical Association.**

7) Review of the Declaration of Helsinki

Our internal work on revision of the Declaration of Helsinki (DoH) continued to make progress during the period under review with hosting of exciting and productive regional revision sessions.

I commend the Dr. Jack Resneck Jr-led DoH-Revision Committee for the commitment and progress thus far.

8) Associate Members and Junior Doctors Network

I must appreciate the sustained progress made during my tenure by both the Associate Members (AM) and the Junior Doctors Network (JDN). I commend the Dr. Jacque Hailer-led leadership of the AM and the Dr. Uche Arum-led leadership of the JDN for engineering progressive leadership of the respective bodies, with value added to the WMA.

9) Ukraine Help Fund

In solidarity with our colleagues in Ukraine, we sustained the Ukraine Help Fund which has been a great source of support for delivery of medical care in Ukraine.

On behalf of the WMA, I wish to thank all NMAs and other bodies who continue to make financial donations to the Fund.

CHALLENGES

1) Awareness and perception of WMA amongst individual physicians and citizens.

Despite existing for over 75 years, there is still need to create greater awareness amongst individual physicians and citizens, of what the WMA does and stands for. There is need to also deconstruct the wrong perception in some quarters that the WMA is a missionary body and that the office of the WMA President is a salaried office.

2) Relationship with the WHO and the UN.

While the WMA has maintained her international relationship with the UN Bodies, including the WHO, I wish to observe that the attitude of these bodies to Civil Society Organizations (CSOs), including the

WMA, has been very disappointing. This certainly needs to change, if the expected dividends from such relationships are to be reaped.

I consider unfortunate, in fact totally unacceptable, a situation where CSOs like the WMA are left to struggle for severely limited space with others, to advance their positions within these global bodies. Sometimes, the WMA is left on the fringes, and only allowed to make their depositions within 1 or 2 minutes.

The question that therefore needs to be addressed is whether global health can truly be advanced without according bodies like the WMA, their rightful place in such bodies. We are serious about engagement; but are they serious in their desire to engage with us?

APPRECIATION

At this juncture, I wish to appreciate our almighty creator and ever faithful God for granting me abundant grace, protection and blessings, in the last 3 decades of my medical leadership journey.

That I rose from the very beginning of our medical leadership ranks in the University/Medical School, through State, National, African, and Commonwealth levels, up to the global level, can only be through the abiding grace of God Almighty.

I thank all those who supported me in the course of my journey to the exalted office of WMA President, as well as those who supported our work during my tenure, including my friends in the 4th estate of the realm. Without their support our work would have been difficult.

I am thankful to the WMA Executive

Committee and Council for the support offered me during my tenure. I must admit that I was privileged to work with a unique set of committed, diligent and patriotic officers of the WMA. I cannot thank enough, our Secretary General, Dr. Otmar Kloiber, and the entire WMA Secretariat Staff. Their unflagging commitment, sense of duty, industry, passion, and support, was simply marvellous! **They are the best ever!**

I dedicate this day to my parents, who nurtured and prepared me for my leadership and career path in life. My dear mother, Evangelist Rachael Ayi Enabulele, a disciplinarian, would have wished to be here, but for certain circumstances.

My late father, Elder Jonathan Igbineweka Enabulele JP, had truly looked forward to a day like this, but never had the opportunity to witness this moment, as he passed on in the year 2013 when I was serving as President of the Nigerian Medical Association. Daddy, may your great soul continue to rest in Perfect Peace! My profound gratitude truly goes to my parents.

Now, to my immediate family, my wife, Asso.Prof. Joan Enabulele, and my lovely three children, Efosa Enabulele, Omorovbiye Enabulele, and Osarumwense Enabulele. What can I really say to them? They have been a great source of strength. Their support was a vital ingredient that propelled me to continuously oil and drive the engine of growth and development in the WMA.

I appreciate their patience, tolerance, care, love, and understanding. They have always tolerated my absence from home. But the good news is that I will soon be coming back home.

I specially thank the President of the Nigerian Medical Association, Dr. Uche Ojinmah, all past Presidents of NMA, and indeed all members of the Nigerian Medical Association for the varied levels of support extended to me. I thank all physicians and leaders of National Medical Associations in Africa, and indeed across the globe, for their support.

I acknowledge the Lion Killer's Team, my Presidential Team, family and friends.

I must especially acknowledge the presence and support of my special Guests, colleagues, friends, and well-wishers who travelled to Kigali, to witness my valedictory session.

I thank the Governor of my State, Edo State, Mr. Godwin Nogheghase Obaseki, and the State Government, for their support. I thank our King and Oba of Benin, His Royal Majesty, Omo N'Oba N'Edo Uku Akpolokpolo, Oba Ewuare II OGIDIGAN CFR, and His Eminence, Alhaji Muhammad Sa'ad Abubakar III, CFR, mni, The Sultan of Sokoto, for their support.

I am profoundly grateful to Sir. Chief. Dr. Gabriel Osawaru Igbiniedion CON, CFR, The Esama of Benin; as well as **the Manager of Independent Television and Radio, Engr. Elvis Obaseki,** and all the Staff of ITV Benin, for their unparalleled support.

I thank the Chief Medical Director (Prof. Darlington Obaseki), Management Team, and Staff of the University of Benin Teaching Hospital (where I practise), and the former Chief Medical Director and former Management Board of Lagos University Teaching Hospital (where I served as a Management Board Member) for their support during my 1-year tenure.

World Medical Journal



My profound gratitude goes to my Head of Department of Family Medicine, Dr. Adewole Afolabi, and all staff of the Department, for their rare understanding and support.

CONCLUSION

Dear Colleagues,

Distinguished Ladies and Gentlemen,

It took me over 15 years of engagement within the WMA and four attempts at this office of WMA President, before getting to the very top. **I therefore want to once again express my eternal gratitude to you, for the great privilege and honour extended to me, the very first Nigerian and first West African physician, to serve as President of WMA.**

I hope I met your expectations!

I hope your judgement would be that **“I came, I saw, and truly acquitted myself.”**

As I formally hand over the baton, I wish to assure our members that I will continue to totally commit myself to the mission, vision, and strategic objectives of the WMA.

I also wish to once again urge our members to remain faithful and committed to the WMA.

Our members should always remember that “for the WMA to be that truly strong body they desire it to be, its tree must be watered by their collective efforts.”

I cannot end this address without paying special tribute to our

colleagues who lost their lives in the last one year. May their great souls rest in perfect peace.

I wish my successor in office, Dr. Lujain Alqodmani, success in her tenure.

I pray God to grant you all journey mercies back to your respective homes.

I thank you for your kind attention.

Long live the WMA!!!

Dr. Osahon Enabulele, M.B.B.S,
MHPM, FWACP, FNMA
Past President (2022-2023)
World Medical Association
osahoncmavp@gmail.com

Inaugural Address by the WMA President, Dr. Lujain Alqodmani *Kigali, 6 October, 2023*



Lujain Alqodmani

Your excellency Dr. Sabin Nsanzimana, Minister of Health of Rwanda, World Medical Association (WMA) Executive Committee members, esteemed colleagues, distinguished guests, ladies and gentlemen, it is both a privilege and an honour to stand before you today in the beautiful city of Kigali here in Rwanda.

I would like to extend my heartfelt gratitude to the outgoing WMA President, Dr. Osahon Enabulele for his invaluable service to this organisation. I thank the Kuwait Medical Association for supporting my candidacy for WMA presidency.

I would like to kindly ask my family and friends who crossed thousands of miles to be here with me today, please stand. Your unwavering support has been my foundation, and I am deeply grateful for your presence.

A special thank you goes to my parents, Mr. Radwan Alqodmani and Ms. Wafaa Alobaid, who taught me that the sky is not the limit, but just the beginning.

And to Dr. Michele Ancona, my husband, thank you for being my rock, for supporting me, and for standing strong by my side.

I am deeply committed to my role as President of the WMA. I value the trust that you, the members, have placed in me.

Today, I wish to outline some of the key issues we must address as an association.

Gender Equality

In a world where gender disparities are glaring especially in healthcare, it's time for action. During the COVID-19 pandemic, we witnessed a shocking ratio: only one woman was vaccinated for every three men in some countries. This disparity is not only limited to vaccinations but also extends to maternal healthcare.

I feel incredibly grateful for the opportunity I had to receive top-notch maternal healthcare services when I welcomed my daughter Yasmin into the world this past February. However, it pains me to acknowledge that this privilege isn't a universal reality for countless women across the globe.

Inequalities persist in many corners of the world, and it's disheartening to know that according to the WHO, even in the European Union, where women tend to outlive men, a significant portion of them spend most of their lives in poor health.

These disparities reach well beyond health. It's estimated that 200 million girls have undergone female genital mutilation, over 100 million girls are currently out of school, and a staggering 140 million girls are anticipated to marry before the age of 18 in the coming decade. Consequently, if the current trends continue unchecked, it will take us more than a century to close the

global gender gap.

Recent studies show that a significant majority of the global health and social care workforce are women, constituting well over half. Despite contributing a substantial value to the health system, their crucial contributions persistently remain undervalued. Alarming, women hold just a quarter of leadership positions in healthcare. We witness gender inequity manifest in many ways, from sexual harassment and gender-based discrimination by both patients and colleagues to a noticeable gender pay gap and instances of violence within the workplace.

Therefore, the pursuit of gender equality is not merely a moral imperative-it is integral to the attainment of universal health coverage and is crucial for securing the health and well-being of all - leaving no one behind. It is essential in addressing the social determinants of health effectively.

The WMA will persistently advocate for gender equality. This includes fostering inclusive leadership opportunities within organised medicine and ensuring equal, high-quality, and safe healthcare services for women and a safe work environment for women physicians and other healthcare professionals.

Climate Change and Health

Colleagues, we are living in the era of global crises, marked by the Three Cs: climate change, COVID-19, and conflict. In 2019, WMA declared a climate emergency, recognising the urgency of the situation. The impacts of climate change are already here and are disproportionately affecting vulnerable populations, including

children. An alarming one billion children are impacted by changes in their environment.

Climate change stands as the paramount threat to public health, presenting substantial risks to the well-being of present and future generations alike. The World Bank projects that, by 2030, climate change could plunge over 100 million people back into extreme poverty, with a considerable portion of this impact being attributed to detrimental effects on health.

The evidence is irrefutable. We have recently experienced the hottest summer on record, characterised by extreme heat waves, rampant wildfires, and escalating ocean temperatures, and other climatic events-many of which are the consequences of human actions.

Given that we are gathered here in Rwanda, it is crucial to emphasise the immediate and lasting impacts of these climate-related events in the continent of Africa. The World Health Organization states that the continent experiences over 100 health emergencies each year, making up a staggering 70% of all natural disasters recorded between 2017 and 2021.

Ladies and gentlemen, We are at a tipping point. Accelerated action is needed now more than ever. WMA will continue to call for divestment away from fossil fuels and focus on building resilient, sustainable healthcare systems. We can't afford to wait; the time for action is now.

Food Systems

The state of our food systems is nothing short of alarming. Diet-related illnesses have become the number one driver of ill health and premature deaths globally. A

staggering 1 in 5 deaths are linked to unhealthy diets. Nearly 4 billion people, that is more than one-third of the world's population, struggle to access healthy diets and 1 in 3 people on the planet is malnourished. This situation is exacerbated by climate change and the destruction of nature. The human cost is mind-blowing, and the economic costs are equally devastating. The annual economic burden of unhealthy diets is up 3.5 trillion USD per year

Hunger is also a critical issue; the number of chronically hungry people is on the rise, estimated at around 800 million in 2020. The future looks bleak for over 100 million stunted children who will never reach their full potential, both physically and mentally.

Our current food systems are not only killing us but are also devastating our planet. They are responsible for about one-third of our total emissions and are the principal driver of the global extinction crisis, loss of biological diversity, and destruction of nature.

As physicians and healthcare professionals, we have a significant role to play in addressing these challenges. We must be proactive in conducting dietary assessments, providing professional counsel, and supporting education and training. But most importantly, we must drive major advocacy efforts to transform food systems for the better.

Universal Health Coverage (UHC)

Now, let's imagine a world where everyone, everywhere, has access to safe, good-quality, and free healthcare service whenever needed. This is not a utopian dream; it is a basic human right that the world is tragically failing to fulfill. The COVID-19 pandemic has underscored and exacerbated

existing shortcomings, underscoring the imperative need for healthcare systems that are robust, equitable, and resilient.

Establishing such inclusive systems is pivotal for achieving Universal Health Coverage (UHC) and fortifying health security. It contributes to broader socioeconomic progress and offers an opportunity for more and better-directed investment in the foundations of health systems. An integrated approach, based on primary health care, is vital to ensure that no one is left behind.

WMA will continue to urge governments to provide excellent and safe working conditions and prioritise health worker protections. Decent working conditions must include fair, equal, consistent, and timely pay for all health workers.

Furthermore, healthcare professionals, especially women and youth, need to be protected from work-related violence and harassment. We call on governments to act to prevent and eliminate such brutality by providing an appropriate physical environment and by developing and implementing zero-tolerance laws.

UHC will not be achieved without a holistic primary healthcare approach. It serves as the initial point of contact for individuals within the health system, providing a platform for prevention, early diagnosis, and treatment. It's a cost-effective approach that prioritises equity and accessibility, ensuring that healthcare reaches the most vulnerable and remote populations. By integrating various healthcare services, from maternal and child health to chronic disease management, it creates a patient-centered model that promotes long-term health and well-being for all.

Emerging Technologies and Impact on Medicine

As we embrace the age of artificial intelligence and other emerging technologies, we stand at the cusp of a revolution in healthcare. These advancements have the potential to radically enhance healthcare delivery, diagnostics, and patient management. However, it is imperative that we approach this new era with caution to ensure that these technologies serve to improve healthcare, rather than complicate or compromise it.

WMA will delve into the ethical and practical implications of assimilating these technologies into healthcare. Attention must be given to data privacy, bias, and the potential displacement of healthcare workers. As physicians, we have an ethical responsibility to ensure the transparent and equitable implementation of these technologies, maintaining adherence to the highest medical ethics and standards.

It is pivotal for WMA to be at the forefront of this transformative era. By pioneering the incorporation of emerging technologies in healthcare, we can establish guidelines and protocols that uphold the integrity of medical practice. This leading role will also empower us to advocate for policies that safeguard both healthcare professionals and patients, while promoting innovations that enhance the entire healthcare ecosystem.

Youth

It is a common saying, 'youth are the future leaders,' but I find this notion somewhat constraining. It seems to suggest that the youth should patiently await their turn to enact significant change.

My journey to the presidency of WMA initiated within the Junior Doctors Network. It was there that my passion and dedication to advocating for enhanced health through organised medicine were cultivated. I am determined to stand by and support the network's ambitious and innovative members who continually bring substantial value to our organisation.

I am a fervent advocate for intergenerational equality, particularly in leadership roles. The voices of the younger generation are resounding, potent, and have already demonstrated their capability to make a substantial impact.

Recognising the value in this, it's paramount to appreciate that every generation

brings its unique insights and valuable experiences.

When we all-irrespective of age-work together, we create more effective and inclusive approaches to healthcare and leadership.

In this cooperative and inclusive environment, we discover a synergy where diverse perspectives and experiences unite, enabling us to

achieve outcomes that are far richer and more impactful than what we could accomplish individually.

Conclusion

In closing, I would like to express my heartfelt gratitude to the Rwanda Medical Association for hosting this General Assembly. Thank you for your hospitality, generosity and welcoming us to your beautiful country.

We stand at a critical juncture—a world in crossroads—as physicians, we bear a tremendous responsibility to maintain and protect the health and well-being of all people.

As we look toward the future, let us remember that the practice of medicine is not just a profession; it is a calling that transcends borders, cultures, and languages. I take this mantle of leadership humbly, ever mindful of the gravity and importance it holds to steer this esteemed organization in expanding its reach, impact, and relevance in a rapidly evolving global landscape.

I feel this responsibility even more now, not just because I have just been inaugurated to lead the WMA, but also as a new mother to my daughter Yasmin. It reminds me that the work we do today is not just for us, but for the generations that follow.

*Lujain Alqodmani,
BMSc, MBBS, MIHMEP
President (2023-2024),
World Medical Association*

The 224th Council Session: A Glimpse into Global Medical Governance



Magda Mibaila

The 224th Council Session of the World Medical Association (WMA) convened in the city of Kigali, Rwanda, marking a significant chapter in the collective pursuit of advancing global medical governance (Photo 1).

Welcoming New Members and Addressing Key Issues

The session began under the guidance of the Council Chair by welcoming newly attending Council members Dr. Bruce Scott (American Medical Association), Sir Ian Gilmore (British Medical Association), Dr. Kitty Mohan (British Medical Association), and Dr. Yongmao Jiang (Chinese Medical Association).

A pivotal moment arose when a proposal to amend the WMA Council Resolution on Organ Donation in China surfaced. The ensuing debate underscored the delicate balance between addressing critical issues at the Council level and deferring matters to specialised committees. The Council decision to send the issue to the Medical Ethics Committee reflected the commitment to a thorough examination of the matter.

The Council approved the appointment of the Credentials

Committee comprised of Dr. Kitty Mohan (British Medical Association), Dr. John Baptist Nkuranga (Rwanda Medical Association), and Dr. Pablo Requena (Vatican Medical Association), three individuals from constituent members covering each of the three official WMA languages (English, French, Spanish). The diverse composition of this committee, covering the three official WMA languages, ensures a fair and comprehensive evaluation of credentials.

Leadership Reports: Navigating Challenges and Celebrating Achievements

The report of Dr. Osahon Enabulele, the WMA President 2022-2023, provided a panoramic view of the WMA's engagement on the global stage. From supporting colleagues in the Turkish Medical Association to active participation in the 76th World Health Assembly, the WMA continues to play a crucial role in advocating for the rights and well-being of physicians worldwide.

The WMA's engagement was confirmed in the reports of the Secretary General and Chair of Council, highlighting effective collaborations within the Executive Committee.

Committee Reports: Shaping the Future of Healthcare Policies

The Council, employing a consent calendar for efficiency, approved a multitude of committee reports. Notable resolutions included providing support for physicians in Nepal, addressing human rights demonstrations in Iran, advocating for an immediate ceasefire in Sudan, and standing against anti-LGBTQ

legislation in Uganda. These resolutions exemplify the WMA's dedication to upholding ethical standards and promoting the well-being of individuals globally.

Advocacy and Communication Workgroup: A Reflection on Progress and Future Endeavours

The session delved into the work of the Advocacy and Communication Workgroup, revealing both accomplishments and challenges. While acknowledging the need for continued advocacy efforts, the decision to disband the workgroup reflects a commitment to re-evaluate strategies and align them with the forthcoming Strategic Plan.

Global Solidarity and Support

The meeting concluded with an appeal from the Indonesian Medical Association for reinforcement in the face of challenges in their home country. This call for solidarity highlights the interconnectedness of the global medical community and the importance of standing together in times of adversity.

As the 224th Council Session was adjourned, it became evident that our collective efforts transcend borders, cultures, and languages. The decisions made during these deliberations shape the trajectory of global healthcare, emphasising the WMA's role as a unifying force in advancing medical ethics, professionalism, and patient care worldwide.

WMA General Assembly 2023 in Kigali, Rwanda

The recently concluded WMA General Assembly in Kigali, Rwanda, marked a significant milestone in the

organisation's history. The Assembly Ceremonial Session on Friday, 6 October 2023, paved the way for a weekend of meaningful discussions, acknowledgments, and transitions.

The session commenced with the call to order by WMA President, Dr. Osahon Enabulele, at the Radisson Blu Hotel & Convention Centre. The roll call and introduction of delegates emphasised the global nature of the WMA, with representatives from 49 constituent members and observers from non-member associations present.

The warm welcome by Dr. David Ntirushwa, President of the Rwanda Medical Association, reflected the spirit of collaboration and shared commitment among the WMA members. Dr. Ntirushwa's emphasis on the importance of WMA meetings as a platform for global health discussions and collaboration resonated with the diverse audience gathered in Kigali. The traditional Rwandan dance offered to the participants added a cultural touch, symbolising the unity and diversity within the medical community.

Honourable Dr. Sabin Nsanzimana, Minister of Health of Rwanda, delivered a poignant address highlighting the challenges faced by the medical profession during the COVID-19 pandemic. He emphasised the need for resilience, education, and a commitment to fundamental principles like medical ethics. Dr. Nsanzimana's reference to Rwanda's tragic history served as a powerful reminder of the strength that can emerge from adversity.

The recitation of the Declaration of Geneva in Kinyarwanda by Dr. Damas Dukundane added a cultural and inclusive dimension to the session. The tribute to outgoing President Dr. Osahon Enabulele by

Prof. Jung Yul Park underscored Dr. Enabulele's remarkable contributions to the medical profession, human rights advocacy, and his role as the first West African president of the WMA.

Dr. Enabulele's valedictory address provided a reflective overview of his term, highlighting advocacy efforts, defence of colleagues, and a commitment to universal health coverage. The installation of the new President, Dr. Lujain Alqodmani, a leading public health doctor from Kuwait, marked a symbolic transition as the first Arab woman to be elected President. Dr. Alqodmani's inaugural address outlined her vision for the future of the WMA.

During the General Assembly Orientation Session, WMA Secretary General, Dr. Otmar Kloiber, provided a comprehensive overview of WMA operations, parliamentary procedures, and the goal of enhancing delegate participation. This session aimed to improve the efficiency and effectiveness of the General Assembly, ensuring that all delegates are well-informed and engaged.

The Plenary Session, called to order by Prof. Jung Yul Park on 7 October, covered various important aspects, including greetings, announcements, and a moment of silence for Dr. Anthea Mowat, past Interim Chair of the Associate Members, and other colleagues who have passed away during the past year.

After the approval of the minutes of the 2022 WMA General Assembly in Berlin and the election of the new President for 2024-2025, Dr. Ashok Philip, former president of the Malaysian Medical Association, highlighted the democratic processes within the WMA. Dr. Philip's acceptance speech as President-elect of the WMA expressed gratitude and

commitment to collaboration for the benefit of patients and the medical profession.

The report of the Council, outlined by Prof. Jung Yul Park, emphasised the adherence to the WMA Bylaws and the importance of unanimous acceptance of agenda points in the absence of opposition.

The WMA General Assembly in Kigali marked a pivotal moment in the global medical community's efforts to address pressing issues and uphold ethical standards. The resolutions adopted reflect a commitment to human rights, medical ethics, and global health, setting the stage for continued collaboration and advocacy in the years to come. The assembly's proceedings demonstrate the WMA's dedication to transparency, inclusivity, and responsible governance, ensuring that the medical community remains a driving force for positive change worldwide.

Human Rights Demonstrations in Iran

The Assembly adopted the proposed revision of the WMA Council Resolution on Human Rights Demonstrations in Iran, reaffirming the commitment to uphold human rights globally.

Ceasefire in Sudan

A revised resolution for an immediate ceasefire in Sudan and the protection of healthcare was adopted, reflecting the WMA's concern for the well-being of individuals in conflict zones.

Anti-LGBTQ Legislation in Uganda

The Assembly addressed the issue of LGBTQ rights, adopting a resolution condemning anti-LGBTQ legislation in Uganda and emphasising the importance of inclusivity.

Support to Physicians in Nepal

Urgent attention was given to violence against physicians in Nepal, with the adoption of a resolution condemning such acts and expressing solidarity with the medical community in Nepal.

Decisions by the Medical Ethics Committee

United Nations Resolution for a Moratorium on the Use of the Death Penalty

The Assembly received information on the minor revision of the WMA Statement on the UN Resolution for a Moratorium on the Use of the Death Penalty, highlighting the Committee's commitment to ethical considerations in capital punishment.

Advance Directives (Living Wills)

The Council forwarded a minor revision of the WMA Statement on Advance Directives for information, underlining the importance of patient autonomy and informed decision-making.

Capital Punishment

The Assembly was informed about the minor revision of the WMA Resolution on Prohibition of Physician Participation in Capital Punishment, reinforcing the ethical stance against physician involvement in capital punishment.

Medical Ethics during Public Health Emergencies

The proposed WMA Statement on Medical Ethics during Public Health Emergencies was adopted, reflecting the evolving landscape of healthcare during crises.

Biological Weapons

The revised WMA Declaration of Washington on Biological Weapons was adopted, addressing the ethical implications of advancements in biotechnology.

Armed Conflict and Other Situations of Violence

The Assembly endorsed the revision of the WMA Regulations in Times of Armed Conflict, emphasising ethical considerations during times of violence.

International Medical Meetings

A new WMA Statement on International Medical Meetings was adopted, recognising the importance of global collaboration and knowledge sharing.

Decisions by the Socio-Medical Affairs Committee

Forensic Investigation of the Missing

The Assembly received information on the minor revision of the WMA Statement on Forensic Investigation of the Missing, highlighting the Committee's dedication to addressing humanitarian issues.

Fungal Disease Diagnosis and Management

The Council forwarded a revised statement on Fungal Disease Diagnosis and Management for information, showcasing the Committee's focus on emerging healthcare challenges.

Right of Rehabilitation of Victims of Torture

The minor revision of the WMA Statement on the Right of Rehabilitation of Victims of Torture

was presented for information, emphasising the importance of rehabilitation in the aftermath of human rights violations.

Ottawa Convention on Anti-personnel Mines

The Council forwarded a revised resolution in support of the Ottawa Convention on Anti-personnel Mines for information, aligning with global efforts to address the humanitarian impact of landmines.

Collaboration between Human and Veterinary Medicine

A revised resolution on Collaboration between Human and Veterinary Medicine was presented for information, recognising the interconnectedness of human and animal health.

Items Adopted by the Committee

Electronic Cigarettes and Other Electronic Nicotine Delivery Systems

The proposed revision of the WMA Statement on Electronic Cigarettes and other Electronic Nicotine Delivery Systems was adopted, reflecting the Committee's focus on emerging public health challenges.

Forced Sterilization

The revised WMA Statement on Forced or Coerced Sterilization was adopted, highlighting the ethical considerations surrounding reproductive rights.

Postgraduate Medical Education

The Assembly endorsed the World Federation for Medical Education (WFME) Global Standards for Quality Improvement in Postgraduate Medical Education 2023, emphasising the importance of

high standards in medical education.

Acknowledgement and Condemnation of Human Rights Violations in China

After intense debate and several votes, the Assembly adopted the WMA Resolution on Acknowledgment and Condemnation of Human Rights Violations against the Uyghurs and Other Minorities in China, reaffirming the Association's commitment to human rights.

Key Financial Updates

The Treasurer, Dr. Rudolf Henke, presented a comprehensive report on the financial results for 2022 and the proposed budget for 2024. The Association finished 2022 with a solid surplus, and the proposed budget for 2024 demonstrated fiscal responsibility.

Associate Members and International Collaborations

Dr. Jacques de Haller, Chair of Associate Membership, delivered a heartfelt report on the Associate Members meeting, acknowledging the loss of Immediate Past Chair Dr. Anthea Mowat. The Assembly approved the Associate Members Report, recognising the ongoing contributions of associate members to WMA workgroups.

Insightful presentations from international organisations, including Dr. Sally Ndung'u and Prof. Geneviève Moineau, added depth to the discussions, emphasising the global nature of medical challenges.

Open Session Highlights

The Open Session brought forward critical topics, including the issue of low salaries for junior physicians, raised by Prof. Yali Cong. The

Secretary General's suggestion to collaborate with the Junior Doctors Network to address this concern demonstrates the WMA's commitment to supporting the rights of medical professionals.

Fr. Pablo Requena (Vatican Medical Association) underscored the importance of focusing on a broad range of issues and avoiding the domination of political matters in the WMA discussions.

The Hong Kong Medical Association raised questions about the WMA response to nuclear threats, prompting a commitment from the WMA President, Dr. Lujain Alqodmani, to renew the organisation's commitment to its policy on nuclear war.

Global Advocacy and Future Directions

Delegates addressed crucial global issues during the Assembly, including the role of the WMA in influencing policy implementation, as raised by Dr. David Ntirushwa (Rwanda Medical Association). The commitment to condemn countries and institutions engaged in mass destruction and global discrimination was emphasised by Dr. Muhammad

Ashraf Nizami (Pakistan Medical Association).

The WMA General Assembly concluded with reminders about upcoming events, such as the Declaration of Helsinki regional conferences and the World Conference of Bioethics held in Porto, Portugal, on 16-19 October 2023. The introduction of the WMA Glossary and a video preview of the 75th General Assembly in Helsinki in 2024 added a forward-looking dimension to the closing remarks.

As the WMA General Assembly adjourned, gratitude was expressed to the hosts, delegates, officers, speakers, observers, and the entire WMA staff. The Assembly's rich discussions and decisive actions underscored the WMA's commitment to advancing global health and medical ethics. The foundation is established for continued collaboration and progress as we look towards the next WMA General Assembly in Helsinki in 2024.

Magda Mihaila
Communication & Press Manager
World Medical Association



Photo 1. Group photo of the General Assembly in Rwanda 2023. Credit: WMA

WMA DECLARATION OF WASHINGTON ON BIOLOGICAL WEAPONS

Adopted by the 53rd WMA General Assembly, Washington, DC, USA, October 2002, editorially revised by the 164th WMA Council Session, Divonne-les-Bains, France, May 2003, reaffirmed by the 191st WMA Council Session, Prague, Czech Republic, April 2012, and revised by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

Rapid advances in microbiology, molecular biology, and genetic engineering have created extraordinary opportunities for biomedical research and hold great promise for improving human health and the quality of life. However, the proliferation of these technologies provides the opportunity to create novel pathogens and diseases and simplified production methods for biological weapons. The technologies are relatively inexpensive and, because production is similar to that used in biological facilities such as vaccine manufacturing, they are easy to obtain. Capacity to produce and effectively disperse biological weapons exists globally, threatening governments and endangering people around the world.

The consequences of a biological attack would be insidious and devastating. Their impact might continue with secondary and tertiary transmission of the agent, weeks, months or years after the initial epidemic. Given the ease of travel and increasing globalization, an outbreak anywhere in the world could be a threat to all nations. A great many severe, acute illnesses occurring over a short span of time could overwhelm the capacities of health systems worldwide.

Physicians and other health personnel are on the frontline in alleviating human suffering caused by epidemic disease and will bear primary responsibility for dealing with the victims of biological weapons.

Participants in biomedical research have a moral and ethical obligation to consider the implications of possible malicious use of their findings. Through deliberate or

inadvertent means, genetic modification of microorganisms could create organisms that are more virulent, are antibiotic-resistant, or have greater stability in the environment. Genetic modification of microorganisms could alter their immunogenicity, allowing them to evade natural and vaccine-induced immunity. Advances in genetic engineering and gene therapy may allow modification of the immune response system of the target population to increase or decrease susceptibility to a pathogen or disrupt the functioning of normal host genes.

Nonproliferation and arms control measures can diminish but cannot completely eliminate the threat of biological weapons. Thus, there is a need for the creation of and adherence to a globally accepted ethos that rejects the development, production, possession and use of biological weapons. International collaboration is critical to build such a universal consensus.

The United Nations Biological Weapons Convention (BWC) prohibits the development, production, acquisition, transfer, stockpiling and use of biological and toxin weapons. Having reached almost universal membership, the BWC constitutes a key element in the international community's efforts to address the proliferation of weapons of mass destruction and has established a strong norm against biological weapons.

Medical associations and physicians have a responsibility in educating the public and policy makers about the implications of biological weapons and to mobilize universal support for condemning research, development, or use of such weapons as morally and ethically unacceptable. They have important societal and ethical roles in demanding the full respect of the BWC, stigmatizing the use of biological weapons, guarding against unethical and illicit research, and mitigating harm from use of biological weapons.

RECOMMENDATIONS

Recognizing the growing threat of biological weapons, the WMA and its constituent members condemn the development,

production, or use of toxins and biological agents that have no justification for prophylactic, protective, therapeutic or other peaceful purposes, and makes the following recommendations:

Strengthening global preparedness and response to health emergencies

Governments and national health authorities:

1. To develop a strategy for the effective coordinated and timely access to vital protective measures for new pathogens, whatever their origin, for all populations at risk. The strategy should assure surge capacity to address mass casualty care.
2. In line with the [WMA Statement on Epidemics and Pandemics](#), to meet the critical needs for:
 - Adequate investment in public health systems, including resources and supplies, to enhance capacity to effectively detect, investigate and contain rare or unusual disease outbreaks.
 - An operative global surveillance program to improve response to naturally occurring infectious diseases and to permit earlier detection and characterization of new or emerging diseases.
3. To provide to WHO adequate means to fulfill its leadership role in ensuring appropriate international cooperation and coordination for surveillance and action on emerging infectious diseases.
4. To support the development of a WHO legally binding instrument on pandemic prevention, preparedness and response, integrating principles of equity and human rights.
5. To develop adequate and targeted health education and training for health professionals, civic leaders, and the public

alike, as well as collaborative programs of research to improve disease diagnosis, prevention, and treatment.

6. To develop communications strategies to inform health care professionals and the public about acts of bioterrorism and infectious disease outbreaks, including local information on available medical services.
7. To fund research and development to counteract biological weapons, including:
 - to improve understanding of the epidemiology, pathogenesis, and treatment of diseases caused by potential bioweapon agents and the immune response to such agents;
 - for new and more effective vaccines, pharmaceuticals, and antidotes against biological weapons; and
 - for improving biological agent detection and defense capabilities.

Physicians, Medical Associations and other health entities:

8. To participate with local, national, and international health authorities in developing and implementing disaster preparedness and response protocols for acts of bioterrorism and natural infectious disease outbreaks. These protocols should be used as the basis for physician and public education.
9. To support and fulfill the critical role of physicians in early detection of unusual clusters of diseases or symptoms, potentially resulting from the use of biological weapons, so that they can promptly report it to the appropriate institutions.
10. Physicians in relevant specialties should:
 - be alert to the occurrence of unexplained illness and death in the community;
 - be knowledgeable of disease surveillance and control capabilities for responding to unusual clusters of

diseases, symptoms, or presentations;

- be familiar with the clinical manifestations, diagnostic techniques, isolation precautions, decontamination protocols, and therapy/prophylaxis of biological agents likely to be used in an attack;
- utilize appropriate procedures to prevent exposure to themselves and others; and
- understand the essentials of risk communication so that they can communicate clearly and nonthreateningly about issues such as exposure risks and potential preventive measures.

Counteracting biological weapons research

Governments and national health authorities:

11. To develop and implement national and global raising awareness strategies on the potential development of biological weapons among researchers and practitioners, with comprehensive information on the reporting system to be used if needed.
12. To reinforce accountable and transparent supervision mechanisms and regulation of biological and toxin laboratory work with the potential for weaponized applications.

Physicians:

13. Recognizing the societal responsibility of physicians as scientists and humanitarians, to decry scientific research for the development and use of biological weapons and to advocate against the use of biotechnology and information technologies for potentially harmful purposes.

Researchers:

14. To consider the implications and possible applications of their work and carefully balance the pursuit of scientific knowledge with their ethical responsibilities to society.

Fostering global mechanisms monitoring the threat of biological weapons

Governments:

15. To take necessary measures to guarantee the respect and implementation of the BWC and to reinforce its implementation with appropriate means, ensuring transparency and adequate accountability mechanisms for Member State Parties.

Physicians, Medical Associations and other health entities:

16. To advocate, in cooperation with the United Nations, including the WHO, and other appropriate entities, for strengthening of the Implementation Support Unit under the BWC, including medical and public health leaders in order to monitor the threat of biological weapons, to identify actions likely to prevent biological weapons proliferation, and to develop a coordinated plan for scrutinizing the worldwide emergence of infectious diseases. This plan should address:
 - international monitoring and reporting systems so as to enhance the surveillance and control of infectious disease outbreaks throughout the world;
 - the development of an effective verification protocol under the BWC;
 - education of physicians and public health personnel about emerging infectious diseases and potential biological weapons;
 - laboratory capacity to identify biological pathogens;
 - availability of appropriate vaccines and pharmaceuticals; and
 - financial, technical, and research needs to reduce the risk of use of biological weapons and other major infectious disease threats.

WMA DECLARATION ON THE ETHICAL USE OF MEDICAL TECHNOLOGY

Adopted by the 53rd WMA General Assembly, Washington, DC, USA, October 2002, and revised by the 63rd WMA General Assembly, Bangkok, Thailand, October 2012 and by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

Medical technology has come to play a key role in modern medicine. It has helped provide significantly more effective means of prevention, diagnosis, treatment and rehabilitation of illness, for example through the development and use of information technology, such as telehealth, digital platforms and large-scale data collection and analyses, or the use of advanced machinery and software in areas like medical genetics and radiology, including assistive, artificial, and augmented intelligences.

The importance of technology for medical care will continue to grow and the WMA welcomes this progress. The continuous development of medical technologies – and their use in both clinical and research settings – will create enormous benefits for the medical profession, patients, and society.

However, as for all other activities in the medical profession, the use of medical technology for any purpose, must take place within the framework provided by the basic principles of medical ethics as stated in the [WMA Declaration of Geneva: The Physician's Pledge](#), the [International Code of Medical Ethics](#) and the [Declaration of Helsinki](#).

Respect for human dignity and rights, patient autonomy, beneficence, confidentiality, privacy and fairness must be the key guiding points when medical technology is developed and used for medical purposes.

The rapidly developing use of big data has implications for confidentiality and privacy. Using data in ways which would damage patients' trust in how health services handle

confidential data would be counterproductive. This must be borne in mind when introducing new data driven technology. It is essential to preserve high ethical standards and achieve the right balance between protecting confidentiality and using technology to improve patient care.

Additionally, bias through for example social differences in the collection of data may skew the intended benefits of data driven medical treatment innovations.

As medical technology advances and the potential for commercial involvement grows, it is important to protect professional and clinical independence.

RECOMMENDATIONS

Beneficence

1. The use of medical technology should have as its primary goal benefit for patients' health and well-being. Medical technology should be based on sound scientific evidence and appropriate clinical expertise. Foreseeable risks and any increase in costs should be weighed against the anticipated benefits for the individual as well as for society, and medical technology should be tested or applied only if the anticipated benefits justify the risks.

Confidentiality and privacy

2. Protecting confidentiality and respecting patient privacy are central tenets of medical ethics and must be respected in all uses of medical technology.

Patient autonomy

3. The use of medical technology must respect patient autonomy, including the right of patients to make informed decisions about their health care and control access to their personal information. Patients must be given the necessary information

to evaluate the potential benefits and risks involved, including those generated by the use of medical technology.

Justice

4. To ensure informed choices and avoid bias or discrimination, the basis and impact of medical technology on medical decisions and patient outcomes should be transparent to patients and physicians. In support of fair and equitable provision of health care, the benefits of medical technology should be available to all patients and prioritized based upon clinical need and not on the ability to pay.

Human rights

5. Medical technology must never be used to violate human rights, such as use in discriminatory practices, political persecution or violation of privacy.

Professional independence

6. To guarantee professional and clinical independence, physicians must strive to maintain and update their expertise and skills, i.e., by developing the necessary proficiency with medical technology. Medical curricula for students and trainees as well as continuing education opportunities for physicians must be updated to meet these needs. Physicians shall be included in contributions to research and development. Physicians shall remain the expert during shared decision making and not be replaced by medical technology.
7. Health care institutions and the medical profession should:
 - help ensure that innovative practices or technologies that are made available to physicians meet the highest standards for scientifically sound design and clinical value;

- require that physicians who adopt innovations into their practice have relevant knowledge and skills;
 - provide meaningful professional oversight of innovation in patient care;
 - encourage physician-innovators to collect and share information about the resources needed to implement their innovations safely, effectively, and equitably; and
 - assure that medical technologies are applied and maintained appropriately in accordance with their intended purpose.
8. The relevance of these general principles is stated in detail in several existing WMA policies. Of particular importance are:
- [WMA Declaration of Seoul on Professional Autonomy and Clinical Independence](#)
 - [WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects](#)
 - [WMA Declaration of Taipei on Ethical Considerations regarding Health Databases and Biobanks](#)
 - [WMA Statement on Augmented Intelligence in Medical Care](#)
- [WMA Statement on Digital Health](#)
 - [WMA Statement on Cyber-Attacks on Health and Other Critical Infrastructure](#)
 - [WMA Statement on Access to Health Care](#)
 - [WMA Declaration of Lisbon on the Rights of the Patient](#)
 - [WMA Declaration of Oslo on Social Determinants of Health](#)
9. The WMA encourages all relevant stakeholders to embody the ethics guidance provided by these documents.

WMA STATEMENT IN TIMES OF ARMED CONFLICT AND OTHER SITUATIONS OF VIOLENCE

Adopted by the 10th World Medical Assembly, Havana, Cuba, October 1956, edited by the 11th World Medical Assembly, Istanbul, Turkey, October 1957, revised by the 35th World Medical Assembly, Venice, Italy, October 1983 and the 55th WMA General Assembly, Tokyo, Japan, October 2004, editorially revised by the 173rd WMA Council Session, Divonne-les-Bains, France, May 2006, and revised by the 63rd WMA General Assembly, Bangkok, Thailand, October 2012 and the 74th WMA General Assembly, Kigali, Rwanda, October 2023*

**The WMA Regulations of the WMA in times of armed conflict and other situations of violence adopted in 1956 were reclassified as a 'Statement' by the 63rd General Assembly, Kigali, Rwanda, October 2023.*

PREAMBLE

The primary task of the medical profession is to promote health and save life; the primary obligation of the physicians is to their patients; in all their professional activities,

physicians should adhere to international conventions on human rights, to international humanitarian law and to the WMA's [Declaration of Geneva](#), [International Code of Medical Ethics](#) and other relevant WMA declarations on medical ethics[1], as well as to the [Ethical Principles of Health Care in Times of Conflict and Other Emergencies](#), elaborated by civilian and military healthcare organisations, including the WMA, under the initiative of the International Committee of the Red Cross.

In situations of armed conflict and other situations of violence, governments, belligerent armed forces and others in positions of power must comply with their obligations in accordance with international law, including, as applicable, [Geneva Conventions \(1949\) and the Additional Protocols to the Geneva Conventions \(1977, 2005\)](#).

This obligation includes a requirement to protect healthcare personnel and facilities (see e.g. the [WMA Declaration on the protection and integrity of healthcare personnel in armed](#)

[conflicts and other situations of violence](#), 2022), including any means of transportation devoted to the wounded and sick, to health personnel or medical equipment.

This obligation also includes condemning the targeting of health care facilities and personnel and using denial of medical services, including as a tactic or strategy in war, by any party, wherever and whenever it occurs.

The WMA supports efficient, secure and unbiased reporting mechanisms with sufficient resources to collect and disseminate data regarding assaults on physicians, other healthcare personnel and healthcare facilities, and to provide to the WHO and other relevant agencies the necessary support to fulfill their role in documenting attacks on healthcare personnel and facilities.

Assaults against healthcare personnel must be investigated and those responsible must be brought to justice; to this end, adequate enforcement mechanisms must be used, or where relevant, developed, and necessary

resources must be guaranteed.

Physicians must be granted access to all persons in need of care, including those deprived of liberty.

Physicians have a responsibility to press governments and other authorities for the provision of the infrastructure and equipment that is a prerequisite to health and healthcare, including potable water, adequate food and shelter, proper infrastructure, clinical equipment and available healthcare personnel, and the necessary personal protection equipment (PPE).

Where conflict appears to be imminent and inevitable, relevant authorities are responsible for guaranteeing the protection of the health infrastructure and for planning any necessary repair in the immediate post-conflict period.

Respect of professional ethical rules

During times of armed conflict and other situations of violence, the ethical standards of the medical profession apply as in times of peace. The professional duty to treat people with humanity and respect applies to all patients. The physician must always act in accordance with medical neutrality and give the necessary care impartially and without discrimination.

Physicians must never be persecuted for complying with any of their ethical obligations, and may not be compelled by governments, armed forces or others in positions of power, to undertake any action that contravenes the medical profession's ethical rules.

The privacy of the sick, wounded and dead must always be respected and confidentiality duly respected.

Health care given to the sick and wounded, civilians or combatants, cannot be used for publicity or propaganda.

Physicians must not spread disinformation, or manipulate facts for the public, for the media, or for the social media outlets.

Ethics training on the issue of medical treatment of prisoners of war and detainees should be provided in medical schools and during postgraduate training.

RECOMMENDATIONS

In situations of armed conflict and other situations of violence, the physician must:

General principles

1. Not take part in any act of hostility and refuse any illegal or unethical order;
2. Neither commit nor assist in violations of international law;
3. Not abandon the wounded and sick, while considering the physician's own safety and competence and the availability of other viable options for care;
4. Promote medical neutrality by advocating for and providing effective and impartial patient care without discrimination; no distinction must be made between patients except based upon clinical facts;
5. Give special consideration to the most vulnerable or marginalized parts of the population in need of care (e.g. women, children, older persons, people with specific healthcare needs, and displaced persons) and to their specific healthcare needs while adhering to triage principles;
6. Respect the individual wounded or sick person's autonomy, trust and dignity;
7. Respect confidentiality, in line with the [Declaration of Geneva](#) and the [International Code of Medical Ethics](#);
8. Give careful consideration to any dual loyalties that the physician may be bound by or conflicts of interest that may be present.

Detention

9. Provide healthcare to anyone taken as a prisoner;
10. Advocate for regular visits to prisons and prisoners by physicians;
11. Never condone, facilitate or participate in the practice of torture or any form of cruel, inhuman or degrading treatment, nor in any form of abuse, including forced feeding, human trafficking or human organ trafficking;
12. In line with the WMA International Code of Medical Ethics, the WMA Declaration of Tokyo, the [WMA Statement on the Responsibility of Physicians in the Documentation and Denunciation of Acts of Torture or Cruel or Inhuman or Degrading Treatment](#), the [Istanbul Protocol](#) and the [United Nations Standard Minimum Rules for the Treatment of Prisoners \(the Nelson Mandela Rules\)](#), denounce acts of torture or cruel, inhuman or degrading treatment and punishments.

Forbidden activities

13. Never use the situation and the vulnerability of the wounded and sick for personal advantage;
14. Never make use of healthcare privileges and facilities contrary to their intended purposes;

Public health

15. Report to the appropriate authorities if healthcare needs are not met;
16. Respect the legal obligations to report to the appropriate authorities in matters of epidemiology;
17. Respect the [WMA Declarations of Helsinki](#) and the [WMA Declaration of Taipei](#) on research and data management;
18. Denounce and intervene against any

unscrupulous practices, including distribution of poor quality or counterfeit medicines and materials;

19. Be aware of war-related mental health trauma when caring for patients, internally displaced persons and refugees shall

remain the expert during shared decision making and not be replaced by medical technology.

Reference

1. [WMA Declaration on the Protection and Integrity of Medical Personnel in Armed Conflicts and Other Situations of Violence](#) / [WMA Statement on Armed Conflicts](#)

WMA STATEMENT ON FORCED OR COERCED STERILISATION

Adopted by the 63rd WMA General Assembly, Bangkok, Thailand, October 2012, and revised by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

The [United Nations](#) states forced or coerced sterilisation is a violation of fundamental human rights, including the right to health, to information and privacy, and to be free from torture and other cruel, inhuman or degrading treatment or punishment. The United Nations also states specific populations are disproportionately affected by forced or coerced sterilisation, including women, women living with HIV, indigenous and ethnic minority girls and women, persons with disabilities, and transgender persons and intersex persons.

The WMA recognises that no person, regardless of age, disease or disability, creed, ethnic origin, gender, nationality, political affiliation, race, culture, sexual orientation, social standing, or any other factor, should be subjected to forced or coerced sterilisation.

A full range of contraceptive services, including sterilisation, should be accessible and affordable to every individual. The state has a role to play in ensuring that such services are available, along with private, charitable

and third sector organisations.

As with all other medical treatments, sterilisation should only be performed on a competent patient after an informed choice has been made and the free and valid consent of the individual has been obtained. Where a patient is incompetent, a valid decision about treatment must be made in accordance with the patient's best interest as well as with relevant legal requirements and the ethical standards of the medical profession before the procedure is carried out.

The WMA condemns practices where a state or any other actor attempts to bypass ethical requirements necessary for obtaining free and valid consent for sterilization, which must be:

- Free from material or social coercion;
- Not a condition of other medical care (including safe abortion), social, insurance, institutional or other benefits and
- Obtained when the person is not facing any stressor limiting their capacity of discernment, such as detention or a medical emergency (unless sterilization is the subject of the emergency).

RECOMMENDATIONS

Recalling the core ethical values of the medical profession enshrined in its International Code of Medical Ethics and the [Declaration of Geneva](#): The Physician's Pledge, and its long-standing commitment against torture and other cruel, inhuman or degrading treatment, the WMA condemns forced or coerced sterilisation and calls on:

Its Constituent Members

1. To advocate against such practices contrary to human dignity;
2. To support the provision of safe and ethical sterilization services or interventions, with due respect for the physical and mental integrity of the persons, including by guaranteeing their autonomous reproductive choices;

Physicians

3. To be alert to situations and settings where there is a risk of forced or coerced sterilisation, particularly for vulnerable and disproportionately affected persons, to ensure consent is valid and freely given and to oppose any form of involvement in forced or coerced sterilisation.

WMA STATEMENT ON HUMAN HEALTH AS A PRIMARY POLICY FOCUS FOR GOVERNMENTS WORLDWIDE

Adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

Understanding that early life experiences can impact health in later life and that the major drivers of health lie outside healthcare is essential to direct action to improve health where it is most needed. This is supported by Paragraph 11 of General Comment No. 14 of the Committee on Economic, Social and Cultural Rights, and by Article 24 of the Convention on the Rights of the Child, both of which recognise the importance of the role of the state in providing good living standards and healthy environments for their citizens. The [WMA Declaration of Oslo on Social Determinants of Health](#) and [WMA Statement on Sustainable Development](#) acknowledge that conditions, including environmental conditions, in which people are born, grow, are educated, live, work and age (sometimes termed “social” or “wider” determinants”) are major influences on healthy life expectancy, quality of life^[i] and the magnitude of health inequalities.

Human health is a cardinal component of a

society’s ability to prosper; declining human health adversely affects a nation’s productivity, and therefore a nation’s economy, which in turn limits many actions to prevent ill health and deliver healthcare to treat illness.

Therefore, in addition to health practitioners, many actors share in the responsibility to preserve and improve human health. For example, the ability to influence these wider determinants of health are spread across multiple government departments.

A cardinal challenge in striving for improved population health lies in the fact that decision makers tend to focus on short-term economic indicators, such as Gross Domestic Product (GDP)/Gross National Income (GNI), as the primary driver of government policy.

Investment in the health of the population has a long-term positive economic impact, but the focus on GDP/GNI often acts to the detriment of health. Many activities that increase GDP/GNI, such as smoking and the use of fossil fuels, damage health. Conversely, activities such as breastfeeding and parenting, which improve health, are not measured in GDP.

RECOMMENDATIONS

Recognizing this, the World Medical Association and its constituent members on behalf of their physician members, call on Governments to:

1. Recognise that well-functioning health systems accessible to all are important, but the principal determinants of health and wellbeing lie outside healthcare;
2. Prioritise population health and wellbeing in government policy decisions and incorporate metrics of population health and wellbeing into measures of national progress and performance;
3. Acknowledge that securing and safeguarding population health and wellbeing are crucial to a sustainable future;
4. Promote equity in health and address inequalities in whatever sphere they exist, by supporting actions that address the wider determinants of health.

WMA RESOLUTION ON INTERNATIONAL MEDICAL MEETINGS IN COUNTRIES PERSECUTING PHYSICIANS AGAINST MEDICAL ETHICS AND HUMAN RIGHTS STANDARDS

Adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

There are many countries in the world where torture and other cruel, inhumane or degrading treatment takes place. However, in some countries, physicians are unable to speak out against human rights violations, even if

they witness them, due to the severe repression in the country. It is the WMA’s and the broader medical community’s responsibility to help draw attention to the fundamental changes that are urgently needed in order to guarantee physicians safe and sustainable working conditions, and to allow them to ethically practice their profession. One way of showing this recognition is to refrain from holding international events in such countries.

RECOMMENDATION

The WMA calls the medical community worldwide to carefully evaluate the suitability of holding international medical events in countries where physicians are persecuted and, where appropriate, to take a decision on whether to refrain from such events or to provide clear and explicit support for these physicians at such events.

WMA STATEMENT ON MEDICAL ETHICS DURING PUBLIC HEALTH EMERGENCIES

Adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

Public health emergencies (PHEs) are regular occurrences that put the life and health of populations at risk. They have multiple origins and are frequently characterised by urgency, uncertainty and rapidly escalating demands to which health services may struggle to respond. Public health emergencies frequently transcend jurisdictional boundaries giving rise to co-ordination challenges for governments and other actors. They can also involve large scale displacement of people. Some of the PHEs are localised, some present threats of international concern. Climate change, conflict and extremes of global inequality are direct drivers of PHEs.

World Health Organization (WHO) defines a public health emergency as “an occurrence or imminent threat of an illness or health condition, caused by bioterrorism, epidemic or pandemic disease, or (a) novel and highly fatal infectious agent or biological toxin, that poses a substantial risk of a significant number of human fatalities or incidents or permanent or long-term disability”. Public health emergencies can result from a wide range of hazards and complex emergencies.

PHEs confront physicians, other health professionals, public authorities and at times the international community with severe challenges. Although fundamental ethical principles in medicine remain unchanged, the combination of urgency, uncertainty and extreme shortages of health resources can present health professionals with extreme difficulties in applying them. The familiar tension in medicine between obligations to individual patients and obligations to the public good can be distinctly pronounced during PHEs. This is particularly the case where the need for life-saving interventions overwhelms the available supply. PHEs can also require restrictions on individual and population rights and liberties that present

their own ethical challenges.

This statement focuses on the medical ethical aspects of public health emergencies.

BASIC PRINCIPLES

1. During a PHE, physicians and all other health responders should consider the following principles:
 - The obligation to help reduce overall suffering;
 - The obligation to show full and equal respect to all;
 - The requirement for justice and fairness in the allocation of scarce resources;
 - The requirement that any restrictions on individual choice or liberty must be proportionate, lawful and evidence-based;
 - The obligation to maximise overall health outcomes.
2. Some physicians and health professionals will solely be focussing on population aspects of the response to PHEs. Their primary concern will be maximising benefits and minimising harms at a population level. The above principles will guide them as they seek to realise the greatest overall benefit for the largest number of people.

Issues of particular ethical concern during PHEs

3. Although the basic ethical duties of physicians do not change during a PHE, their application in certain areas can be challenging. Issues of particular ethical concern during a PHE include but are not limited to:

Confidentiality

4. Access to large amounts of accurate, real-time data is an essential part of the health response to many PHEs. Physicians and other health professionals retain ordinary duties of confidentiality to their patients. Information can be disclosed during a PHE where a patient or legal surrogate consents to its disclosure. In the absence of consent such information can be disclosed where there is a lawful justification or for overriding reasons of public interest. The disclosure of information should be limited only to the necessary information for the treatment of PHEs. Consideration must also be given to ensuring the ethical use of data including what happens to the data after the purposes for which it was collected are achieved.

Consent

5. Patients retain the right to consent to or refuse treatment at all times during a PHE. Some compulsory interventions that do not amount to treatment may be acceptable where there is a lawful and ethical mandate supporting them. For example, where individuals present a serious risk of harm to others, and they refuse to accept necessary public health restrictions, confinement may be considered.

Restrictions of liberty

6. PHEs, particularly where they involve emerging communicable pathogens, may require restrictions on individual and population freedoms. Social distancing and self-isolation are highly effective public health interventions and may be mandated by law during a PHE. Any interference with fundamental rights, including restrictions of liberty, must be justified in the public good, necessary, proportionate, based on lawfully-provided powers and authority, and only imposed for as long as necessary based on scientific

evidence. The basic needs of any confined person must be met at all times.

Public engagement

7. PHEs can have a profound effect on individuals, communities and societies. They are frequently characterised by fear, uncertainty, and involve severe socio-economic disruption. During PHEs, there is a risk of the widespread circulation of misinformation including conspiracy theories and direct attempts to undermine medical and scientific expertise. Clear communication of evidence-based medical and scientific information, including the justification for any decisions that impact social or economic functions, is essential. Active steps should be taken to tackle misinformation and disinformation, especially when it is coming from health professionals.
8. PHEs frequently require challenging decisions involving trade-offs between fundamental goods. All people affected have a right to know that such decisions are being made and the criteria on which the decisions are based.

Resource allocation and triage

9. Serious PHEs are often characterised by extreme shortages of health resources. This can present physicians and other health professionals with difficult decisions. In ordinary circumstances priority should be given to those with the greatest health need, provided they have capacity to benefit from the health intervention. Those with equal health needs have equal rights to health resources, whether or not the need arises directly from the PHE.
10. In some circumstances, where health needs overwhelm available resources, it may be necessary to triage patients. Triage is a

form of resource allocation that involves sorting or prioritizing individuals based on their health needs and their likelihood of responding to an intervention. In extreme conditions it can involve setting aside some people for non-treatment where others have a higher likelihood of benefiting from treatment, or where more people can be saved.

11. Any form of triage must be based on open and defensible ethical principles and must be flexible enough to respond to rapidly changing circumstances. Triage must principally be based on factors determined by the medical community and directly relevant to an individual's health status.
12. Attention must also be paid to health trade-offs arising from decisions made to tackle public health emergencies. A focus on tackling communicable pathogens may, for example, require health resources to be diverted away from other health needs. Any such decision must be based on good moral reasons.

The rights and interests of health professionals

13. There is a limit to the risks that health professionals can be expected to take during the exercise of their duties in a PHE. Physicians and other health professionals should be knowledgeable of ethical and legal issues and disaster response, including their rights and responsibilities to protect themselves from harm, issues surrounding their responsibilities and rights as volunteers, and associated liability issues. Where health professionals are exposed to risk, corresponding duties arise on employing bodies to mitigate those risks as far as possible.
14. Health professionals responding to PHEs must be properly equipped to deal with

the risks they will face, including access to appropriate personal protective equipment (PPE) at all times.

15. Where health professionals face particular risks as a result of their role in responding to PHEs it may be appropriate for them to have priority access to interventions such as vaccines.

Research

16. Research is an essential part of the health response to PHEs. Ethical principles guiding research in ordinary conditions are not changed during PHEs. Undertaking research in PHEs can nevertheless be challenging. Those participating in research can also be particularly vulnerable. It is essential that research in PHEs is undertaken with full respect for the principles set out in the WMA Declarations of Geneva, the WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects, and the WMA Declaration of Taipei on Ethical Considerations Regarding Health Databases and Biobanks.

PHEs of international concern

17. Some PHEs, such as those caused by communicable pathogens or highly-dispersed toxins, can rapidly cross national boundaries and present regional or global health risks. During these emergencies of international concern, the ethical principles outlined above remain unchanged. Given the persistence of serious global inequalities, particular attention must however be paid to transnational questions of justice and fairness in the allocation of health resources.

WMA STATEMENT ON NATURAL VARIATIONS OF HUMAN SEXUALITY

Adopted by the 64th General Assembly, Fortaleza, Brazil, October 2013 and revised by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

Individuals who identify as LGBTQIA+ (Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual, and other identities beyond these) represent a broad and fluid spectrum of natural sexual orientations, gender identities, gender expressions, and sex characteristics. While LGBTQIA+ people may share common cultural and social experiences and shared goals of justice and equity in the face of detrimental, discriminatory treatment and even violence, these are diverse communities facing distinct challenges and with specific needs in healthcare and beyond.

This statement is specifically focused on lesbian, gay, and bisexual people.

Healthcare professionals encounter many aspects of human diversity when providing care, including different natural variations of human sexuality.

A large body of scientific research indicates that being lesbian, gay, or bisexual constitute natural variations of human sexuality without any intrinsically harmful health effects. They do not constitute a disorder or illness that requires treatment or cure and any efforts to do so are contrary to the ethical practice of medicine.

Homosexuality and bisexuality are consequently not included in the World Health Organization's (WHO) International Classification of Diseases (ICD 11).

However, direct and indirect discrimination, both interpersonally and at the institutional level, anti-homosexual or anti-bisexual legislation and human rights violations, stigmatisation, criminalisation of same-sex partnerships, peer rejection, and bullying continue to have a serious impact upon the

psychological and physical health of lesbian, gay, or bisexual people. These negative experiences are perpetuated by a lack of education in society on the different natural variations of human sexuality. They lead to poorer health outcomes, including higher prevalence rates of depression, anxiety disorders, substance misuse, and suicidal ideations and attempts. As a result, the suicide rate among lesbian, gay, or bisexual adolescents and young adults significantly higher than that of their heterosexual peers.

These negative outcomes can be exacerbated by other intersectional factors, including but not limited to national origin, race, ethnicity, gender, age, religion, gender identity, socioeconomic status, or disabilities.

In addition, false and baseless pathologisation of lesbian, gay, or bisexual identities leaves such individuals at risk of being coerced into so-called "conversion" or "reparative" procedures. These harmful and unethical practices, also sometimes referred to as sexual orientation and gender identity change efforts (SOGICE), are intended to suppress or change a person's natural sexual orientation or gender identity. These methods have no medical indication, lack any evidence of effectiveness, and represent a serious threat to the health and human rights of those subjected to these practices. They can lead to anxiety, depression, low self-esteem, substance abuse, problems with intimacy, and suicide.

Negative experiences in healthcare may affect the patient-physician relationship, leading lesbian, gay, and bisexual individuals to avoid accessing care where it is available. They may also withhold their sexual orientation from physicians due to the resulting lack of confidence that they will receive the appropriate treatment and concerns about the safety and confidentiality of their healthcare environment. Without this information, it may be more challenging for physicians to provide targeted care that takes into account the specific health needs of lesbian, gay, or bisexual patients.

Lesbian, gay, or bisexual physicians, medical students, and other health professionals also face discrimination, disadvantages, marginalisation and bullying in the workplace, in schools, in professional organisations, and beyond. Harmful working and learning environments can lead to stress and burnout, especially among marginalised individuals.

RECOMMENDATIONS

1. The WMA strongly asserts that being lesbian, gay, or bisexual does not represent a disease, but rather natural variations within the range of human sexuality.
2. The WMA condemns all forms of stigmatisation, criminalisation of and discrimination against people based on their sexual orientation.
3. The WMA asserts that psychiatric or psychotherapeutic support, when needed, must not focus upon the variations of sexuality itself, but rather upon conflicts which arise between those variations and religious, social and internalised norms and prejudices, as well as the health needs of the individual patient.
4. The WMA unequivocally condemns so-called "conversion" or "reparative" methods. These constitute violations of human rights and are unjustifiable practices that should be denounced and subject to sanctions and penalties. It is unethical for physicians to participate during any step of any such procedures.
5. The WMA calls upon all physicians to:
 - classify physical and psychological diseases on the basis of clinically relevant symptoms according to ICD 11 criteria regardless of sexual orientation, and to provide quality, evidence-based care in accordance with internationally recognised treatments and protocols and in keeping with the principles set forth

in the [WMA International Code of Medical Ethics](#);

- provide a safe, respectful, and inclusive healthcare setting for lesbian, gay, and bisexual patients;
 - foster safe, respectful, and inclusive work and learning environments for lesbian, gay, and bisexual physicians, medical students, and other health professionals;
 - engage in continuing education and professional development to better understand the specific health needs of lesbian, gay, and bisexual patients and the benefits of certain treatments;
 - where appropriate, involve patients' same-sex partners and same-sex parents in healthcare discussions in keeping with the patient's preferences, respecting their consent, and with due regard for patient confidentiality;
 - speak out against legislation and practices violating the human rights of lesbian, gay, and bisexual people, which may also negatively impact the healthcare system at large;
 - reject and refuse to participate in any step of so-called "conversion" or "reparative" methods.
6. The WMA calls upon constituent members and professional associations to:
- advocate for safe and inclusive working and learning environments for lesbian, gay, and bisexual physicians, medical students, and other health professionals;
 - establish and enforce non-discriminatory policies in keeping with the WMA Statement on Non-Discrimination in Professional Membership and Activities of Physicians;
 - create guidelines for physicians outlining the specific physical and mental health challenges facing lesbian, gay, and bisexual patients, where appropriate;
 - Where possible, promote changes to medical education, specialty training and CME/CPD curricula to create sensitivity and awareness of the specific health needs of lesbian, gay, and bisexual patients;
 - establish channels for lesbian, gay, and bisexual physicians to report incidents of discrimination or bias against themselves or lesbian, gay, or bisexual patients;
7. The WMA calls upon governments to:
- in environments where confidentiality and patient safety are guaranteed and data cannot be abused, encourage voluntary data collection in the clinical setting and regular reporting on the health outcomes of lesbian, gay, and bisexual patient groups, while also taking intersectionality into account, to ensure and further improve targeted and appropriate healthcare provision;
 - actively condemn so-called "conversion" or "reparative" methods as unethical.
7. The WMA calls upon governments to:
- reject and repeal anti-homosexual or anti-bisexual legislation;
 - condemn and ban so-called "conversion" or "reparative" methods;
 - promote policies that counteract health-related and other inequities caused by overt and implicit discrimination against lesbian, gay, and bisexual people;
 - encourage education from an early age on diverse natural variations of human sexuality to increase acceptance and with the ultimate aim of promoting better physical and mental health for all individuals.

WMA STATEMENT ON PRIMARY HEALTH CARE

Adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

Primary health care (PHC) is a key part of any health system, due to its wide coverage and distribution, its accessibility and its ability to solve the health problems of the population. For this reason, it is a fundamental element for social cohesion that corrects health inequalities between people and territories, guaranteeing equity in health care, and energizing close, accessible, and efficient health care that adapts to health changes.

PHC must enhance its positive aspects: high quality, safe, comprehensive, integrated, accessible, available, and affordable for everyone and everywhere, provided with compassion, respect, and dignity to solve the majority of the health problems of the population.

The PHC approach is foundational to achieving our shared global goals in Universal Health Coverage (UHC) and the health-related Sustainable Development Goals (SDGs).

PHC comprises a broad range of personal medical care, including preventive, diagnostic, palliative, therapeutic, curative, counseling and rehabilitative care, over time. It is not an exclusive disease-centered approach, but a person-centered approach. Furthermore, PHC is multi-sectoral health care and aims to empower individuals, families and communities to take an active role in improving their health. PHC should be provided in a manner that is accessible, comprehensive and led by a physician to ensure appropriate and high-quality care. It offers the full spectrum of essential health services across all ages.

PHC usually is the first contact of the people with the health care system. It can address the majority of health needs of the population through comprehensive and integrated services in a continuous and longitudinal way.

PHC offers a comprehensive care of essential health services across all ages.

Strong PHC is vital for efficient, cost-effective, equitable, appropriate and sustainable health care systems. A significant portion of health needs can be addressed at the primary care level, redistributing the workload and relieving strained emergency systems as well as secondary or tertiary health care. The provision of longitudinal care and a trustful patient-primary physician relationship will reduce parallel care demand and unnecessary referrals. Continuity of care has also been shown to reduce mortality, acute hospitalizations and out-of-hours care.

PHC contributes to the prevention, early detection, risk-factor identification and mitigation, and timely response to infectious, communicable diseases and noncommunicable diseases outbreaks, and optimal adherence to treatments and rehabilitation.

Robust PHC can enhance the responsiveness of health systems by adapting to the existing or future health needs of the population, contributing to a socially accountable care by actively engaging and mobilising communities, and allowing patients access to participatory and multidisciplinary care.

PHC is in a unique position to address the social determinants of health inequalities and to enhance individual physical and mental health and social well-being.

Specialist education in general practice/family medicine has developed differently in different regions. In some countries the specialty is as comprehensive and reputed as other specialties.

Where case management or coordination might limit access to appropriate medical care, patients should have the freedom to see a physician appropriate for the services they need, regardless of specialty. Above all, the best interests of the patient must be paramount.

PHC must consider the new challenges that health systems are facing, such as the high prevalence of chronic diseases, the risks of epidemics and pandemics, the environmental impact and climate change on health or the problem of antimicrobial resistance, as the main threats to health in the coming years, as indicated by the World Health Organization, prioritizing PHC actions and acting on these risks to respond to the main global health challenges.

RECOMMENDATIONS

The World Medical Association recommends that national governments/national health authorities:

1. Strengthen PHC within health systems and plan and ensure adequate financial resources and equipment provision in PHC facilities, including a sufficient, well-trained supply of primary care physicians—family physicians, general internists, general pediatricians, and obstetricians/gynecologists – to meet the nation's current and projected demand for health care services.
2. Promote PHC with adequate human and material resources and means to make it more decisive, effective, efficient and sustainable.
3. Ensure responsiveness to the health needs of the population through adaptation of health systems and enable community participation through adaptation of PHC systems to the population health needs.
4. Establish functional referral systems and mechanisms that foster the coordination and integration of care across different levels (primary, secondary, tertiary) and the collaboration of PHC physicians with other medical specialists ensuring care continuity.

5. Ensure workforce planning and adequate size of the PHC workforce by providing decent working conditions for the PHC workforce, including the improvement of working conditions and of remuneration, use of recruitment and retention strategies that take special consideration of hard-to-reach geographic areas and isolated socio-demographic groups and prioritize training of sufficient medical and paramedical personnel to ensure adequate future staffing in PHC.
 6. Develop other administrative support mechanisms to assist primary care physicians in the logistics of their practices, along with enhanced efforts to reduce administrative activities unrelated to patient care, to help ensure professional satisfaction and practice sustainability.
 7. Promote PHC as close health care connected to people as a basis for positive knowledge.
- The World Medical Association recommends that its constituent members as well as medical professionals:*
8. Advocate for a sustainable PHC system that delivers integrated and comprehensive services inclusive of promotive, preventive, curative, rehabilitative and palliative care.
 9. Increase the resolution capacity and reduce the bureaucratic burden of the PHC.
 10. Reaffirm the need for high quality PHC services through the development and use of clinical guidelines, standardized training and accreditation of the PHC workforce.
 11. Develop professional autonomy and involvement in the management of PHC physicians.
 12. Work with national governments and academia to optimize the higher and postgraduate education of the PHC personnel. Such actions can include:
 - Develop and expand medical education programs to educate primary care physicians in increasing numbers.
 - Promote training opportunities for medical graduates to fulfill the estimated demand of the PHC workforce, as well as primary care experiences for all students that feature increasing levels of student responsibility and use of ambulatory and community-based settings.
 - Make available Continuous Medical Education that considers the particular needs of the PHC workforce.
 - Advocate for the establishment of a structured specialized education for general practitioners and family medicine doctors or other specialized education programmes for physicians working in PHC and give it prestige and make it attractive.
 13. Ensure that in a context of violence or in a military setting, PHC can also be delivered according to the needs of the population, ethically and with high quality.
 14. Provide students career counseling related to the choice of a primary care specialty and ensure that primary care physicians are well-represented as teachers, mentors, and role models to future physicians.
 15. Enhance the visibility of primary care faculty members and encourage positive attitudes toward primary care among all faculty members.
 16. Encourage efforts to align the representation of PHC physicians with specialized/ hospital-based physicians in political decision making and national medical organizations and to reduce inappropriate remuneration imbalances between physicians with comparable training in different levels of care.
 17. Advocate for PHC systems that involve patients and communities and can adapt and respond to specific settings and population health needs.
 18. Support the appropriate use of technologies, information systems, digital devices and big data tools that foster and improve PHC services.
 19. Support research on health service delivery in the primary care setting, promoting the research culture.
 20. Fulfill the international commitment of States to strengthen PHC as an essential step towards achieving universal health coverage, building sustainable PHC and towards achieving the highest attainable standard of health (Astana Declaration).
 21. To promote, through PHC a more accessible, close and humane medicine, centered in the person, and prioritizing the needs and interest of patients.

WMA STATEMENT ON ELECTRONIC CIGARETTES AND OTHER ELECTRONIC NICOTINE DELIVERY SYSTEMS

Adopted by the 63rd WMA General Assembly, Bangkok, Thailand, October 2012 and revised by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

Electronic cigarettes (e-cigarettes) and other electronic nicotine delivery systems (ENDS) are products designed to deliver nicotine to a user in the form of an aerosol. These products are usually composed of a mouthpiece, a rechargeable battery-operated heating element, a replaceable cartridge that contains liquid nicotine and/or other chemicals, and an atomizer that, when heated, turns the contents of the cartridge into an aerosol. This aerosol is then inhaled by the user and exhaled. These products are often made to look like other tobacco-derived products like cigarettes, cigars, pipes, toys and electronics that appeal to young people. They can also be made to look like everyday items such as pens and USB memory sticks. ENDS and their risks are outlined in more detail in the [WMA Statement on Health Hazards of Tobacco Products and Tobacco-Derived Products](#).

Nicotine exposure, no matter how it is delivered, can affect brain development and lead to addiction. No standard definition of e-cigarettes exists, and manufacturers use different designs and different ingredients. Quality control processes used to manufacture e-cigarettes are substandard or non-existent, and few studies have been done to analyze the level of nicotine delivered to the user and the composition of the aerosol or vapor produced. Unknown amounts of nicotine are delivered to the user, and the level of absorption is unclear, leading to potentially toxic levels of nicotine in the system, especially in children, adolescents and young adults. E-cigarettes and ENDS may also contain other ingredients toxic or carcinogenic to humans including delivery solvents, propylene glycol, glycerin, pulegone, formaldehyde, acetaldehyde, acrolein, and heavy metals, such as chromium, copper, zinc, tin and lead.

Manufacturers and marketers of e-cigarettes and ENDS often claim that use of their products is a safe or safer alternative to smoking cigarettes, particularly since e-cigarettes and ENDS they do not produce carcinogenic smoke. However, no studies have conclusively determined that the aerosol is not toxic or carcinogenic. There is some evidence of a risk of carcinogenicity of the respiratory tract due to long-term, cumulative exposure to nitrosamines and to acetaldehyde and formaldehyde. As with tobacco products, the safest option is to abstain from using e-cigarettes and ENDS.

Evidence already exists that e-cigarettes and ENDS are harmful and not safe. Risks include:

- appeal to children, adolescents and young adults, through packaging and marketing designed to appeal to these age groups, and especially when flavors like strawberry or chocolate are added to the cartridges. These factors can increase nicotine addiction among young people, and may be a gateway to experimenting with other tobacco products. Packaging and marketing targeted to young people has contributed to the dramatic increase in e-cigarette and ENDS use which in some regions is more popular than tobacco smoking.
- the belief promoted by manufacturers that these devices are acceptable alternatives to scientifically proven cessation techniques, when neither their value as therapeutic aids for smoking cessation nor their safety as cigarette replacements is established. Evidence reveals that these products are harmful to health and not safe. In addition, evidence on the use of ENDS as a way to decrease tobacco use in adults is inconclusive;
- inconsistent and unknown dosage, manufacturing processes, and

ingredients, including the potential for abusing or manipulating the product, e.g., by adding cannabis, and simultaneous use with other tobacco products (dual or poly use);

- high potential of toxic exposure to nicotine by children, either by ingestion or dermal absorption from contents of a nicotine cartridge, because the cartridges and refill liquids are readily available over the Internet and are not always sold in child resistant packaging;
- worse clinical outcomes in patients with the SARS-COV2 virus who also use e-cigarettes.

RECOMMENDATIONS

1. That e-cigarettes and ENDS be subject to the WHO Framework Convention on Tobacco Control, and to jurisdictional smoke-free laws and regulations.
2. That the manufacture and sale of e-cigarettes and ENDS be subject to national regulatory bodies as either a new form of tobacco product or as a drug delivery device. At a minimum, regulations should address maximum strength of nicotine fluids, tank size on vaping devices, product labeling, and child-resistant packaging. This recommendation also applies to devices using synthetic nicotine.
3. That clinical testing, large population studies and full analyses of e-cigarette ingredients and manufacturing processes be conducted to determine their level of risk, viability, and efficacy as tools for tobacco cessation.
4. That e-cigarettes and other ENDS should never be marketed as a valid or efficacious method for smoking cessation without validated clinical research that is assessed by appropriate regulatory

bodies. In all other instances, plain package marketing should be required, in accordance with the WMA Resolution on Plain Packaging of Cigarettes, E-Cigarettes and Other Smoking Product.

5. That the sale, marketing, distribution, and accessibility of e-cigarettes and other tobacco products to children and adolescents be prohibited.
6. That the production, distribution and

sale of flavored e-cigarette cartridges and candy products that depict or resemble tobacco products be prohibited.

7. That the sale of e-cigarettes and ENDS via the internet be prohibited in order to prevent access to these products by minors.
8. That physicians, pediatric practitioners and dentists inform their patients of the potential risks of using e-cigarettes and

ENDS, e.g., addiction, cardiovascular disease, lung disease, impact on brain development due to nicotine, physical injuries, etc., even if regulatory authorities have not taken a position on the efficacy and safety of these products.

9. That the WMA and its members support further research on the harmful effects of e-cigarettes and ENDS, especially in children, adolescents and young adults.

WMA RESOLUTION CONDEMNING THE VIOLENCE AGAINST PHYSICIANS IN NEPAL

Adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

The WMA is deeply concerned at the increasing rate of violence against health professionals and facilities in Nepal. The Nepal Medical Association, a WMA member, documented at least seven incidents of misbehaviors and physical assault on medical personnel in the last 15 days, as well as vandalism in health institutions.

RECOMMENDATIONS

1. Recalling its policies on [Workplace Violence in the Health Sector](#) and on [the Protection and Integrity of Medical Personnel in Armed Conflicts and Other Situations of Violence](#), the WMA and its members condemn in the strongest terms any form of violence against health personnel and facilities, and express its solidarity with its Nepalese colleagues.
2. The WMA and its members urge the Nepalese authorities to commit to preventing and ending violence against health personnel through the

implementation of robust and coordinated policies, in particular:

- Immediate security measures to guarantee a safe environment for health personnel and facilities in the country;
- An appropriate funding dedicated to the protection of health personnel and facilities;
- Adequate accountability mechanism, with rapid responses from the authorities against perpetrators of attacks on health personnel.

WMA RESOLUTION FOR AN IMMEDIATE CEASEFIRE IN SUDAN AND THE PROTECTION OF HEALTH CARE

Adopted by the 223rd WMA Council, Nairobi, Kenya, April 2023. Revised and adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

Violent fighting has broken out since April 2023 in Khartoum and in several cities of Sudan between the Sudan Armed Forces (SAF) and Rapid Support Forces (RSF), an independent paramilitary force.

Amnesty International reports extensive war crimes with mass civilian victims in both deliberate and indiscriminate attacks by the conflicting parties as well as sexual violence against women and girls. Rampant looting has affected hospitals, medical facilities, and humanitarian warehouses across various regions. This widespread looting has exacerbated an already dire situation by depriving communities of essential medical and humanitarian resources. Even if supplies manage to enter Sudan, the challenge lies in safely delivering them to conflict-affected regions, where they are critically required [1].

The WMA and its constituent members

join the United Nations Security Council in condemning in the strongest terms all attacks on the civilian population, United Nations and associated personnel and humanitarian actors, as well as civilian objects, medical personnel and facilities, and the looting of humanitarian supplies [2].

RECOMMENDATIONS

1. The WMA supports the [call by the UN Security Council](#) to conflicting parties to immediately cease hostilities, facilitate humanitarian access and establish a permanent ceasefire arrangement and to resume the process towards reaching a lasting, inclusive and democratic political settlement in Sudan.
2. The WMA calls upon all parties in conflicts to:
 - Respect the ethical principles of health care, including medical neutrality, to guarantee the safety of patients and health personnel, and take immediate steps to ensure that they are not targeted or affected by the fighting, including the provision of safe passage

of health care personnel and patients where evacuation is required;

- Ensure that hospitals and healthcare facilities have adequate supplies and staffing to provide care to those in need and facilitate humanitarian aid;
 - End immediately gender-based violence, including sexual violence as a tactic of war to terrorize people.
3. The WMA urges the Sudanese authorities to ensure impartial and independent investigations into all alleged gross violations and abuses of human rights and serious violations of international humanitarian law; and for perpetrators to be held accountable.

References

1. [Sudan: "Death came to our home": War crimes and civilian suffering in Sudan – Amnesty International](#)
2. [Security Council Press Statement on Sudan | UN Press, 02.06.2023](#)

WMA RESOLUTION IN SUPPORT OF THE MEDICAL ASSOCIATIONS IN LATIN AMERICA AND THE CARIBBEAN

Adopted by the 58th WMA General Assembly, Copenhagen, Denmark, October 2007, reaffirmed with minor revision by the 207th WMA Council session, Chicago, United States, October 2017 and revised by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

A lack of physicians, especially in vulnerable and peri-urban areas, is a worldwide

phenomenon that has serious implications for health systems, demanding policies to assure the provision and retention of health personnel. The implementation of programs, such as the More Doctors Program (PMM), in deprived areas in Latin America and the Caribbean has provided doctors to support primary health care which would otherwise not be carried out due to the shortage of doctors.

In particular, the PMM has provided a great

number of foreign doctors, predominantly from Cuba, to work in the primary health care systems where the distribution of primary care physicians was insufficient.

Specifically, during the COVID-19 pandemic, Cuba has sent thousands of Cuban doctors abroad, to meet the demands of many countries. In addition, international health establishments, such as the Pan American Health Organization, have facilitated the placement of Cuban doctors.

However, programs like the PMM also give cause for concern:

- Potential health benefits are undermined due to the widespread allocation of doctors to non-priority areas and local substitution effects.
- The Cuban government keeps three-quarters of the health personnel's salaries, and many doctors complain of dreadful working conditions.
- Documented reports reveal arrangements between the Cuban government and certain Latin American and Caribbean governments to bypass credentialing systems established, to verify physicians' credentials and competence and protect patients. As a result, patients may be put at risk by unregulated medical practices and unqualified physicians.

RECOMMENDATIONS

Recalling its [Statement on Ethical Guidelines for the International Migration of Health workers](#), whereby “Physicians who are working, either permanently or temporarily, in a country other than their home country should be treated fairly in relation to other physicians in that country” and that bilateral agreements require “due cognizance of international human rights law, so as to effect meaningful co-operation on health care delivery”, the WMA:

1. Condemns any policies or actions by governments that subvert or bypass the accepted standards of medical credentialing and medical care;
2. Calls on the governments to work with medical associations within the region on all matters related to physician certification and the practice of medicine and to respect the role and rights of these medical associations and the autonomy of the medical profession;
3. Urges, as a matter of utmost concern, governments to respect the [WMA International Code of Medical Ethics](#), the [Declaration of Madrid on Professionally-led Regulation](#), the [Declaration of Seoul on Professional Autonomy and Clinical Independence](#) and the [Statement on Ethical Guidelines for the International Migration of Health workers](#);
4. Calls for adequate and sustainable investment in national health care systems and medical education as a matter of priority to ensure that the highest standard of care is available to the entire population.

WMA RESOLUTION ON ACKNOWLEDGEMENT AND CONDEMNATION OF THE HUMAN RIGHTS VIOLATIONS AGAINST THE UYGHURS AND OTHER MINORITIES IN CHINA

Adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

In October 2020, the WMA passed a [Resolution](#) which formally condemned the treatment of the Uyghur population in the Xinjiang region of China. The resolution also repeated the July 2019 call of the UN Human Rights High Commissioner for independent international observers to be allowed into the region.

The Office of the High Commissioner for Human Rights (OHCHR) published a [report](#) on 31 August 2022 on the “Assessment of

human rights concerns in the Xinjiang Uyghur Autonomous Region, People’s Republic of China”. The report’s assessments include findings that serious human rights violation have been committed in XUAR and that patterns of restrictions have a discriminatory component. The OHCHR furthermore inter alia finds that allegations of forced medical treatments and adverse conditions of detention are credible.

“The purpose of the WMA is to serve humanity by endeavouring to achieve the highest international standards in Medical Education, Medical Science, Medical Art and Medical Ethics, and Health Care for all people in the world”. Uyghur birth rates have

been cut through involuntary IUDs, abortions and sterilisations [1]. All of these acts require the involvement of medical professionals.

The People’s Republic of China is continuing its campaign in a manner that is dependent upon continued and extensive medical involvement, engaging in the most egregious violations of human rights, which risk bringing the entire medical profession into disrepute. It is therefore morally incumbent on the WMA and its members to take a strong stand against such reprehensible actions.

In October 2020, the WMA recognised and condemned the treatment of the Uyghurs in China. As there is now incontrovertible

evidence surrounding their abuse, it is incumbent on the Chinese Medical Association to join other constituent bodies of the WMA by acknowledging and condemning this abuse.

RECOMMENDATION

In light of the mounting body of evidence,

including the report of 31 August 2022 from the OCHCR, of medical involvement in severe human rights violations against the Uyghur people and other minorities in China, the WMA asks the Chinese Medical Association to acknowledge the concerns set out in the report by the UN High Commissioner for Human Rights and comply with the [2020 WMA Resolution on human](#)

[rights violations against Uyghur People in China](#).

Reference

1. <https://apnews.com/article/ap-top-news-international-news-weekend-reads-china-health-269b3de1af34e17c1941a514f78d764c>

WMA RESOLUTION ON ANTI-LGBTQ LEGISLATION IN UGANDA

Adopted by the 223rd WMA Council, Nairobi, Kenya, April 2023. Revised and adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

The WMA is gravely concerned about the “Anti-Homosexuality law” that was passed in the Ugandan parliament on March 21, 2023 and signed into law by Ugandan President Yoweri Museveni in May. The WMA originally condemned the bill in a [press release](#) issued on March 24.

The Ugandan law criminalizes homosexual acts and makes them punishable by death or life imprisonment. A provision on the “promotion” of homosexuality is also of grave concern, exposing anyone who “knowingly promotes homosexuality” to as much as twenty years in prison.

This kind of legislation challenges the role of physicians to objectively provide information to patients and, where appropriate, those close to them. Physicians could face disciplinary

action or retribution for pointing out in the context of treatment that homosexuality is a natural variation of human sexuality. This can impact the professional practice of a physician, as can be seen in other countries that have implemented similar legislation. It can also impact the health of individuals and the population as a whole if patients of the LGBTQ+ community are fearful of accessing healthcare or of being forthcoming with information when they require medical care.

As stated in its Statement on [Natural Variations of Human Sexuality](#) and supported in its Statement on [Transgender People](#), the WMA condemns all forms of stigmatisation, criminalization of and discrimination against people based on their sexual orientation.

The WMA reasserts that being lesbian, gay, or bisexual are natural variations within the range of human sexuality and that discrimination, both interpersonally and at the institutional level, anti-homosexual or anti-bisexual legislation and human rights violations, stigmatisation, criminalization of same-sex partnerships, peer rejection and

bullying continue to have a serious impact upon the psychological and physical health of lesbian, gay or bisexual people.

Further, the WMA emphasises that everyone has the right to determine one’s own gender and recognises the diversity of possibilities in this respect and calls for appropriate legal measures to protect the equal civil rights of transgender people.

RECOMMENDATIONS

Therefore, the WMA, reaffirming its statements on [Natural Variations of Human Sexuality](#) and on [Transgender People](#), calls on:

1. Ugandan authorities to immediately repeal the Anti-Homosexuality law;
2. WMA Constituent members to condemn the Ugandan law and advocate against any similar legislation that is proposed or enacted.

WMA RESOLUTION ON HUMAN RIGHTS DEMONSTRATIONS IN IRAN

Adopted by the 222nd WMA Council Session, Berlin, Germany, October 2022 and revised and adopted by the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

The WMA is deeply concerned by the violent repression of protesters against the Iranian regime.

In its report to the 52nd Human Rights Council (March 2023), the United Nations Special Rapporteur on the situation of human rights in the Islamic Republic of Iran, denounces the persistent violent response by the Iranian security forces leading to deaths of protesters, severe injuries and thousands arrestations and detentions, with life-imprisonment and death sentences. The report documents cases of solitary confinement, ill-treatments and inhumane conditions of detention, as well as denial of access to healthcare[1].

The WMA reaffirms its [Resolution supporting the Rights of Patients and Physicians in the Islamic Republic of Iran](#), its statements on [solitary confinement](#) and in support of a [moratorium on the use of the death penalty](#).

RECOMMENDATIONS

1. The WMA condemns the persistent use of brutal and lethal force against protesters and calls on the Iranian authorities to:
 - Immediately end all forms of violence, torture and ill-treatment of protesters and ensure that all perpetrators responsible for violence, torture and ill-treatment are held accountable;
 - Fully adhere to its human rights obligations, including the right to peaceful demonstration and to the enjoyment of the highest attainable standard of physical and mental health;

- Respect the autonomy of physicians and in particular their ethical duty to provide care to anyone on the basis of medical need alone, and
- Ensure that healthcare equipment and facilities are used for health care purposes only.

2. The WMA urges the international community to support efforts to promote accountability for recent and long-standing violations carried out with impunity in Iran.

Reference

1. [Report of the United Nations Special Rapporteur on the situation of human rights in the Islamic Republic of Iran](#), March 2023

WMA RESOLUTION ON MEDICAL WORKFORCE

Adopted by the 50th World Medical Assembly, Ottawa, Canada, October 1998, revised by the 60th WMA General Assembly, New Delhi, India, October 2009 and the 74th WMA General Assembly, Kigali, Rwanda, October 2023

PREAMBLE

The medical workforce is essential to healthcare systems. To meet the present and future health needs of the global populations, adequate healthcare services in all fields of medicine should be provided. This requires ensuring sufficient numbers of trained physicians in all countries taking into consideration evolving populational

healthcare needs as well as physicians' right to international mobility, while preserving the well-being and safety of both patients and physicians.

Population growth in many parts of the world, combined with ageing populations in other regions point toward an increasing shortage of physicians. Comprehensive and extensive medical workforce planning on both the national level and the international levels is therefore essential, within an ethical coordinated global framework, as recommended in [WHO Global Code of Practice on the international Recruitment of Health Personnel](#). In this regard, the WMA reaffirms its [Statement on Ethical Guidelines](#)

[for the International Migration of Health Workers](#), and its [Resolution on Task shifting](#) in dealing with the significant global shortages of medical workforce[1].

Inadequate working conditions and the lack of support to the medical workforce has exacerbated the workforce shortage situation causing physicians to leave their home countries. This phenomenon occurred especially during the COVID-19 pandemic, which has renewed focus on physicians' well-being and safety.

In this regard the WMA reaffirms its policies on [Bullying and Harassment within the Profession](#), [Physician well-being](#), [Protection](#)

[and Integrity of Medical Personnel in Armed Conflicts and Other Situations of Violence, Workplace Violence in the Health Sector, Epidemics and Pandemics, the Medical Profession and COVID-19, Digital Health](#), as well as [Augmented Intelligence in Healthcare, Gender Equality in Medicine](#) and [Medical Education](#).

Thriving both professionally and personally is critical for the medical workforce to carry out their vital responsibilities, and to ensure quality healthcare services.

The World Health Organization (WHO) has developed several instruments that support the medical workforce, and acknowledge the global urgency to support and protect health personnel, in particular:

- [The Global health and care worker compact](#), a technical tool provided to prevent harm, provide support, safeguard rights, and ensure inclusivity of the health workforce across the world.
- The [Global Strategy on Human Resources for Health: Workforce 2030](#), to identify and implement solutions to the healthcare workforce problems.

RECOMMENDATIONS

The WMA stresses the need for comprehensive and gender equal measures to guarantee physicians' well-being and safety via an adequate working environment, including in emergency contexts, and emphasizes on the employer's responsibility to ensure it.

The WMA calls on the following stakeholders to:

WHO and other relevant international entities

1. Strengthen the management of the medical workforce through international cooperation and consensus.
2. Provide timely data and information to guide the international and national

efforts on medical workforce recruitment and retention.

3. Identify the skills, knowledge and ways of working that the evolving workforce will require in the future.

Academic institutions

4. Ensure that the education, training and development of the medical workforce meets the highest possible standards, including student support, and that they are carried out with solidarity, consideration and mutual respect.
5. Conduct and publish research on the impact of working conditions of physicians on the quality of healthcare services provided, and on the effectiveness of interventions aimed at ensuring workplace safety.
6. Include clinical informatics and digital health literacy in medical training and education to ensure the workforce is equipped with the skills and knowledge to harness existing and emerging technologies, in accordance with the principle of confidentiality, to improve health outcomes.

Governments / Health authorities

7. Guarantee the ethical international recruitment of health personnel, considering the rights, obligations and expectations of source countries, destination countries and migrant health personnel, in reference to [WHO Global Code of Practice on the International Recruitment of Health Personnel](#).
8. Develop and implement [Positive Practice Environments](#) in health care settings in line with the World Health Professions Alliance (WHPA) campaign in order to increase physician retention.
9. Establish an appropriate monitoring and reporting mechanisms at institutional and system level, to document deviations from best practices for healthcare workplaces,

e.g. unacceptable working conditions, shortage of staff and equipment. Such a database should be made available to professional organizations and other relevant stakeholders.

10. Ensure that appropriate and safe patient to physicians' ratios are maintained between the populations and the medical workforce at all levels, including mechanisms to align supply with population healthcare need, and address access to care in rural and remote areas, based on evidence-based workforce planning, accepted international norms and standards where these are available, and in accordance with the [WMA Statement on Access to Healthcare](#).
11. Directly address the obligations of hospitals' commercial management and/or representative organizations to ensure safe and healthy working conditions.
12. Allocate sufficient financial resources for the education, training and development of the medical workforce to meet the health needs of the entire population in the country in reference to the WMA Statement on Medical Education.
13. Combat discrimination and foster inclusive policies for physicians and personnel from foreign countries.
14. Adequately engage and collaborate with medical professional bodies on the development and implementation of policies impacting on medical practice, such as policies around Universal Health Coverage, reimbursement, and allocation/distribution of medical personnel, in accordance with the [WMA Declaration of Seoul on Professional Autonomy and Clinical Independence](#).
15. Adequately invest in the recruitment and retention of the needed medical workforce via the improvement of working conditions, including:
 - provision of fatigue management and safe rostering practices, including

consideration of a maximum of weekly working hours for physicians in all health care establishments to prevent burnout and sustain motivation,

- access to appropriate facilities, equipment, treatment modalities, etc
 - adequate support from other trained healthcare professionals,
 - protection from harassment, violence, workplace stress, stigma and forced labour,
 - access to career development opportunities at all professional levels, including promotion of equity, inclusion and diversity,
 - adequate professional support and fair remuneration.
16. In partnership with health professions' organisations, timely anticipate potential imbalances between the supply and demand of medical workforce in order

to assess future needs in human resources and design plans to meet those needs.

17. Address telemedicine in the contractual responsibilities of recruited physicians while recognizing the diverse needs of the medical workforce by enabling greater work-life balance, through flexible and remote working where clinically appropriate.
18. Develop transparent memoranda of understanding between countries where migration of physicians is an issue of concern.
- WMA constituent members*
19. Promote [WHPA Positive Practice Environments campaign](#) to create health care settings that are high quality and supportive workplaces.
20. Advocate for governments to develop policies to support the recruitment of physician candidates from within their own countries.

21. Actively advocate for the protection of physicians from harm, while promoting adequate working and living conditions.

22. Work with the government to devise appropriate policies addressing multidisciplinary practice.

23. Promote regular evaluation and improvement of the workforce planning solutions' impact and effectiveness.

Terminology:

– The term “medical workforce” in the text refers to physicians.

– According to [WHO Health Workforce-related terminology](#):

“Health workforce” refers to health workers considered collectively.

“Health workers” are all people primarily engaged in actions with the primary intent of enhancing health.

UPDATE ON THE REVISION OF THE WMA DECLARATION OF HELSINKI

Following the WMA Nairobi Council meeting in April 2023, the workgroup to revise the Declaration of Helsinki (DOH) met on 23-25 September 2023 in Copenhagen, Denmark, in conjunction with a Regional Expert meeting for Europe graciously hosted by the Danish Medical Association, and in partnership with the American Medical Association (AMA) and the World Medical Association (WMA). The main topic of discussion was new and emerging trial designs. Expert speakers hailed from Europe, the World Health Organization (WHO), the U.S. Food and Drug Administration, and the International Federation of Associations of Pharmaceutical Physicians. The workgroup is made up of constituent members from the United States (Chair), Bangladesh, Belgium, Brazil, China, Denmark, Finland, Germany, Israel, Italy, Japan, Malaysia, the Netherlands, Nigeria, South Africa, Taiwan, United Kingdom, Uruguay, the Vatican, and the Associate Members, and was led by the Chair Dr. Jack Resneck, Jr.

Ethical Review Committees

At the Copenhagen meeting, the workgroup discussed the complexities and difficulties of ethical review committees, especially the quality of research proposals being presented for consideration and the qualifications of committee members. The workgroup also discussed the use of the terms “patient,” “subject,” and “research participant,” and whether or not the Declaration could set out ethical requirements of investigators who are not physicians.

Shared Decision-Making

The group then addressed the distinction between participants who are under active medical treatment and also research

participants. The concern is that the shared decision-making by a physician involved in both contexts could be interpreted as paternalistic. However, the final decision about participation in trials rests with the patient. The workgroup concluded that these concerns will need to be assessed, and the final decisions on language will need to be made on a case-by-case basis.

New and Emerging Trial Designs

On 3 October 2023, the workgroup met in conjunction with the hybrid WMA General Assembly Meeting in Kigali, Rwanda. Results from the meeting include:

- Workgroup members discussed and agreed with replacing “research subjects” with “research participants.”
- Consistent with the previous workgroup meeting in Copenhagen, there was consensus among the workgroup that the Declaration needs to address researchers and research team members beyond physicians. There may be places where guidance specifically applies to physicians, in which cases the word “physician” should be retained. To this end, there was general support for the AMA-drafted and drafting group-reviewed edits to paragraph 2 that speaks to the applicability of the Declaration.
- The workgroup chair shared with meeting participants that experts at the Copenhagen meeting expressed that research with minimal or no social value was an ethical issue that the Declaration may need to address. Workgroup members discussed the AMA-drafted and drafting group-reviewed edits to paragraph 17 that raised the issue of the social value of

research.

- Meeting participants discussed whether the Declaration needs to further address the need for ethics committees to be sufficiently trained and have access to necessary resources. Participants considered replacing the word “training” with the word “education” or “expertise” in paragraph 23.

Public Comment Period

The AMA’s proposed two-part public comment structure beginning in early 2024 was accepted by the Council. Strong momentum and international participation in the revision process are encouraged for the intended adoption of the revised Declaration at the 2024 General Assembly meeting in Helsinki, Finland.

Next Steps

The next meeting of the workgroup will be held in conjunction with the WMA Regional Expert Meeting for the Pacific at the Tokyo Odaiba Hotel in Tokyo, Japan, from 30 November to 1 December 2023. It is generously hosted by the Japan Medical Association, in partnership with the AMA and the WMA.

Future regional meetings will be held at the Vatican in January 2024 as well as Johannesburg, South Africa, in February 2024. Members are encouraged to follow the events listing on the WMA website (<https://www.wma.net/what-we-do/events/>) for up-to-date information.

*Office of International Relations
American Medical Association*

Interview with the WMA President



Lujain Alqodmani

For this interview, Dr. Lujain Alqodmani, the WMA President-Elect, highlights her academic background and training, shares current global challenges for the medical community, describes upcoming WMA activities, and promotes the UN Decade of Action on Nutrition (2016-2025), with Dr. Helena Chapman, the WMJ Editor-in-Chief.

Please share a brief summary of your professional education and training in medicine.

I completed my medical education at Kuwait University in 2012, followed by a valuable internship with the World Health Organization's climate and health unit, where I contributed to the development of a global vulnerability guide on climate and health. Subsequently, I dedicated five years to serving patients in the Emergency Department of Amiri Hospital in Kuwait, concurrently spearheading quality control initiatives within the department. Although the experience was enriching, I grew increasingly cognizant of the importance of addressing the fundamental origins of illness, aligning with Sir Marmot's philosophy: "we are sending people back to the same environment that made them sick in the first place". This awareness led me to actively engage in global health initiatives

through my involvement with the Kuwait Medical Association, the Junior Doctors Network, and Women in Global Health.

Motivated by my desire to effect larger-scale change, I made a pivotal career transition from clinical practice to the realm of global health policy, emphasising the need to approach healthcare from a population-based perspective rather than solely an individual-focused one. To equip myself with the necessary tools and expertise, I pursued a master's degree in international healthcare management, policy, and economics at Scuola di Direzione Aziendale (SDA) Bocconi in Milan, Italy, where I deepened my understanding of the intricate interplay between health policies and their broader socio-economic impact.

Given my unwavering commitment to sustainability and health issues, I was honoured to join the team at EAT (<https://eatforum.org/about/>), a global evidence-based platform for sustainable food system transformation, where I could contribute my insights and skills to the intersection of health and sustainability within the context of food systems. Presently, I am dedicated to further advancing my knowledge in the field of epidemiology and population health as a doctoral candidate at the esteemed London School of Hygiene and Tropical Medicine. My research focuses on uncovering crucial insights into the dynamics of disease prevalence and the broader determinants of population health.

What has motivated you to pursue this WMA leadership position, and what international impacts do you hope to achieve over your tenure?

My decision to pursue the WMA leadership position stems from my profound belief in the organisation's pivotal role in representing and advocating for the global physician community. Having actively engaged with the WMA for the past eight years and closely witnessed its impactful initiatives, I was driven to contribute more significantly to its mission and vision.

Recognising the WMA as an influential platform that effectively addresses complex ethical dilemmas and establishes robust standards for medical practice worldwide, I am committed to leveraging its extensive repository of policies and statements to amplify its voice and impact within the global health arena. My primary objective is to enhance the WMA's relevance as a dynamic global actor, ensuring that its wealth of knowledge is more widely disseminated, and its policies more actively implemented to effect tangible change.

In alignment with this vision, I am dedicated to broadening the WMA's global reach, particularly in the Eastern Mediterranean Region, by fostering an inclusive environment that encourages the active participation and representation of physicians from diverse backgrounds and geographies. In this pursuit, I aim to promote gender diversity and equity within the organisation, advocating for the empowerment of women leaders through structured mentorship programs, the establishment of safe and equitable work environments, and the advocacy for gender parity in remuneration.

Moreover, I am committed to nurturing the professional development of WMA members, equipping them with the necessary

tools and knowledge to effectively address the evolving challenges posed by climate change on global health. By fostering comprehensive capacity-building initiatives, I seek to ensure that our members are well-prepared to proactively address the multifaceted impacts of climate change on health outcomes (Photo 1).

Recognising the transformative potential of artificial intelligence



Photo 1. World Medical Association General Assembly in Berlin 2022. Credit: World Medical Association

in medicine, I intend to initiate constructive dialogues within the WMA, facilitating a comprehensive exploration of the benefits and potential risks associated with its integration into medical practice. By fostering an inclusive environment that encourages the active participation of junior doctors in WMA meetings, I aim to cultivate a collaborative and nurturing space that not only benefits from their fresh perspectives but also encourages their active engagement in shaping the future of global healthcare policies.

Aside from the ongoing COVID-19 pandemic, what are the three greatest

global challenges that physicians currently face, and how can the WMA address these challenges?

Beyond the relentless impact of the COVID-19 pandemic, there are three overarching challenges that physicians grapple with on a global scale, which the WMA is actively working on:

- **Violence against Healthcare Professionals:** The persistent

threat of violence against physicians and healthcare personnel remains a distressing issue worldwide, posing a significant threat to the well-being and safety of those dedicated to saving lives. The WMA has consistently condemned such acts, exemplified by the urgent resolution adopted during the WMA General Assembly in Kigali condemning violence against physicians in Nepal. To combat this challenge, the WMA continues to advocate for safe work environments for healthcare professionals, particularly women and youth who are more vulnerable

to such acts of violence. Moreover, the organisation is actively engaged in addressing the issue of violence during conflicts and wars, emphasising the protection of healthcare facilities and personnel in conflict zones, as seen in recent instances in Sudan, Ukraine, Gaza, Syria, and Yemen.

- **Implications of Artificial Intelligence and Emerging Technologies:** The rapid advancement of artificial intelligence and other emerging technologies in the medical field poses complex ethical and practical challenges for physicians. The WMA recognises the necessity of navigating these developments cautiously, to safeguard patient safety, data confidentiality, and equitable access to healthcare, while fostering a culture of innovation. By initiating proactive discussions and policy frameworks that address the implications of these technologies, the WMA remains at the forefront of ensuring that the integration of such advancements complements and enhances the role of physicians without replacing their vital contributions to patient care.

- **Climate Emergency and its Impact on Health:** With climate change exerting an increasingly detrimental influence on public health, including the escalation of extreme weather events and the exacerbation of health crises, the WMA advocates for robust education and capacity-building programs for physicians within the healthcare sector. By prioritising the integration of climate change education in medical curricula and promoting comprehensive awareness campaigns, the WMA stresses on the need to actively equip healthcare professionals with the necessary tools and

knowledge to effectively adapt to and mitigate the adverse health effects of climate change (Photo 2).

As WMA President, what do you hope to accomplish over the next few months, and how can WMA leadership help support these efforts?

As President of the WMA, my immediate focus is to spearhead several pivotal initiatives over the next few months. Recognising the critical need for inclusive spaces and support systems, I am committed to fostering a stronger network for women leaders within the WMA through the introduction of dedicated “women-in-medicine” dinners at upcoming WMA meetings. These gatherings will serve as a platform for fostering mentorship opportunities and facilitating open discussions on pressing issues faced by women in the field.

Furthermore, I am resolute in tackling the issue of sexual harassment within the context of WMA meetings, aiming to initiate a comprehensive process that officially addresses and combats such misconduct. By implementing robust policies and frameworks, we can ensure the creation of a safe and inclusive environment that upholds the highest standards of professional conduct and respect for all participants.

Amid the complex geopolitical challenges, particularly the ongoing conflicts and wars, I am committed to amplifying the WMA's voice in advocating for medical neutrality, the adherence to international law, and the protection of healthcare infrastructure and personnel. This will involve active representation and advocacy for these critical principles in various international forums, fostering a unified global commitment to safeguarding the integrity of healthcare services in

conflict zones.

Additionally, I am dedicated to championing the cause of climate change action, with a particular focus on integrating health considerations into countries' climate action plans. Building upon the recent collaborative efforts with other healthcare

By cultivating these partnerships, we can strengthen the collective voice of physicians worldwide, fostering a more cohesive and influential platform for discussing global health challenges.

Lastly, in partnership with the WMA Executive Committee, I aim to develop



Photo 2. General Assembly of the United Nations 2023. Credit: Dr. Lujain Algodmani

professional organisations, including the signing of an open letter that calls on governments to end fossil fuels dependency, I will lead the WMA delegation at the 28th Conference of Parties (COP28) in Dubai, United Arab Emirates, to advocate for urgent and comprehensive measures to identify the root causes of the climate crisis, vocalise the need for resilient low-carbon healthcare systems, and encourage the development of capacity building programs to better equip healthcare professionals to face climate change impacts.

To fortify the global reach and impact of the WMA, I will actively engage with national medical associations, fostering open and constructive dialogues to encourage their membership in the WMA, particularly in the Middle East region.

a robust and inclusive new strategy for the organisation that reflects the contemporary challenges faced by physicians globally. By prioritising an inclusive and participatory approach, we can guarantee that the WMA remains agile, responsive, and effective in its mission to advocate for the welfare and professional interests of physicians worldwide. I am grateful for the unwavering support of the WMA leadership and look forward to our continued collaboration in achieving these critical objectives.

With your WMA leadership in the Environment Caucus and global leadership and expertise in sustainable food systems, what should WMA members understand about the UN Decade of Action on Nutrition (2016–2025)? How can the WMA support this global initiative, including the 2030

Agenda for Sustainable Development, towards the elimination of hunger, food insecurity, and malnutrition?

I am deeply committed to highlighting the crucial significance of the UN Decade of Action on Nutrition (2016-2025) to all WMA members. This global initiative serves as a critical framework for addressing the complex global challenges related to nutrition, hunger, food insecurity, and malnutrition. WMA members must recognise that the UN Decade of Action on Nutrition plays a pivotal role in fostering a comprehensive and collaborative approach to improving global nutrition outcomes. It emphasises the need for integrated efforts across multiple sectors, ranging from healthcare to agriculture, education, and policy-making, to effectively tackle the underlying causes of malnutrition and food insecurity.

To support this significant global initiative, the WMA can play a vital role in several key areas:

- **Advocacy and Policy Development:** The WMA can actively advocate for the prioritisation of nutrition and sustainable food systems within national and international policies. By engaging with policymakers

and stakeholders, the WMA can promote evidence-based approaches that emphasise the crucial linkages between nutrition, health, and climate and biodiversity sustainability.

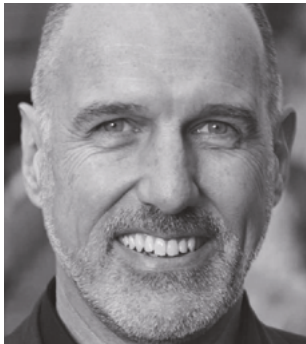
- **Capacity Building and Education:** The WMA should offer and encourage the development of targeted capacity-building programs and educational resources to empower healthcare professionals to effectively address nutrition-related challenges within their communities. These initiatives can include training programs that emphasise the importance of balanced diets, nutrition education, and sustainable food production practices.
- **Research and Knowledge Sharing:** By fostering a culture of collaboration and information exchange, the WMA can contribute to the generation of valuable insights that can inform evidence-based interventions and policies in the field of nutrition and sustainable food systems.
- **Partnerships and Collaborations:** The WMA can actively engage

with various stakeholders, including governmental and non-governmental organisations, international agencies, and other relevant institutions, to foster meaningful partnerships that support the goals of the UN Decade of Action on Nutrition (2016-2025). By leveraging the collective expertise and resources of these diverse stakeholders, the WMA can amplify its impact and contribute to the creation of holistic and sustainable solutions to address global nutrition challenges.

Furthermore, by aligning its efforts with the broader 2030 Agenda for Sustainable Development, the WMA can contribute to the achievement of Sustainable Development Goal 2. These efforts include prioritising sustainable and equitable food systems, which can help eliminate hunger, food insecurity, and malnutrition, ultimately fostering a healthier and more sustainable future for all.

*Lujain Algodmani,
BMSc, MBBS, MIHMEP
President (2023-2024),
World Medical Association
ljainalq@gmail.com*

A Few Words about WMA Associate Membership



Jacques de Haller

The World Medical Association (WMA) Associate Membership is a wonderful world – a world of original thinking, a world of free speech, a world of new ideas and initiatives, a world of commitment and friendship – and an invaluable place at the heart of the WMA.

What does it mean to be an Associate Member of the WMA?

The WMA is the umbrella organisation for 115 National Medical Associations around the world (“Constituent Members”), representing more than 10 million physicians. In addition, there are more than 2,000 individual WMA Associate Members. It is quite an impressive number of individual doctors who are interested in contributing to WMA activities, discussing important issues raised in its various bodies and workgroups, and being informed about key issues affecting global physicians. Associate Members can participate in the discussions at the heart of WMA’s activities as well as contribute as individual members to workgroups organised by the Associate Members, serve as a delegate of the Associate Members, and attend WMA meetings and sessions. It also highlights the benefit of forming part of a global network of colleagues, having

contacts (and making friends) all over the world – a very special experience!

Who can become an Associate Member?

Physicians across the world can become a WMA Associate Member, regardless of whether their own National Medical Association is a member of WMA. A very active group within the Associate Membership, the Junior Doctors Network (JDN) offers a platform for colleagues who have graduated within the previous 10 years or who are pursuing postgraduate training, and Past Presidents and Past Chairs of the WMA also have their own network within the Associate Membership. Associate Membership requires an annual fee of US\$75; however, JDN members do not pay membership fees for the first five years after graduation, and Past Presidents and Chairs do not pay membership fees. The current Associate Membership rules can be found on the WMA website (<https://www.wma.net/wp-content/uploads/2022/10/AM1-Rules-Associate-Membership-Oct2022-1.pdf>).

What are the structures of the Associate Membership?

The WMA Associate Membership is led by a Steering Committee of nine, with a Chairperson at its head, and representatives of the different segments of the membership. The team meets virtually every two months and is responsible for structuring the work and organising various activities.

What are the tasks of Associate Members?

One of the main tasks that we perform as WMA Associate Members is

to respond to WMA consultations when documents are circulated for review. This opportunity allows us to express our views and gain insight on the full range of issues covered by WMA policies and statements. This is done either individually by all Associate Members, who receive information and respond via email, or by an ad hoc workgroup organised by the Associate Member Steering Committee. No need to stress how interesting this process is!

Another role of Associate Members is to participate in WMA workgroups as delegates, nominated by the Steering Committee. For example, among other Workgroups, there are currently Associate Member delegates in the WMA Workgroup on the Revision of the Declaration of Helsinki as well as the Workgroup on Environment (chaired by an Associate Member). In fact, Associate Members are represented in most WMA workgroups. Associate Members also use the active support of members for organising webinars on pressing topics (e.g. health workforce, disinformation) and serving on the Steering Committee (e.g. annual elections depending on the Committee’s function).

What is the contribution of Associate Members to the WMA?

The main contribution of the Associate Members is the ability to freely express their perspectives as individual physicians, based on specific professional experiences. Associate Members do not represent medical associations, which leaves them free from the constraints and political correctness inherent to such organisations. For example, Associate Members have contributed to establishing rules to ensure the



safety of LGBTQ+ delegates at WMA meetings or advocating that such meetings should not be held in geographic settings where physicians are persecuted. Currently, they are preparing documents for the WMA on the issues of ageing physicians or of medical neutrality, especially as the latter term is still a poorly defined concept in the scientific literature.

Words from the Chairperson

As Chairperson, I have had the privilege of succeeding two remarkable personalities, Dr. Joe

Heyman and Dr. Anthea Mowat, who each exhibited their own outstanding talents, expertise, and distinctive touch with the WMA. I am very grateful to be seconded by such a supportive Steering Committee. With my primary tasks of keeping the WMA Associate Membership in good spirits and harmony and encouraging diversity – diversity of opinion, but also, in our global organisation, diversity of feelings and of medical and political culture – we recognise that diversity does not happen automatically. It must be actively fostered, giving everyone

the opportunity to share their perspectives and engage in collective dialogue. As we reflect upon our unique contributions to the WMA, I encourage you to join and contribute to the Associate Membership activities – indeed, it is a wonderful world!

Jacques de Haller, MD
Chairperson, Associate Members,
World Medical Association
mail@jdehaller.ch

Forming a Transdisciplinary Research Network to Address Diseases and their Syndemics



Dennis Pérez Chacón



Helena Chapman



María del Carmen Zabala Arguelles



Yisel Hernández Barrios



Martha Chang de la Rosa



Claudia Patricia Nieto-Sánchez



Yosiel Molina Gómez

The spread of communicable, non-communicable diseases and their syndemics across the world is a dynamic and complex phenomenon, as well as the design of effective, appropriate, efficient, and culturally relevant interventions to reduce their impact on population health. Developing a holistic view to approach

such a complexity is an urgent need. Working through networks to conduct and expand the scope and reach of transdisciplinary research is a way of moving forward. This is in line with contemporary approaches of international health organisations that evolved from being disease-centred to include psychosocial and environmental perspectives rooted in a transdisciplinary global health vision [1,2]. Transdisciplinary research is defined as integrated knowledge from multiple academic disciplines and non-academic stakeholders to address societal challenges [3]. Guided by the principle that ‘scientific rigour should meet societal relevance’, this perspective offers an opportunity to leverage expertise across disciplines to collaborate on pressing health concerns across geographical regions and incorporate evidence-based

research findings into policy and practice.

Notably, three key global initiatives and guidance documents have highlighted this holistic and collaborative perspective to address the burden of communicable and non-communicable diseases, and impacts on human, animal, and environmental health. First, in September 2015, the United Nations (UN) approved the 2030 Agenda for Sustainable Development (<https://sdgs.un.org/2030agenda>) at the UN Sustainable Development Summit, building upon the recognition that basic human needs, such as housing, water, food, gender equality, food insecurity, poverty alleviation, and the environment, are deeply connected [4]. As the benefits of reaching these 17 ambitious goals are felt

across all aspects of our society, a less fragmented research environment and generation of common languages can promote a more integrative science [5]. Second, in January 2016, the World Health Organization (WHO) launched the *Global Action Plan on Antimicrobial Resistance*, adopted at the World Health Assembly in May 2015, which aimed to guarantee safe and effective clinical management for infectious diseases [6]. The WHO has compiled a library of approved national action plans on antimicrobial resistance (AMR), supporting all nations to reexamine and update their national action plans to combat AMR and participate in World AMR Awareness Week each 18-24 November (<https://www.who.int/campaigns/world-antimicrobial-awareness-week>). Third, in October 2022, the Quadripartite organisations (WHO; UN Environmental Programme, UN; World Organization for Animal Health, WOA; Food and Agriculture Organization of the UN, FAO) published the *One Health Joint Plan of Action 2022-2026*, which incorporated six action tracks to promote implementation efforts of the One Health concept (human-animal-environment nexus) across global initiatives [7].

These initiatives are particularly relevant in the Latin America and Caribbean (LAC) region, recognised with diverse geographic, political, and socioeconomic variation. Before the onset of the coronavirus disease 2019 (COVID-19) crisis, overall population health status remained unequal across and within LAC countries. Improvements observed in non-communicable disease outcomes in the LAC region were slower, when compared with other geographic regions, while communicable diseases and injuries persisted as relevant health issues. As smoking, alcohol drinking, and obesity remained

critical risk factors for poor health, the quality of care and universal health coverage were unfulfilled promises [8]. Additionally, the LAC region was massively and disproportionately affected by the COVID-19 pandemic, when compared to other regions, and major disruptions in routine health care provisions exposed fragile health systems [9].

With the intention of contributing to address global health priorities, the inaugural meeting of the Transdisciplinary Research Network on Communicable and Non-communicable Diseases and their Syndemics (Red de Investigación Transdisciplinar sobre Enfermedades Transmisibles, No Transmisibles y sus Sindemias, RIT) was held on 29-31 August 2023, in Varadero, Cuba (Photo 1). Supported by the Strengthening Collaboration for Syndemics in Cuba (SCS Cuba), a partnership between the “Pedro Kouri” Tropical Medicine Institute (Instituto de Medicina Tropical “Pedro Kouri”, IPK), the Institute of Tropical Medicine of Antwerp (IMT), and the National Institute of Hygiene, Epidemiology and Microbiology (Instituto Nacional de Higiene, Epidemiología y Microbiología, INHEM), this event aimed to identify knowledge gaps affecting research conducted in the LAC and other regions. The meeting was funded by the Belgium Directorate-General for Development Cooperation and Humanitarian Aid (DGD).

To support a robust meeting agenda, the organising committee promoted five objectives: 1) expanding interdisciplinary and transdisciplinary research collaborations among researchers representing the IPK, ITM, and INHEM, among other national and international institutions; 2) identifying alternative funding mechanisms that can strengthen research capacity related

to transdisciplinary approaches; 3) detecting synergies and ongoing collaborative projects among the RIT Network; 4) finding formative spaces to strengthen interdisciplinary and transdisciplinary research collaborations; and 5) communicating research findings that highlight the value of theoretical-methodological capacities on vulnerability and syndemics. A total of 50 professionals, representing Belgium, Canada, Cuba, Dominican Republic, France, Mexico, and the United States, met in-person and virtually to present scientific topics and discuss overall challenges and areas to strengthen collaborative research networks. In this article, the authors will describe the background of the RIT Network, discuss theoretical and methodological aspects related to health-related social vulnerabilities, and share the consensus on next steps to strengthen capacities and research networks.

Background of the RIT Network

The IPK’s institutional model, developed between 2009 and 2019, included institutional, national, and international projections for the LAC region based on three dimensions: research (social, geospatial, and health economic studies), capacity-building (using a participatory and dialogic pedagogical model), and economic contributions (human and financial resource mobilisation). Through IPK’s research experiences, the model implementation provided theoretical and methodological support for applied social and transdisciplinary research on infectious diseases, offered quantitative and qualitative methodologies and tools to describe and understand disease transmission dynamics, and illustrated how social science contributions can strengthen global health research [10]. Specifically, capacity building on qualitative and mixed methods research has been institutionalised

within the postgraduate and doctoral programs, and IPK's networking with biomedical and social sciences has expanded across selected national and international institutions. Building upon the IPK's model, the RIT Network framework offers a holistic view of applying social sciences and transdisciplinary approaches to global health research, especially for infectious disease prevention and control.

Primary Thematic Focus of Vulnerability

Recognising that vulnerabilities and other social phenomena mediating health outcomes increase during public health crises, this first meeting of the RIT Network aimed to promote the need for urgent integration of social sciences' perspectives into the public health community. With robust scientific talks and collective discussions organised into two main sessions, the content and focus reveal the disciplinary heterogeneity of the panellists' backgrounds (e.g. anthropology, economy, epidemiology, health administration, psychology, social communication, sociology, medicine, public health, urbanism and architecture) and the complex relationships encountered during their research collaborations.

Theoretical Perspectives and Analytic Frameworks

Dr. Maria del Carmen Zabala (Latin-American Faculty of Social Sciences, Cuba) presented the scope and challenges for social protection of vulnerable groups for COVID-19 in Cuba. She shared two types of analyses connecting health and social vulnerabilities – health vulnerability to differential access and risk related to social determinants of health (SDOH), and social vulnerability emphasising pre-existing social conditions, poverty, and inequality.

By applying an intersectional lens in vulnerability analysis, she agreed that a policy tool can help diversify interventions that hinder access to health services.

Dr. Helena Chapman (George Washington University, USA) elaborated on using the One Health approach to better understand the impacts of changing ecosystems on vulnerability. She highlighted that natural and anthropogenic changes within the surrounding environment (e.g. extreme temperatures, poor air quality, vector-borne disease transmission) can increase risk of population exposure to harmful conditions, emissions or disease vectors, and health systems must be prepared to address these emerging One Health risks. By incorporating innovative data – including remote sensing and other geospatial data, qualitative research, citizen science applications, social media technology, and community mobilisation – she commented that the development of disease early warning systems and aerosol monitoring tools can help inform risk to vulnerable communities and prepare health decision-makers to manage key health challenges for the decade of action [11].

Dr. Adolfo Álvarez (INHEM, Cuba) defined SDOH as the process resulting from complex interactions of factors and conditions throughout the lifespan, and discussed the Cuban theoretical and methodological model of SDOH and its contribution to understanding vulnerability. In his view, vulnerability is related to diverse environments (e.g. personal, professional, familiar, economic, political), where he noted that specific factors or conditions can socially influence the exposure to individual or population health risks as well as the ability to respond and adapt to health risks.

Disciplinary Perspectives of Approaching Vulnerability

Dr. Koen Peeters (ITM, Belgium), trained as a social and cultural anthropologist, argued that understanding the inherent logic and rationale for the implementation of established interventions and value for participating stakeholders can reduce misconceptions and stereotypes and increase their acceptability and effectiveness. Then, Dr. Yamilé Ferrán (Faculty of Communications, University of Habana, Cuba), trained as a social communicator, used vulnerability as a framework to discuss how public communication focused on health-related outcomes can provide a sustainable, humanistic, and inclusive cultural context to community interventions.

Dr. Diana Sagastume and Dr. Ellen Mitchell (ITM, Belgium), Dr. Armando Seuc (INHEM, Cuba), Dr. Alina Martinez (IPK, Cuba), and Dr. Ángel Escobedo (Institute of Gastroenterology, Cuba) shared valuable insights to the discussion on health-related vulnerability based on the evidence-based literature and their global health research experiences in Belgium, Cuba, and other nations. They collectively discussed the unique contributions of applying a vulnerability lens to evaluate current health initiatives that aim to reduce mortality due to diabetes, tuberculosis (TB), and parasitic infections in the LAC region.

Highlights from Empirical Research on Vulnerability

Dr. Yisel Hernández (IPK, Cuba) provided insight on syndemics research that explored health-related vulnerability in the context of the global COVID-19 pandemic, including social and environmental factors, theoretical and methodological approaches, and main contributions

and limitations. Then, Dr. Alberto Baly (IPK, Cuba) described a study conducted in a tertiary-level Cuban hospital to explore associations between health-related vulnerability and the COVID-19 clinical presentation. Next, Dr. Anna Pomaro (Center of Population and Development, CEPED, France) and Dr. Yadira Díaz (Center of Youth Studies, Cuba) presented an analysis of how the definition of vulnerability changed during the COVID-19 pandemic in Cuba. They identified vulnerability-related risks and challenges of different population groups and analysed the impact of the COVID-19 pandemic on reestablishing social and community networks and access to health services.

Dr. Claudia Nieto and Dr. Stefanie Dens (ITM, Belgium) described how they applied different methodological approaches to better understand how living conditions, socio-economic status, mobility routines, and health-seeking itineraries are related in a specific context and space that influences overall risk and vulnerability. Then, Dr. Bienvenido Veras-Estevez (Universidad Católica del Cibao, Dominican Republic) mentioned self-perceived vulnerabilities related to HIV/AIDS and TB in urban and marginalised (bateyes) communities in the Dominican Republic. He stressed that strengthening links with community leaders and families for HIV/TB care can help minimise vulnerabilities and stigma through the implementation of prevention programs, access to primary health care services, social security protection, and access to community and national resources, noting the significant impact of the COVID-19 pandemic (e.g. challenges in TB and COVID-19 control) [12]. Next, Dr. Mabel Carabali (McGill University, Canada) questioned the way that ethnic and racial population data are being used and interpreted

in relation to health issues in the LAC region, based on her research experiences examining the paradox of dengue severity and socioeconomic distribution of Afro-Colombian residents. Considering SDOH and other health gaps, she described analytical findings on the racial context that generated differential health outcomes that could exacerbate health-related vulnerabilities.

Dr. Dayana Rodríguez (IPK, Cuba) and Dr. René González (Faculty of Geography, University of Habana, Cuba) used epidemiological, environmental, and spatial data to classify territories with different vulnerability levels within a particular Cuban municipality. Then, Dr. Luis Fonte and Dr. Yisel Hernández (IPK, Cuba) presented risk factors related to helminths and compared scenarios with different hygiene, socioeconomic, and environmental conditions that could influence vulnerability to parasitic infections affecting the Cuban populations. These collective talks provided information on how understanding these risk factors could provide a framework to develop appropriate and timely health interventions to mitigate risk to infectious diseases.

Dr. Lisandra Fuentes (Interamerican University of Mexico, Mexico) revealed vulnerabilities in men who have sex with men from Cuba and Mexico, considering the influence of selected dimensions like socioeconomic conditions, stigma and discrimination, support networks, and gender roles. Then, Dr. Clare Barrington (UNC, USA) raised the importance of determining the economic, emotional, and health access impact of the COVID-19 pandemic on female sex workers living with HIV in Tanzania and the Dominican Republic.

Collective Analysis and Discussion on Vulnerability

Using a participatory process to guide the meeting participants in their reflections on vulnerability, Dr. Geydis Fundora (Latin American Faculty of Social Sciences, University of Havana, FLACSO, Cuba) presented the basic principles of a methodological framework to build territorial profiles of individuals and families with social disadvantages in the Cuban context. As part of the process, participants reflected on vulnerable individuals (e.g. individual characteristics or unfavourable environmental conditions) – elderly, pregnant women, migrants, people living with HIV/AIDS, low income status, disabilities, absence of a supportive network, and inability to mobilise assets. The collective discussion highlighted the importance of defining vulnerability as a construct that implies a condition of risk as well as understanding the resilience needed to respond to community risks, considering the complexity when addressing and defining vulnerable populations.

As the panellists shared empirical findings on diverse scenarios that incorporate vulnerability in prevention and control approaches, participants described the theoretical, methodological, and practical gaps that can drive mainstream data collection, analysis, and reporting to build profiles of social vulnerability in current public health research and practice. Notably, participants commented that as vulnerable groups are identified using existing policies or certain sociodemographic variables as a reference point, associations among vulnerability, marginalisation, and poverty factors often derive into misconceptions and stigmatisation. They suggested that health status and medical conditions represent two key dimensions of the methodological

framework that can be adapted to the public health field.

Next Steps for the RIT Network

This inaugural meeting of the RIT Network provided an open forum for meeting participants of diverse specialties to identify common interests, streamline opportunities for capacity building and transdisciplinary research, brainstorm on funding alternatives, and discuss future directions for the network, as they connect to health-related social vulnerabilities on communicable and non-communicable diseases and their syndemics. Developing capacities in transdisciplinary research was deemed relevant to address complex public health issues and fulfil current funding schemes. Initial agreements to formalise the RIT Network were adopted, including the promotional logo, documentation and project portfolio, constitution as a consortium, member recruitment, and annual meetings.

The collective discussion on funding opportunities was led by Dr. Jorge Fraga (IPK, Cuba), director of the Department of Science and Innovation and project coordinator of SCS Cuba, and Dr. Maria Eugenia Toledo (IPK, Cuba), a scholar with numerous successful funding applications. Participants highlighted the potential synergies between the IPK-INHEM-ITM inter-institutional collaboration and other funding alternatives (e.g. Global Fund to Fight AIDS, Tuberculosis and Malaria, Pan American Health Organization, WHO Special Programme for Research and Training in Tropical Diseases, MediCuba Europe, other European Union sources). Specifically, Flemish Interuniversities Council (Vlaamse Interuniversitaire Raad, VLIR), Academy of Research and High Education (Académie de recherche

et d'enseignement supérieur, ARES), and Horizon Europe were recognised as potential organisations to promote academic mobility and create consortia based on the RIT Network's competencies.

As the scope and rigour of social science research may be poorly understood and valued by biomedical research groups, the urgency for strengthening capacities, identifying and formalising inter-institutional academic collaboration, generating joint programs with transdisciplinary lens, identifying users for training programs, and visualising capacity building within research projects, were proposed as alternatives to close the knowledge gap. Dr. Marta Castro (IPK, Cuba), director of the IPK Department of Academics, described the ever-growing number of IPK training programs each year, and highlighted that IPK is strategically placed to support the RIT Network within inter-institutional spaces as members move toward achieving established goals.

Aside from the successful first meeting of the RIT Network in August 2023, two additional concrete actions have helped advance the RIT Network.

First, IPK researchers were invited to present the importance of the RIT Network to address global health issues during the Cuban National School of Public Health (Escuela Nacional de Salud Pública, ENSAP)'s Annual Conference 2023, which was held on 23-27 October 2023 (<https://eventosensap.sld.cu/index.php/ensap23/2023>). Second, IPK and the Faculty of Social Sciences of the Cuban University of Cienfuegos advanced the formalisation of an official inter-institutional agreement in October 2023. These actions were led by two RIT Network members: Dr. Noralydis Rodríguez (ENSAP, Cuba) and Dr. Vanesa Fernández (Faculty of Social Sciences of the University of Cienfuegos, Cuba).

As the second meeting of the RIT Network is planned for August 2024, RIT Network coordinators, together with network membership, foresee collaborative efforts to improve team organisation, refine short-, medium-, and long-term commitments and goals, and generate regular communication channels. They invite all scientific and social disciplines – including global physicians – to leverage their expertise by joining the RIT Network that can foster



Photo 1. Participants attending the inaugural meeting of the Transdisciplinary Research Network on Communicable and Non-communicable Diseases and their Syndemics in Varadero, Cuba on 29-31 August 2023. Credits: RIT Network

interdisciplinary and transdisciplinary work for current and future collaborations in communicable and non-communicable disease and their syndemics.

References

- Peters DH, Adam T, Alonge O, Agyepong IA, Tran N. Implementation research: what it is and how to do it. *BMJ*. 2013;347:f6753
 - Peters DH, Tran NT, Adam T. Implementation research in health: a practical guide: World Health Organization; 2013.
 - Wright Morton L, Eigenbrode SD, Martin TA. Architectures of adaptive integration in large collaborative projects. *Ecology and Society*. 2015;20(4).
 - United Nations. Transforming our world: the 2030 Agenda for Sustainable Development. New York: United Nations; 2015. <https://sdgs.un.org/publications/transforming-our-world-2030-agenda-sustainable-development-17981>.
 - Cohen CR, Lescano AG, Mardones FO, Menon P, Thirumurthy H, Ssali S. Advancing global health and the sustainable development goals through transdisciplinary research and equitable publication practices. *Advances in Global Health*. 2022;1(1).
 - World Health Organization. Global action plan on antimicrobial resistance. Geneva: WHO; 2016. <https://www.who.int/publications/i/item/9789241509763> 2016.
 - World Health Organization. Library of AMR national action plans [Internet]. 2011 [cited 2023 Nov 20]. Available from: <https://www.who.int/teams/surveillance-prevention-control-AMR/national-action-plan-monitoring-evaluation/library-of-national-action-plans>
 - Organisation for Economic Co-operation and Development; World Bank. Health at a Glance: Latin America and the Caribbean 2020. Paris: OECD Publishing; 2020. <https://doi.org/10.1787/6089164f-en>
 - Organisation for Economic Co-operation and Development; World Bank. Health at a Glance: Latin America and the Caribbean 2023. Paris: OECD Publishing; 2023. <https://doi.org/10.1787/532b0e2d-en>
 - Pérez Chacón D, Castro Peraza M, Hernández Barrios Y. La investigación social en la prevención y el control de enfermedades infecciosas: experiencias contemporáneas del Instituto de Medicina Tropical “Pedro Kourí” e instituciones colaboradoras. *Revista Cubana de Medicina Tropical*. 2020;71(3). Spanish.
 - World Health Organization. Urgent health challenges for the next decade [Internet]. 2020 [cited 2023 Nov 20]. Available from: <https://www.who.int/news-room/photo-story/photo-story-detail/urgent-health-challenges-for-the-next-decade>
 - Chapman HJ, Veras-Estévez BA. Lessons learned during the COVID-19 pandemic to strengthen TB infection control: a rapid review. *Glob Health Sci Pract*. 2021;9(4):964-77.
- Speakers of the RIT Network's Inaugural Meeting:
- Stefanie Dens, Ellen Mitchell, Claudia Patricia Nieto-Sánchez, Koen Peeters, Diana Sagastume, and Veerle Vanlerberghe (Institute of Tropical Medicine in Antwerp, ITM, Belgium); Alberto Baly, Marta Castro, Luis Fonte, Jorge Fraga, Yisel Hernández Barrios, Alina Martínez, Yosiel Molina Gómez, Dennis Pérez Chacón, Dayana Rodríguez, María E. Toledo, and Felix Valdés (“Pedro Kourí” Institute of Tropical Medicine, IPK, Cuba); Adolfo Álvarez, Martha Chang de la Rosa, and Armando Seuc (National Institute of Hygiene, Epidemiology, and Microbiology, INHEM, Cuba); Geydis Fundora and María del Carmen Zabala Arguelles (Latin American Faculty of Social Sciences, University of Havana, FLACSO, Cuba); Yamilet Ferrán (Faculty of Communications, University of Habana, Cuba); René A. González (Faculty of Geography, University of Habana, Cuba); Claire Barrington (University of North Carolina, UNC, USA), Anna Pomaro (Center of Population and Development, CEPED, France); Mabel Carabali (McGill University, Canada); Yadira Díaz (Center of Youth Studies, CESJ, Cuba); Ángel Escobedo (Institute of Gastroenterology, Cuba); Lisandra Fuentes (Interamerican University of Mexico, Mexico); Helena Chapman (George Washington University, USA); and Bienvenido Veras-Estévez (Universidad Católica del Cibao, Dominican Republic).

Acknowledgments:

The authors appreciate the support of the individual and institutional members of the RIT Network.

Authors

Dennis Pérez Chacón, PhD
"Pedro Kouri" Tropical
Medicine Institute
Havana, Cuba
dennisperezchacon@gmail.com

Yisel Hernández Barrios, MSc
"Pedro Kouri" Tropical
Medicine Institute
Havana, Cuba
yhbarrios@ipk.sld.cu

Yosiel Molina Gómez
"Pedro Kouri" Tropical
Medicine Institute
Havana, Cuba
yosiel.molina@ipk.sld.cu

Helena Chapman, MD, MPH, PhD
George Washington University
Washington DC, USA
hjchapman@gwu.edu

Martha Chang de la Rosa, MSc
National Institute of Hygiene,
Epidemiology and Microbiology
Havana, Cuba
mchang@inbem.sld.cu

**María del Carmen Zabala
Arguelles, PhD**
Latin American Faculty
of Social Sciences
Havana, Cuba
mzabala@flacso.uh.cu

**Claudia Patricia Nieto-Sánchez,
DPH, PhD**
Institute of Tropical Medicine
Antwerp, Belgium
cnieto@itg.be

The Road to the Antimicrobial Resistance High-Level Meeting 2024



Pablo Estrella Porter



Helena Chapman



Caline Mattar

Antimicrobial drugs have been fundamental in modern human and veterinary medicine, revolutionising healthcare and saving countless lives. However, their uncontrolled, excessive use, and limited accessibility have provoked a pressing crisis: antimicrobial resistance (AMR). This natural yet exacerbated occurrence, fueled by misuse in human, animal,

and agricultural domains, poses a formidable threat to global health. AMR was recognised as one of the top 10 global health threats, causing an estimated five million deaths due to resistant bacterial infections in 2019 [1]. Of these bacterial infections, six pathogens – *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Streptococcus pneumoniae*, *Acinetobacter baumannii*, and *Pseudomonas aeruginosa* – were linked to 3.5 million of the total number of these deaths [1].

The challenges posed by AMR transcend immediate health risks, encompassing projections that signal a staggering cost of up to US\$100 trillion to the global economy by 2050 [2]. This economic threat is intricately connected to the slowing of the antibiotic pipeline for drug development and commercialisation that has persisted since the 1980s. The inertia in this pipeline, coupled with the inappropriate use and abuse of antimicrobial agents, has been a catalyst for pathogen adaptation and the pervasive emergence of AMR [3]. Pharmaceutical and biotechnology industries encounter significant challenges related to antibiotic development, high economic investment with a high risk of failure, a need to steward new antibiotics to preserve their efficacy, and lengthy clinical development time [4,5].

Scientific evidence has shown that AMR can result from the misuse or abuse of antimicrobial agents in humans, livestock, and agriculture, which stresses the need to better understand the complex factors that drive AMR transmission and spread. Since AMR is directly linked to human, animal, and environmental health, the One Health approach is essential to foster robust collaborations across scientific disciplines, sectors,

and geographic regions, to achieve established objectives, such as indicators of national health plans or Sustainable Development Goals (SDGs) [6].

“Antimicrobial resistance must be addressed urgently, through a One Health approach involving bold, long-term commitments from governments and other stakeholders, supported by the international organisations.” - Dr. Monique Eloit, Director General of the World Organisation for Animal Health (WOAH) [7]

Addressing Combating AMR

Over the past decade, global leaders have taken significant strides to increase AMR awareness, promote antibiotic stewardship across the human, animal, and agricultural sectors, and urge immediate and collaborative action to combat AMR. Table 1 presents selected World Health Assembly (WHA) resolutions relevant to AMR that were adopted during WHA proceedings. In 2015, the World Health Organization (WHO) published the *Global Action Plan on Antimicrobial Resistance*, which aimed to enhance antibiotic prescribing practices and scientific research for new antimicrobial agents [8]. The five objectives include: 1) improving AMR awareness; 2) enhancing surveillance and research to advance the scientific literature; 3) promoting infection control measures; 4) emphasising the appropriate use of antimicrobial agents across sectors; and 5) advocating for increased political commitment for medications and vaccines [8]. That same year, the WHO Global AMR and Use Surveillance System (GLASS) (<https://www.who.int/initiatives/glass>) was publicised, as a joint global effort that emphasised

Table 1. List of selected WHA resolutions relevant to antimicrobial resistance

Resolution	Year	Description
WHA39.27	1986	The Rational Use of Drugs
WHA47.13	1994	The Rational Use of Drugs
WHA51.17	1998	Emerging and other Communicable Diseases: Antimicrobial Resistance
WHA54.14	2001	Global Health Security: Epidemic Alert and Response
WHA58.27	2005	Improving the Containment of Antimicrobial Resistance
WHA60.16	2007	Progress in the Rational Use of Medicines
WHA66.22	2013	Follow up of the report of the Consultative Expert Working Group on Research and Development: Financing and Coordination
WHA67.25	2014	Antimicrobial Resistance
WHA68.7	2015	Global Action Plan on Antimicrobial Resistance

the second objective of the *Global Action Plan on Antimicrobial Resistance*. This effort marked the first steps toward standardising AMR global surveillance data collection and sharing.

Furthermore, in 2022, the *One Health Joint Plan of Action 2022-2026* was launched, incorporating six action tracks to guide leaders in addressing emerging global risks [9]. Notably, action track 5 (curbing the silent pandemic of AMR) focused on two parts – maintaining antimicrobial effectiveness and guaranteeing access and availability of antimicrobial agents when appropriate – in humans, livestock, and agriculture. Finally, organised by the WHO, the World Organisation for Animal Health (WOAH), the Food and Agriculture Organization of the United Nations (FAO), and the United Nations Environment Programme (UNEP), the World AMR Awareness Week (WAAW) is an annual celebration each November that aims to increase awareness about AMR prevention and control. The 2022 and 2023 themes were “Preventing Antimicrobial Resistance Together” (<https://www.who.int/campaigns/>

[world-amr-awareness-week/2023](#)), noting that AMR affects all global citizens and that multidisciplinary and cross-sectoral collaborations are key to promote best practices for the appropriate and cautious use of antimicrobial agents.

“Antimicrobial resistance is one of the greatest threats we face as a global community [...] there is no time to wait and I urge all stakeholders to act on and work urgently to protect our people and planet and secure a sustainable future for all.” - Ms. Amina Mohammed, UN Deputy Secretary-General and Co-Chair of the Interagency Coordination Group on Antimicrobial Resistance (IACG) [10]

Prioritising a Collective Global Response in Addressing AMR

To date, an estimated 170 countries have established AMR National Action Plans, yet multi-sectoral collaborations, sustainable political commitment, financing and educational and research investment are widely inconsistent [11]. The WHO launched two guidelines in 2023, to help streamline global AMR efforts that can inform policies and

interventions. First, the *WHO Global Research Agenda for Antimicrobial Resistance* incorporated a total of 40 research themes that can help spark implementation initiatives related to surveillance, diagnosis, and treatment and provide evidence by 2030 [12,13]. Second, the *WHO Core Package of Interventions to Support National Action Plans* offered additional support for Member States to evaluate and strengthen their national action plans [9]. These interventions mirror the people-centred framework around four pillars – such as 1) infection prevention; 2) access to essential health services; 3) timely, accurate diagnosis; and 4) appropriate, quality-ensured treatment – to reduce AMR transmission and spread [11].

The United Nations General Assembly’s (UNGA) High-Level Meetings on Health represent crucial platforms for addressing urgent global health challenges. The historical significance of prior UNGA Health-related Meetings demonstrates a legacy of international collaboration that shaped global health policies and proved effective in addressing health crises, such as the case of human immunodeficiency virus / acquired immunodeficiency syndrome (HIV/AIDS), where funding and investment increased after the first HLM occurred in 2001. Over the past two decades (2001-2019), 10 UNGA Health High-Level Meetings focused on primary health concerns: four on HIV/AIDS, three on non-communicable diseases, one on tuberculosis, one on universal health coverage, and one on AMR. These gatherings, convening Heads of State, governments, health experts, and stakeholders, are essential in addressing the burgeoning threat of AMR, undermining the efficacy of life-saving drugs and potentially rendering common infections lethal [14].

During the 2016 UNGA High-Level

Meeting on AMR, the political declaration on AMR was adopted, which recognised the global threat of AMR and stressed the need for urgent collective action among global leaders, governments, and health organisations to develop national action plans, policies, and interventions to combat AMR. This declaration, which supported the *Global Action Plan on Antimicrobial Resistance* launched in 2015, incorporated the One Health approach, thereby laying the groundwork for ongoing initiatives and discussions [15]. These meetings have proven instrumental in sharing best practices and raising awareness to combat AMR, highlighting the vital role of affordable antimicrobial medicines in achieving the SDGs [16,17].

“Antimicrobial resistance threatens the achievement of the Sustainable Development Goals and requires a global response. Member States have today agreed upon a strong Political declaration that provides a good basis for the international community to move forward. No one country, sector or organisation can address this issue alone.”
- H.E. Peter Thomson, President of the 71st session of the UN General Assembly [18]

As the 2024 UNGA High-Level Meeting on AMR approaches, we have an invaluable opportunity to reflect on the progress made towards the 2016 AMR High-Level Meeting recommendations, stimulate change, and establish actionable commitments. The active engagement of national, regional, and global professional societies, academia, and the AMR research community will be essential in crafting specific commitments, particularly in bolstering financial investments for education, behaviour change, and research and development, and further developing the evidence

base for effective global strategies to tackle AMR [19]. Unfortunately, no specific, measurable, achievable, relevant, and time-bound (SMART) targets were included in the 2016 AMR High-Level Meeting findings, which hindered implementation and evaluation efforts [15]. There is an urgent need for the 2024 High-Level Meeting to result in actionable interventions and indicators to measure progress globally.

Current WMA Activities on AMR

AMR has been a longstanding priority for the World Medical Association (WMA). The engagement started in 2015, shortly after the adoption of the *Global Action Plan on Antimicrobial Resistance* at the 68th WHA. The WMA has served as a convener for health professional associations as well as early career and youth through the Junior Doctors Network (JDN). To address this critical sector, the JDN AMR Working Group was established in 2016, and JDN members were selected to be part of the Quadripartite Youth Engagement Working Group, in collaboration with the WHO, WOA, FAO, and UNEP.

Additionally, the WMA has contributed to multiple expert advisory groups at the WHO, namely on Health Workforce Curricula for AMR, Behavior Change, and Stewardship. Communication strategies for health professionals have been at the centre of continued efforts and collaboration with the WHO, particularly towards the development and review of target messages and themes for the WAAW. One core activity is a WAAW social media campaign that emphasises the effects of AMR on the day-to-day practice of physicians globally as well as raises awareness of the One Health approach and equity.

AMR is a multifaceted issue that requires multi-stakeholder dialogue and collaboration. Since AMR affects people differently, the prevalence of higher rates of multi-drug resistant organisms is significantly increased in low- and low-middle income countries (LMICs). Within the same country, socio-economic status, race, education, and gender are all differentials of AMR rates. Recognising this burden, the WMA will continue to advocate for the inclusion of equity as a cornerstone for interventions to tackle AMR. It aims to partner with various civil society organisations active in this space, youth organisations, pharmaceutical and veterinary colleagues, industry, and the WHO.

Key Actions for National Member Associations and Members

This year, we have encountered a crucial turning point for the AMR agenda. As we prepare for the UNGA High-Level Meeting on AMR in September 2024, effective advocacy at local, national, and international levels is needed to ensure the inclusion of priorities and targets to effectively curb increasing AMR. Since AMR is a global challenge requiring a unified response, local and national education and awareness initiatives are essential for physicians of all specialties to contribute their expertise and leadership. Strengthening partnerships with governmental bodies, pharmaceutical sectors, and allied health professionals will amplify the impact of these efforts. Specifically, the WMA's focus on health equity will propel key discussions to identify timely solutions that reduce AMR spread.

National Medical Associations (NMAs) hold a critical position in driving change at local, national, and international levels. They can

help foster the inclusion of specific actionable objectives within the National Action Plans following the *Global Action Plan on Antimicrobial Resistance*. At the local level, empowering awareness campaigns need to be strategically tailored, educating communities and health professionals about the impact of AMR. At the national level, NMAs can actively collaborate with health authorities, engage in policy development, and advocate for the integration of AMR mitigation strategies within health system frameworks. At the international level, NMAs can actively participate in AMR mitigation programs facilitated by international bodies, contributing valuable insights and experiences, while advocating for a harmonised global approach to tackle AMR.

As we approach the 2024 UNGA High-Level Meeting on AMR, NMAs hold the power to drive actionable change by advocating for equitable, comprehensive strategies to combat AMR on a global scale. Incorporating a focus on research investment and encouraging collaborations between medical professionals and diverse stakeholders worldwide will reinforce the international fight against AMR. The united efforts of NMAs can spearhead a call for increased funding and resource allocation toward sustainable interventions to address this critical global health challenge.

References

1. Antimicrobial Resistance Collaborators. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. *Lancet*. 2022;399(10325):629-55.
2. World Health Organization. New WHO report highlights progress, but also remaining gaps, in ensuring a robust pipeline of antibiotic treatments to combat antimicrobial resistance (AMR) [Internet]. 2023 [cited 2023 Nov 3]. Available from: <https://www.who.int/news/item/15-05-2023-new-who-report-highlights-progress-but-also-remaining-gaps-in-ensuring-a-robust-pipeline-of-antibiotic-treatments-to-combat-antimicrobial-resistance-%28amr%29>
3. Pulingam T, Parumasivam T, Gazzali AM, Sulaiman AM, Chee JY, Lakshmanan M, et al. Antimicrobial resistance: prevalence, economic burden, mechanisms of resistance and strategies to overcome. *Eur J Pharm Sci*. 2022;170:106103.
4. Årdal C, Balasegaram M, Laxminarayan R, McAdams D, Outtersson K, Rex JH, et al. Antibiotic development - economic, regulatory and societal challenges. *Nat Rev Microbiol*. 2020;18(5):267-74.
5. Brown DG, Wobst HJ, Kapoor A, Kenna LA, Southall N. Clinical development times for innovative drugs. *Nat Rev Drug Discov*. 2022;21(11):793-4.
6. One Health High-Level Expert Panel (OHHLEP), Adisasmito WB, Almuhairi S, et al. One Health: A new definition for a sustainable and healthy future. *PLoS Pathog*. 2022;18(6):e1010537.
7. UN Interagency Coordination Group on Antimicrobial Resistance. No time to wait: securing the future from drug-resistant infections: report to the Secretary-General of the United Nations, April 2019. New York: UN; 2019. Available from: <https://www.who.int/publications/i/item/>
8. World Health Organization. Global action plan on antimicrobial resistance. Geneva: WHO; 2015. Available from: <https://www.who.int/publications/i/item/9789241509763>
9. World Health Organization; Food and Agriculture Organization of the United Nations; World Organisation for Animal Health; United Nations Environment Programme. One Health Joint Plan of Action (2022-2026). Geneva: WHO; 2022. Available from: <https://www.who.int/publications/i/item/9789240059139>
10. United Nations. UN, global health agencies sound alarm on drug-resistant infections; new recommendations to reduce 'staggering number' of future deaths [Internet]. 2019 [cited 2023 Nov 3]. Available from: <https://news.un.org/en/story/2019/04/1037471>
11. World Health Organization. People-centred approach to addressing antimicrobial resistance in human health: WHO core package of interventions to support national action plans. Geneva: WHO; 2023. Available from: <https://www.who.int/publications/i/item/9789240082496>
12. World Health Organization. Global research agenda for antimicrobial resistance in human health: policy brief. Geneva: WHO; 2023. Available from: <https://www.who.int/publications/m/item/global-research-agenda-for>

[antimicrobial-resistance-in-human-health](#)

13. World Health Organization. WHO outlines 40 research priorities on antimicrobial resistance [Internet]. 2023 [cited 2023 Nov 3]. Available from: <https://www.who.int/news/item/22-06-2023-who-outlines-40-research-priorities-on-antimicrobial-resistance>
14. One Health Global Leaders Group on Antimicrobial Resistance. The Road to UN General Assembly High-Level meeting on AMR in 2024 [Internet]. 2023 [cited 2023 Nov 3]. Available from: <https://www.amrleaders.org/resources/m/item/the-road-to-un-general-assembly-high-level-meeting-on-amr-in-2024>
15. Rodi P, Obermeyer W, Pablos-Mendez A, Gori A, Raviglione MC. Political rationale, aims, and outcomes of health-related high-level meetings and special sessions at the UN General Assembly: a policy research observational study. *PLoS Med.* 2022;19(1):e1003873.
16. United Nations. Concept Note on UNGA High-level Meeting on Antimicrobial Resistance [Internet]. 2016 [cited 2023 Nov 3]. Available from: <https://www.un.org/pga/70/from-the-president/lettres/hlm-on-antimicrobial-resistance-23-august-2016-2/>
17. UN General Assembly. Political Declaration of the High-Level Meeting of the General Assembly on Antimicrobial Resistance: draft resolution [Internet]. 2016 [cited 2023 Nov 3]. Available from: <https://digitallibrary.un.org/record/842813>
18. World Health Organization. At UN, global leaders commit to act on antimicrobial resistance [Internet]. 2016 [cited 2023 Nov 3]. Available from: <https://www.who.int/news/item/21-09-2016-at-un-global-leaders-commit-to-act-on-antimicrobial-resistance>
19. Getahun H. The road to UN General Assembly High-Level meeting on AMR in

2024 [Internet]. 2023 [cited 2023 Nov 10]. Available from: <https://www.amrleaders.org/docs/librariesprovider20/glg/copenhagen-unga-2023.pdf>

Authors

Pablo Estrella Porter,
MD, MPH

*PhD student, Universidad de Valencia
Hospital Clínico
Universidad de Valencia
Valencia, Spain
pestrellaporter@gmail.com*

Helena Chapman, MD, MPH, PhD

*Milken Institute School
of Public Health,
George Washington University
Washington DC, United States
hjchapman@gwu.edu*

Caline Mattar, MD, FIDSA

*Associate Program Director, Infectious
Diseases Fellowship Program
Associate Professor of Medicine,
Division of Infectious Diseases
Washington University School
of Medicine in St. Louis
St. Louis, Missouri, United States
mattar.caline@gmail.com*

Advocating for Change: Junior Doctors' Role in Global Antimicrobial Resistance Initiatives



Pablo Estrella Porter

With more than 1.3 million annual deaths attributed to the resistance to antimicrobial agents – and almost five million deaths in 2019 – global efforts to combat antimicrobial resistance (AMR) are a significant priority for leading health organisations [1]. This global burden has accelerated the need to build a strong collaboration among leading international organisations – Food and Agriculture Organization of the United Nations (FAO), United Nations Environment Programme (UNEP), World Health Organization (WHO), and World Organization for Animal Health (WOAH) – to use the One Health approach to help address complex global health issues (including AMR), leading to the creation of the Quadripartite. Over the past few years, there has been an emphasis on encouraging youth engagement in scientific and advocacy activities that accelerate progress toward the United Nations (UN) Sustainable Development Goals.

To illustrate the key voice of youth in combating AMR, the inaugural Quadripartite Working Group on Youth Engagement for AMR was formed in October 2023. A total of 14 leaders from diverse youth-led organisations were selected, including academic, non-governmental, and professional organisations of medical,

pharmacy, and veterinary disciplines [2]. The objective of this working group is to develop timely strategies that support youth engagement in AMR initiatives across global organisations. On 5-6 October 2023, the Quadripartite Working Group on Youth Engagement for AMR met at the WHO Headquarters in Geneva to share insights and discuss their work plan for 2023-2025 (Photo 1).

At this milestone event, organisation representatives, as well as the World Medical Association (WMA)'s Junior Doctors Network (JDN) representative, shared key AMR-related achievements that resulted in noteworthy local, national, and international impacts. Over the past decade, the JDN has been actively involved in the World AMR Awareness Week (WAAW) annual campaigns, social media initiatives, educational programs, consultations, and publications. These efforts underscore the JDN's commitment to AMR awareness and advocacy for mitigation strategies, especially the formation of an AMR Working Group.

Looking ahead, the High-Level Meeting on AMR at the UN General Assembly (UNGA) in 2024 presents a historic opportunity to renew the global commitment to address AMR and support youth engagement. Over the forthcoming two-year mandate, the Quadripartite Working Group on Youth Engagement for AMR is preparing to channel its efforts into three pivotal objectives, strategically aimed at strengthening initiatives to combat AMR with a youth perspective. It also provides an open space to propose innovative approaches that places youth in the centre of this global discussion.

Objective 1: Prioritise Enhancing Youth Visibility

The first objective aims to establish a comprehensive database that compiles all AMR-related youth events, which is intended for inclusion in the pre-WAAW agenda. This task also involves the creation of an engaging introductory video on AMR that stresses an immediate call for action for youth engagement and active participation in spreading relevant messages. Additionally, the Youth Working Group aspires to participate in and potentially host a supplementary event at the upcoming World Health Assembly (WHA) and the UNGA, to ensure that a youth approach is integrated into these high-level events. Exploring collaborative opportunities with regional offices from the Quadripartite members to expand the scope for greater youth engagement and message dissemination, while leveraging existing youth networks and resources, fortifies the spread of AMR messaging.

Objective 2: Promote Awareness and Capacity Building

The second objective supports the development of a comprehensive calendar that highlights key AMR-related days and associated campaigns that targets awareness efforts and strategic planning. Conducting webinars, workshops, and roundtable discussions, including dedicated sessions during the WAAW, serves to educate and engage the youth demographic. Supporting and facilitating the successful launch and implementation of the AMR youth advocacy toolkit is pivotal for equipping and empowering youth advocates. The preparation of concise AMR messaging to render its appeal

to youth audiences is integral to fostering a deeper understanding of this global threat and sustaining community engagement to combat AMR.

Objective 3: Bridge the Gap between Youth and Stakeholders

The third objective recognises that efficient communication between youth and stakeholders hinges on enhanced health messaging. The compilation of a documented repository containing key action points and messages for the Quadripartite leadership is essential for amplifying youth-driven messages. A comprehensive youth consultation to gather diverse perspectives and insights on AMR ensures a holistic understanding of youth perceptions and involvement. Additionally, the collaborative creation of a youth policy statement strengthens the groundwork for youth participation at major global assemblies like the WHA and UNGA, which can promote a cohesive approach to tackling AMR.

These collective endeavours of health-related early career and diverse youth-focused organisations

within the Quadripartite Working Group highlight the crucial role of the younger generation in advocating for change and combating the global threat of AMR. Moving forward, the year 2024 represents a key moment to renew global commitment and amplify youth voices in the fight against AMR, emphasising the crucial role of intergenerational collaboration in shaping a resilient future. These three objectives underscore the shared pledge to magnify youth participation and fortify joint efforts to address the critical global challenge of AMR.

As junior doctors, we urge our JDN colleagues to actively engage in this critical and pressing health concern that will redefine our global health landscape in the coming years. Additionally, we call upon all physicians in leadership roles to champion interprofessional collaboration and advocate for the active involvement of youth in our joint efforts to combat and overcome the AMR challenges. Together, by nurturing this inclusive and collaborative approach, we can effectively address and mitigate the threats posed by AMR, safeguarding the future of global health security.

References

1. World Health Organization. New WHO report highlights progress, but also remaining gaps, in ensuring a robust pipeline of antibiotic treatments to combat antimicrobial resistance (AMR) [Internet]. 2023 [cited 2023 Nov 2]. Available from: <https://www.who.int/news/item/15-05-2023-new-who-report-highlights-progress-but-also-remaining-gaps-in-ensuring-a-robust-pipeline-of-antibiotic-treatments-to-combat-antimicrobial-resistance-%28amr%29>
2. World Health Organization. Quadripartite launches the Working Group on Youth Engagement for Antimicrobial Resistance [Internet]. 2023 [cited 2023 Nov 2]. Available from: <https://www.who.int/news/item/05-10-2023-quadripartite-launches-the-working-group-on-youth-engagement-for-antimicrobial-resistance>



Photo 1. Quadripartite launches the Working Group on Youth Engagement for Antimicrobial Resistance. Credit: WHO (<https://www.who.int/news/item/05-10-2023-quadripartite-launches-the-working-group-on-youth-engagement-for-antimicrobial-resistance>)

Pablo Estrella Porter,
MD, MPH

PhD student, Universidad de Valencia
Hospital Clínico
Universidad de Valencia
Valencia, Spain
pestrellaporter@gmail.com

WMA Members Contribute Insight on Global Efforts to Combat Antimicrobial Resistance



Credit: AnaLysiSStudio / shutterstock.com

Antimicrobial resistance (AMR), recognised as the “silent pandemic,” continues to represent one of the top 10 significant global risks affecting population health and well-being. One recent systematic report by the Antimicrobial Resistance Collaborators concluded that almost five million deaths were associated with bacterial AMR infections, including 1.2 million deaths as a direct result of bacterial AMR infections in 2019 [1]. This global burden, which was documented as highest in western sub-Saharan Africa and lowest in Australasia, were linked to six primary pathogens, including *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Streptococcus pneumoniae*, *Acinetobacter baumannii*, and *Pseudomonas aeruginosa* [1]. The World Bank reported that an estimated US\$9 billion investment each year in AMR control across low- and middle-income countries would help support human and animal

public health surveillance systems, which would ultimately reduce excess health expenditure across public and private health facilities, enhance economic productivity (reduce annual gross domestic product losses), and help advance progress toward the 2030 Agenda for Sustainable Development [2].

Over the past decade, global health leaders have developed several key guidance documents to address the AMR global burden. In February 2014, the Global Health Security Agenda (<https://globalhealthsecurityagenda.org/>) was adopted as a global effort of 40 countries (now, 70 countries), to implement the International Health Regulations (2005) and strengthen infectious disease preparedness, monitoring, and response through 11 action packages (now, 9 action packages), including AMR [3]. In May 2015, the *Global Action Plan*

on Antimicrobial Resistance was approved at the 68th World Health Assembly (WHA) (*Resolution WHA68.7*), to support multisectoral national action plans (including the One Health approach) through five primary objectives (increasing overall understanding of AMR, improving AMR surveillance and research, reducing risk of AMR infections, promoting antimicrobial stewardship, and advocating for economic investment in AMR efforts) [4]. In October 2015, the WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS) (<https://www.who.int/initiatives/glass>) was launched to underpin the five objectives of the *Global Action Plan on Antimicrobial Resistance*, as well as stress the need for surveillance data standardization.

In September 2016, the United Nations (UN) General Assembly held the High-Level Meeting on AMR

to collectively discuss the driving factors related to AMR across human, animal, and agricultural sectors, and encourage national leaders to develop and implement national action plans to combat AMR. The second High-Level Meeting on AMR will be held in September 2024, where leaders will discuss national action plans and ensure international commitments to reach established AMR targets [5]. In October 2022, the Quadripartite Organizations (WHO; Food and Agriculture Organization of the UN, FAO; UN Environment Programme, UNEP; World Organisation for Animal Health, WOAH) published the *One Health Joint Plan of Action 2022–2026*, which intends to guide stakeholders in managing merging global health threats using six action tracks, including combating AMR across human, animal, and agricultural sectors [6].

After the 68th WHA, the inaugural World Antibiotic Awareness Week - later renamed World Antimicrobial Awareness Week in 2020 and World AMR Awareness Week (WAAW) in 2023 (<https://www.who.int/campaigns/world-antimicrobial-awareness-week>) - was celebrated in November 2015, and now recognised annually from 18-24 November. This annual event provides a global platform to increase understanding of the emerging risks and spread of AMR and promote evidence-based practices to reduce AMR spread [7]. Using the WAAW 2023 theme, “Preventing Antimicrobial Resistance Together”, health leaders emphasised that multidisciplinary, cross-sectoral collaborations can contribute to reducing AMR risk and spread by supporting infection control practices and antimicrobial stewardship across human, animal, and agricultural sectors. Health leaders coordinated in-person and virtual activities, press releases, and social media campaigns to encourage community members

to become actively engaged in these local and global events.

Ensuring the development and adoption of robust national action plans and guidelines on AMR that enhance human and animal disease surveillance systems and promote antimicrobial stewardship across human, animal, and agricultural sectors will be crucial to strengthen national capacity and help achieve national health objectives including the 2030 Agenda for Sustainable Development. In this article, physicians from 20 countries – Argentina, Australia, Ecuador, India, Kenya, Malaysia, Myanmar, Nigeria, Pakistan, Philippines, Poland, Republic of Korea, Rwanda, Spain, Taiwan, Trinidad and Tobago, Turkey, Uganda, United Arab Emirates, and Uruguay – shared perspectives and reflections about local and national efforts to combat AMR through relevant policies and WAAW 2023 activities across their national health systems.

Argentina

The Ministry of Health of Argentina, a country of approximately 44 million residents, has recognised the global risk of AMR, driven by the inappropriate use and misuse of antibiotics, which can cause poor therapeutic results (including adverse effects) and increase economic costs. Recent studies have examined varying rates of AMR and antimicrobial prescriptions across geographic regions of Argentina, which confirms the complex dynamics of AMR risk in the country [8]. To address this burden, national health leaders supported the development of WHONET-Argentina in 1989, as a network of more than 95 laboratories (e.g. Institute of Health, National Reference Laboratory, state and local hospitals) that monitor AMR in the general population. Also, in 2015,

the National Commission for the Control of Antimicrobial Resistance (Comisión Nacional de Control de la Resistencia Antimicrobiana, CoNaCRA) was established, as a joint resolution (*Resolución Conjunta 834/2015 and 391/2015*) of the Ministries of Health and Agriculture, Livestock, and Fisheries, to ensure continued AMR monitoring in the country [9].

The Medical Confederation of the Argentine Republic (Confederación Médica de la República Argentina, COMRA) is committed to the rational use of medications that adhere to the WHO’s guidelines. First, COMRA members actively promote the rational use of antimicrobial agents through the COMRA National Therapeutic Formulary (Formulario Terapéutico Nacional de la COMRA, FTN COMRA) (<https://comra.org.ar/medicamentos/>), a scientific tool developed in 1978. This tool is regularly revised, based on scientific research studies, and provides a list of the most effective and safe pharmaceutical prescriptions. Second, the COMRA Medication Commission (Comisión de Medicamentos) coordinates regular meetings with representatives of other professional associations that support pharmacists, biochemists, and dentists as well as CoNaCRA leaders.

Over the past year, health leaders across Argentina have contributed to the development of significant national and regional actions to raise awareness of AMR risks for population health. In March 2023, the Ministry of Health of Argentina hosted the fourth meeting of the WHO Global Antimicrobial Resistance Surveillance and Evaluation Collaborating Centres Network in the city of Buenos Aires [10]. In July 2023, the country adopted the *Law No. 27680: Prevention and Control of Antimicrobial Resistance (Ley N° 27.680: Prevención y Control*

de la Resistencia Antimicrobiana), which ensures the responsible use of antibiotics in human and animal health services and product sales [11]. This policy also stresses the need to register clinical diagnoses that require the prescription of systemic antimicrobial agents.

As COMRA members, we urge all physicians to carefully educate our patients upon prescribing antibiotics, in order to promote responsible prescribing practices for clinicians and discourage patients from any self-medication activities. As we recognise WAAW 2023, we can lead collaborative efforts that strengthen physician-laboratory networks (like WHONET), promote strict adherence to national guidelines, update guidelines and policies with the evidence-based literature, and increase community engagement activities with the public.

Australia

The Australian Medical Association (AMA) recognises AMR as one of the most serious global One Health threats of the 21st century. In 2022, the AMA – the peak representative body for Australia’s doctors – released the research report entitled, *Antimicrobial Resistance: The Silent Global Pandemic*, which demonstrated that AMR has the potential to undermine global health care systems as well as food safety and supplies [12].

AMR is also a key priority for the Australian Government. In 2014, the Antimicrobial Use and Resistance in Australia (AURA) Surveillance System was established to monitor antimicrobial usage and resistance in Australia to inform antimicrobial stewardship practices [13]. Subsequently, in 2015, the National Centre for Antimicrobial Stewardship was developed to monitor the quality

of antimicrobial use and implement antimicrobial stewardship activities. More recently, in 2020, the Australian Government released *Australia’s National Antimicrobial Resistance Strategy — 2020 and beyond*, which was based on previous findings from the *National Antimicrobial Resistance Strategy 2015–2019* [14]. This novel strategy sets a 20-year One Health vision to coordinate action across all sectors where antimicrobials are used, minimise the development and spread of AMR, and ensure the continued availability of effective antimicrobials. To support this strategy, the Australian Government assembled an Antimicrobial Resistance Governance Group (ARGG), to oversee implementation of the strategy, provide national coordination and links between sectors, and advise government. This year, the Australian Commission on Safety and Quality in Health Care — which plays a key role with respect to antimicrobial stewardship and is responsible for the AURA Surveillance System — is producing a range of resources to complement events being planned during the WAAW 2023 [13,15]. Additionally, the Australian Centre for Disease Control (CDC) is currently being established, to improve Australia’s response to public health emergencies, including AMR [16].

Although Australian health leaders have supported these policies and practices, Australia is lagging in several key areas, including public awareness and understanding of AMR, antimicrobial stewardship, and coordination and incentives for research and development [12]. The AMA is also concerned about the expansion of prescribing rights in Australia, particularly those that fall outside of a medically-led collaborative model. For instance, several pharmaceutical trials in Australia have allowed pharmacists

to prescribe a range of medicines (including antibiotics), but these trials undermine *Australia’s National Antimicrobial Resistance Strategy — 2020 and Beyond* and have the potential to contribute to AMR.

As AMR requires a global response, one country’s actions will not have a significant impact if other nations continue to act independently of one another. As a high-income country with an advanced health care system, Australia is well placed to lead global efforts to control the growing threat of resistant infections and other health threats, particularly in the Asia-Pacific region. The AMA would like to see Australia become a global leader and support a coordinated, sustained, and unified One Health approach to addressing AMR and other emerging health threats [12].

Ecuador

The Ecuadorian health system, supporting 17 million residents, has recognised the AMR threat and the need for prompt action in the Americas region. According to the National Reference Center of Antimicrobial Resistance at the National Institute of Health Research (Instituto Nacional de Investigación en Salud, INSPI) in Ecuador, there were 55,106 documented cases of bacterial resistance – *E. coli* (61%), *K. pneumoniae* (21%), *S. aureus* (10%), and *P. aeruginosa* (8%) – in the WHONET system in 2017 [17]. In hospitals within rural areas, resistant strains were identified, and detected genes (e.g. *K. pneumoniae* carbapenemase, extended spectrum beta lactamases) were primarily associated with resistance to aminopenicillins, cephalosporins, quinolones, phosphonates, sulfamides, and, to a lesser extent, aminoglycosides [18].

In Ecuador, health leaders face

various risk factors associated with AMR. These include the indiscriminate use of antimicrobials, self-medication, dispensing without a prescription, a high incidence of health care associated infections, lack of awareness of the seriousness of AMR, and insufficient training (e.g. continuing education courses) on AMR at health and academic institutions. Additionally, the use of antimicrobials in farm animals and agriculture, compounded by a shortage of laboratories for case monitoring, further contributes to the challenges in addressing AMR. In response, the government of Ecuador implemented the *National Plan for the Prevention and Control of Bacterial Resistance (2019–2023)* in 2019 [19]. This plan describes national steps toward strengthening the WHONET monitoring system, providing training within the health care system, establishing sentinel hospitals, prohibiting the use of colistin in animals, and striving to control the dispensing of antimicrobials without a prescription [19,20]. The effectiveness of the latter effort, however, still faces challenges.

As we recognise WAAW, our global community must help develop cost-effective measures in the health care system to mitigate AMR, such as training health care personnel and the public to address the use and abuse of antimicrobials. Health leaders should lead efforts to regulate the indiscriminate sale of antibiotics without a prescription, maintain epidemiological surveillance controls, and establish agreements with the agricultural industry to oversee the use of antimicrobials in production [21]. Despite these advances, much remains to be done, and fostering greater awareness and concrete action in Latin America is essential to combat AMR.

India

The Ministry of Health and Family Welfare of India has identified AMR as one of the primary 10 national health priorities, as AMR threatens the ability to effectively treat infectious diseases like tuberculosis [22]. In 2014, the nation joined the Global Health Security Agenda, to collectively and globally enhance infection prevention and control. In 2022, India was selected for the Group of Twenty (G20) presidency (2022–2023), and G20 health ministers agreed that AMR was one of the three key health-related priority areas that needed to be addressed following the One Health approach.

Over the past decade, health leaders across India have supported the implementation of key legislation, guidelines, and activities to combat AMR. First, based on achievements from the *National Health Policy of 1983* and *National Health Policy of 2002*, the *National Health Policy 2017* was launched, which recognised the need for a robust health system to address changing health priorities [23]. Second, the National Centre for Disease Control's National Programme on the Containment of Antimicrobial Resistance was established, as part of the *12th Five-Year Plans (2012–2017)* (as national economic development plans) [24]. Third, the *National Action Plan on Antimicrobial Resistance (NAP-AMR) 2017–2021* was adopted, to strengthen educational and awareness initiatives, infection control guidelines, audit and feedback, and antimicrobial stewardship [22–24]. Fourth, pharmacy licensing regulations included the *Pharmacy Act of 1948*, and the *Pharmacy Practice Regulations of 2015*, which govern pharmacy practice in India [25]. These policies reinforce the control of over-the-counter (OTC) antibiotic sales, as pharmacies are required to

have a licensed pharmacist on duty, and these pharmacists are expected to ensure that antibiotics are dispensed only with a valid prescription. Finally, Indian physicians have contributed to community events, mainstream media, and social media technology (e.g. YouTube) that educate the public about the responsible use of antibiotics.

As AMR remains a significant challenge in our nation, physicians should actively lead and contribute to public awareness campaigns on media platforms (e.g. YouTube, mainstream media commercials) throughout the year, which can educate the wider community about the dangers of OTC antibiotic misuse. As physicians should serve as role models for responsible antibiotic prescribing within the medical community, they must keep up-to-date with the latest evidence-based research on antibiotic guidelines. They can also strengthen physician-pharmacist collaborations across local hospitals and pharmacies, in order to ensure that antibiotics are dispensed only with valid prescriptions.

Kenya

As physicians in Kenya, a country in Sub-Saharan Africa with a population of 50 million residents, we are cognizant that AMR is a global threat that requires urgent collaborative action within and among countries [26,27]. In Kenya, like other Sub-Saharan countries, the primary drivers of AMR include weak public health systems causing limited awareness of its implications in human and animal health among the general public, poor infection control practices in hospitals, and antimicrobial misuse and overuse as a result of easy OTC access and high levels of self-medication [28]. As poverty drives the AMR burden – and noting that high poverty rates (27%)

exist in the nation – there is national concern about the high burden of infectious diseases (e.g. HIV/AIDS, zoonoses) due to impoverished living conditions, poor husbandry practices, and low vaccination coverage levels [29]. As a low-middle income country, the Kenyan health system shares similar challenges as other African nations, including poor health infrastructure and oversight to AMR guidelines, weak surveillance systems, and inadequate investment in laboratory infrastructure, diagnostic tools, and human resources [30].

Kenya leaders view AMR as an international health priority and has ratified the resolutions by the WHA, WOHAI, and FAO General Assemblies on combating AMR globally. Using the One Health approach that embraces interdisciplinary collaboration and communication, the government of Kenya has implemented policies to safeguard human and animal health and the environment. The first step was the Constitution of Kenya 2010, under the Bill of Rights (*Articles 43, 1a and c*), which provides for equitable, affordable, and quality health care of the highest standard to all its citizens [31]. In 2015, leaders at the WHA adopted the *Global Action Plan on Antimicrobial Resistance*, which was ratified by Kenya [4]. In the same year, the Ministry of Health and the Ministry of Agriculture, Livestock, Fisheries and Cooperatives established the National Antimicrobial Advisory Committee to develop the *Kenya National Action Plan on Antimicrobial Resistance* in 2017 [32].

As physicians in Kenya, WAAW reminds us that the devastating effects of AMR on society and the economy threatens to reverse much of the progress gained in medicine. The Kenya Medical Association (KMA) is committed to ongoing

work to increase public awareness and education on AMR, discourage OTC antibiotic use, advocate for the One Health approach to combat AMR, and encourage antimicrobial stewardship practices among physicians. As they collectively promote multisectoral research collaborations and support county hospitals to become centres of excellence for antimicrobial stewardship, KMA leaders shared their innovative AMR message for WAAW 2023 [33].

Malaysia

Malaysian physicians are aware of the global threat of AMR, especially due to inappropriate antimicrobial prescribing practices in the health care setting and animal production [34]. However, they became awakened to the increasing threat of AMR on communicable diseases during the post coronavirus disease 2019 (COVID-19) era. In 2020, the Malaysian Ministry of Health updated the National Health and Morbidity Survey to incorporate a few questions on AMR [35]. Data revealed that despite more than 95% of individuals who were prescribed antibiotics from health care professionals over the previous year, nearly one-third of respondents reported that they were poorly compliant to the recommended usage [35].

The Government of Malaysia has led several key milestones to increase public awareness and combat AMR across Malaysia. In 2017, the National Antimicrobial Resistance Committee of the Malaysian Ministry of Health's Infection Prevention and Control Unit established the National Coordinating Centre for Antimicrobial Resistance, as the responsible body for policy development and implementation pertaining to AMR [36]. This effort brings together all concerned

stakeholders, including the Ministries of Health, Defense, Higher Education, and Agriculture as well as the Departments of Veterinary Services and Fisheries. Also, the Malaysian Ministry of Health prepared and implemented the *Malaysian Action Plan on Antimicrobial Resistance (MyAP-AMR) 2017-2021*. The plan has four primary objectives – improve educational and awareness plans, strengthen surveillance and research strategies, implement evidence-based infection prevention and control measures, and AMR stewardship programmes in human and animal health – to reduce the risk of AMR across the country [36].

In 2021, the Official Malaysia One Health Antimicrobial Resistance Portal (MyOHAR) was launched as a resource to describe the planned joint activities (<https://myohar.moh.gov.my/>). Khairy Jamaluddin, the then Minister of Health, supported national efforts to promote WAAW, including a media blitz to increase public understanding about AMR emergence. The leadership team organised the public display of blue lights on the Prime Minister's Office and the Malaysian Twin Towers at Kuala Lumpur City Centre, to align with the WHO's "Go Blue for AMR" campaign [37]. Recently, there have been concerted efforts to intensify AMR awareness and advocacy activities, with a special focus on health care professionals.

As physicians in Malaysia, we urge our medical community to adhere to strict guidelines for antibiotic prescribing as well as lead hospital- and community-based education and awareness campaigns [37]. With increasing AMR rates across Malaysia, as reported by the National Surveillance of Antibiotic Resistance Programme, our inaction will affect our patients' health and contradicts our Oath of 'primum nocere'. Now,

we recognise WAAW 2023 as an opportune moment for all physicians to continue to reflect, engage, and advocate for antibiotic stewardship, community engagement, and multisectoral partnerships.

Myanmar

Across Myanmar, a Southeast Asian country with a population of 53 million residents, health leaders have observed an increased transmission of infectious diseases (including drug-resistant tuberculosis rates) and widespread irrational antibiotic use. To support reducing AMR spread, the Government of Myanmar, led by State Counsellor Aung San Suu Kyi, published the *National Action Plan for Containment of Antimicrobial Resistance, 2017-2022* in 2017 [38]. This strategic research agenda incorporates systematically prioritised research areas and knowledge gaps related to AMR, which will support the development of a national policy for research and innovation. Though national policy has been initiated together with animal and human health sector cooperating with other ministries, the continual phase was paused during the pandemic and completely destroyed by Myanmar Military and security forces since the military coup.

However, in the midst of the coup, the military and security forces in Myanmar have caused severe disruption in health care system infrastructure and service delivery, as medical facilities and workers are recognised as key targets in battle [39]. First, physicians are frequently unable to facilitate suitable antimicrobial medication and antibiotic usage methods, due to meaningful obstruction of access to medication (including antibiotics) by the Myanmar Military and Security forces and high cost of procurement and logistics from border countries.

Due to interrupted transportation networks and the destruction of health care institutions, conflict conditions make it difficult or impossible to seek medical support, resulting in protracted injuries without treatment that can lead to infections [40]. The wounds caused by bombs, shrapnel, and bullets are sometimes highly polluted (e.g. heavy metal exposures), increasing the risk of infection especially in areas lacking proper sanitary facilities. Secondary infections and death can result from inoperable hospitals, relocation to war-safe zones, and loss of follow-up cases. Second, military limitations on humanitarian aid distribution (including medical treatment) can seriously impact the health of internally displaced persons (IDPs) in Myanmar, restricting access to health care services [41]. The IDP camps, which are often overcrowded and unsanitary, presents a setting that facilitates increased transmission of AMR strains between individuals.

The international medical community (e.g. WHO; World Medical Association, WMA; Junior Doctors Network, JDN) should lead efforts to advocate for prompt solutions to reduce AMR spread across the globe. As the Myanmar health system grapples with the rising tide of AMR, the international medical community can help address the extraordinary health crisis (as a result of the military coup) by providing critical humanitarian supplies (e.g. medicines, antibiotics, vaccines) through border countries to those who are in desperate need in Myanmar and deploying mini-laboratories to ensure accurate diagnostics. Without these measures, the Myanmar health system will continue to be challenged in providing high-quality medical services to the populace, and the spread of infectious diseases (including AMR) may flourish to neighboring countries.

Nigeria

In Nigeria, antimicrobials can be purchased without a doctor's prescription and are widely sold on the streets, motor parks, markets, and public buses. With easy access to antimicrobials, which can increase the risk of incorrect dosage and abuse, patients seeking primary health services may have already consumed several antimicrobials. Over the last decade, the Nigerian government and various professional health organisations have been actively working together to curb the menace of antimicrobial abuse and misuse (including counterfeit agents) and protect population health for the 195 million residents.

The Nigerian government has supported the adoption of laws and regulations that ban the sale of antimicrobials without a doctor's prescription and govern the handling of medicines in human and animal populations. In 1990, leaders established the *Poisons and Pharmacy Act (Cap 366)*, the *Food and Drug Act (Cap 150)*, the *Counterfeit and Fake Drugs (miscellaneous provisions) Act (Cap 73)*, and the National Essential Drugs List (EDL) [42]. In 1993, the Nigerian government adopted the *Drugs and Drug Related (Registration) Degree No. 19*, which bans unregistered medicines and medicine-related products in Nigeria and outlines the procedures for registering medicines and cosmetics. In 2017, the Federal Ministries of Agriculture and Rural Development, Environment and Health and the Nigerian Centre for Disease Control (NCDC) supported the launch of the *National Action Plan for Antimicrobial Resistance 2017-2022*, which aimed to create awareness of AMR and implement strategies to combat its risk and spread [43]. Simultaneously, the team conducted a national analysis of AMR to analyse the situation in Nigeria,

noting that primary gaps included limited antimicrobial stewardship across sectors, weak coordination efforts between human and animal disease surveillance systems, and few public and private sector activities to raise AMR awareness in the general population [44].

Across Nigerian hospitals, the Ministry of Health supports WAAW campaigns and promotes in-hospital continuous medical education topics that focus on strengthening infection, prevention, and control measures. For WAAW 2020, a high-panel discussion deliberated on the challenges and possible solutions to the misuse and abuse of antimicrobials in Nigeria [45]. The team concluded that barriers included the lack of public awareness, limited oversight on policy implementation, easy access and availability of antimicrobials (including counterfeit and fake drugs), and fear of worsening symptoms due to AMR infections. They commented on possible solutions such as enforcing doctor's prescription for antimicrobials, implementing appropriate infection control strategies, and promoting antimicrobial stewardship [45].

Moving forward, the urgent call for action in Nigeria is the continuous sensitization of the populace to desist from self-medicating practices or purchasing drugs without a doctor's prescription. Physicians should collaborate with public and private institutions and organisations to help educate the wider community on the importance of adhering to prescriptions and the harms of self-medication. They can promote antimicrobial stewardship measures as a multisectoral and multidisciplinary effort across human, animal, and agricultural sectors.

Pakistan

Pakistan, a lower-middle income country in South Asia, represents the fifth most populous country in the world with 240 million residents. The rapid emergence of multi-drug resistance organisms has placed a major strain on an already overstretched health delivery system in the country. Physicians who diagnose AMR infections have limited choices of antimicrobial agents, and at times feel helpless to manage such complicated clinical cases. One national concern is the high prevalence of *Mycobacterium tuberculosis* (including drug-resistant strains), as Pakistan and seven other countries represent two-third of emerging tuberculosis cases [46]. The emergence of multi-drug resistance strains has been associated with delays in diagnosis, inappropriate and inadequate drug regimens, poor follow-up, and lack of social support programs [47].

Recognising the grave consequences of this global threat, Pakistan endorsed the *Global Action Plan on Antimicrobial Resistance*, which was presented at the 68th WHA in Geneva in 2015, recognising the need for urgent action at national, regional, and global levels [4]. To support this vision, one key organisation is the National Institutes of Health (NIH) of Pakistan, which serves as the national focal point for the International Health Regulations and AMR, and forms part of the Ministry of National Health Services Regulation and Coordination (NHSR&C). The NHSR&C is responsible for the implementation of technical areas of surveillance and response (including AMR), workforce development, and laboratory systems. In 2015, the NHSR&C formed an Intersectoral Core Steering Committee to oversee the process of developing a national AMR policy in Pakistan [48]. These efforts led to the launch of the *National*

Strategic Framework for Containment of Antimicrobial Resistance in 2016 and the *Antimicrobial Resistance National Action Plan* in 2017. In 2016, the NIH implemented the GLASS, and in 2018, established the Pakistan Antimicrobial Resistance Surveillance System (PASS). Then, in 2021, the Drug Regulatory Authority of Pakistan (DRAP) published the *Guidelines on Responsible Use of Antimicrobials in Human Health*, which complement the *National Guidelines for Infection Prevention and Control 2020*, including best practices to reducing the number of infections and hence antimicrobial consumption [49,50].

Over the past decade, the NIH of Pakistan has led numerous initiatives (e.g. seminars, photograph and video competitions) to spread awareness among health professionals and the public about the misuse or overuse of antibiotics as a predominant cause of AMR. The NIH team publishes a quarterly *Antimicrobial Resistance Newsletter*, highlighting the latest news, activities, guidelines, and surveillance reports (<https://www.nih.org.pk/public/antimicrobial-resistance/antimicrobial-resistance-amr-newsletter>). In 2020, they launched the AMR Virtual Journal Club, with 100 participants per session, to strengthen AMR knowledge among pathologists, microbiologists, clinicians, and laboratory personnel across Pakistan. In 2021, they collaborated with the WHO to organise an AMR international conference, using the One Health theme, to provide a platform for medical professionals, scholars, social and medical scientists to share innovative ideas regarding AMR challenges and solutions.

The Pakistan Medical Association (PMA), the representative body of medical professionals in Pakistan, plays a key advisory role as clinical

and research experts during policymaking processes by the government of Pakistan. To support WAAW activities, PMA members also organise various awareness activities at local and regional levels, including printed materials, television interviews, and social media talks for the public as well as health seminars for health professionals. PMA members and invited experts continue to discuss the threat of AMR and stress the importance of the rational use of antimicrobials in human, animal, and agriculture sectors.

Philippines

The risk and spread of AMR are significant concerns in the Asia-Pacific region, which represents two-thirds of the global population [51]. The Philippines, a country of 118 million residents, equivalent to 1.5% of the total world population [52], has recognised the high level (31–66%) of self-medication, due to limited oversight of pharmacies and easy access to antibiotics [53]. With rural populations relying on traditional healers, the Filipino population may be receiving unknown substances (with or without antibiotic ingredients) for their illness [54]. To address the AMR burden, the Inter-Agency Committee on Antimicrobial Resistance (ICAMR) was established in 2014, chaired by the Department of Health (DOH), and including the Departments of Agriculture (DA), Trade and Industry (DTI), Science and Technology (DOST), and Interior and Local Government (DILG). These agencies are tasked with overseeing the implementation of the *Philippine Action Plan to Combat Antimicrobial Resistance 2019–2022*, which links actions and interventions across the human, animal, food, and environment sectors to combat AMR [54,55].

The Republic of the Philippines supports public campaigns and training opportunities that increase public awareness of AMR risks and spread and promote multidisciplinary and multisectoral collaborations. First, the ICAMR led the Philippine Antimicrobial Awareness Week (PAAW) in 2023 (<https://pharma.doh.gov.ph/paaw-2023/>), building off successes and using the same “Preventing Antimicrobial Resistance Together” (“Sama-samang magtutulongan, upang Antimicrobial Resistance ay mapigilan”) from the 2022 campaign [56]. Second, the DOH used social media technology to create the “AMR Champions Contest”, to encourage health professionals working in the human and animal health sectors to make videos to showcase their institutional best practices to combat AMR [57]. In partnership with universities, social media communications (e.g. Facebook, Twitter) and informative webinars have widely shared the importance of antimicrobial stewardship. Third, the DOH supported the implementation of the Antimicrobial Stewardship (AMS) training program, which is a six-week blended training course designed to educate health professionals about the principles of antimicrobial stewardship and best practices for prescribing and using antimicrobial agents.

National support for the implementation of key activities that increase awareness of antimicrobial stewardship have included reinforcing the national action plan, developing continuing education programs for health professionals, promoting public health awareness campaigns, using innovative technology (e.g. social media) to widely spread accurate health messages, and establishing antimicrobial stewardship committees in health care facilities. By ensuring political commitment, the Philippines

health system can monitor the appropriate use of antimicrobial agents and minimise the risk of AMR. By working together, all health professionals can help curb the spread of AMR and preserve these life-saving drugs for future generations.

Lastly, the DOH receives support from the Philippine Medical Association, the national medical association of all Filipino physicians, with all its 121 component societies in 17 regions nationwide. Together with the different specialty, subspecialty, and affiliate societies, it aims to promote the rational use of antimicrobials across all relevant sectors and prevent AMR beyond the COVID-19 pandemic.

Poland

In Poland, a country of 37 million residents, antibiotic consumption was reported to be among the highest in the European region [58]. Over the past two decades, health leaders have collectively worked to monitor AMR rates through the national establishment of the National Reference Centre for Antimicrobial Susceptibility Testing (NRCAST) in 1997 and the National Programme for the Protection of Antibiotics (NPPA) in 2004 [58]. The NRCAST prepares annual reports on the rates of drug resistance through two national reference centres: National Reference Center for Antimicrobial Susceptibility (Krajowy Ośrodek Referencyjny ds. Lekowrażliwości Drobnoustrojów, KORLD) focused on hospital-acquired infections and KOROUN targeting community-acquired pathogens. The KORLD collects information on drug resistance of invasive bacterial isolates (*S. pneumoniae*, *S. aureus*, *E. coli*, *K. pneumoniae*, *P. aeruginosa*, *Enterococcus faecalis*, *Enterococcus faecium*, *Salmonella* sp., *Acinetobacter* sp.) in hospitalised patients (<https://>

korld.nil.gov.pl/). One recent report highlighted one significant threat with drug resistance of carbapenemase-producing Enterobacterales bacilli (<https://korld.nil.gov.pl/odpornosc-na-antybiotyki-2/czesto-zadawane-pytania/>) [59]. The National Reference Center for Diagnostics of Bacterial Infections of the Central Nervous System (Krajowy Ośrodek Referencyjny ds. Diagnostyki Bakteryjnych Zakazań Ośrodkowego Układu Nerwowego, KOROUN), which was part of the RESPI-NET (formerly, Aleksander), compiles data on drug susceptibility of community-acquired respiratory pathogens (e.g. *S. pneumoniae*, *Streptococcus pyogenes*, *Haemophilus influenzae*) (<https://koroun.nil.gov.pl/koroun/projekt-aleksander/>). Also, the Chief Sanitary Inspectorate (GIS) collects data and publishes annual reports on risk factors (including drug-resistant bacteria) from hospitalised patients across provincial and district epidemiological stations (<https://www.gov.pl/web/gis/raport---stan-sanitarny-kraju>). These surveillance data are submitted to the European Centre for Disease Prevention and Control and included in the European annual surveillance reports on AMR [60].

Diverse educational campaigns and formal coursework have been developed for health professionals in Poland. First, the European Antibiotic Awareness Day (EDWA) has been recognised annually on 18 November, where physicians organise a medical conference and various campaign materials promoting knowledge about the proper use of antibiotics are available for the general public and especially for doctors (<https://antybiotyki.edu.pl/edwa/info.php>). Second, the Clinical Microbiology Centre Foundation has coordinated scientific symposia for over 25 years, including the *Advances in Infection Medicine for Medical Employees*

event that targets physicians and microbiologists, devoted to discussing microbial drug resistance and infection prevention, diagnosis, and treatment (<https://fundacjamk.pl/>). Third, the National Antibiotic Protection Program (NPOA), which is financed by the Ministry of Health of Poland, has prepared evidence-based guidelines to promote rational antibiotic therapy and strengthen infection prevention and control for health care professionals. The program also organises an extensive educational campaign (including training workshops) to increase awareness of AMR risk among health professionals (<https://antybiotyki.edu.pl/>). Fourth, the Polish Chamber of Physicians and Dentists also provides online training courses on AMR risk and recommended evidence-based practices for physicians in primary care and specialty disciplines. Finally, to support this need, the Jagiellonian University's Collegium Medicum has offered a one-year postgraduate degree entitled, "Antibiotics and Antimicrobial Stewardship," for health care employees, where graduates are encouraged to assume leadership positions responsible for rational antibiotic therapy in their hospitals.

Republic of Korea

The Republic of Korea is a country in East Asia with a population of 51 million, where half of the population resides in the Seoul metropolitan area. With the increased use of antibiotics, antifungal agents, and anti-tuberculosis drugs across the nation, elevated AMR prevalence raises concerns among national health leaders [61]. According to the Organisation for Economic Co-operation and Development, the national antibiotic consumption rates have remained stable between 2005 and 2014, and were reported highest among Turkey (40%), Greece

(33%), and Republic of Korea (30%), surpassing the estimated average of 20% [62].

Over the past two decades, the Ministry of Health of the Republic of Korea has increasingly focused on AMR management. First, the National Antimicrobial Resistance Safety Management Project (2003–2012) aimed at reducing antibiotic use and resistance rates, leading to a notable decrease in hospital-acquired infections and antibiotics [63]. Second, prompted by the *WHO Global Action Plan on Antimicrobial Resistance* in 2015, the Korean government established the *First National Antimicrobial Resistance Management Plan (2016–2020)*, which introduced a surveillance system for resistant bacteria, promoted research and development on human, animal, and environmental resistance, and implemented the One Health approach [64]. As the plan reported a remarkable 18% decrease in overall antibiotic usage and prescribing rates for respiratory diseases, including two strategies: 1) implementation of an infection prevention and control fee within the National Health Insurance, requiring the installation of isolation rooms and fee allocation for employing isolation rooms; and 2) establishment of Korea Global Antimicrobial Resistance Surveillance System (Kor-GLASS), which follows WHO's recommendations related to standardised data collection, molecular epidemiological evaluation, and compiled clinical information associated with bacterial isolates [63,65].

Furthermore, in 2021, the Korean Society of Infectious Diseases and the Korea Disease Control and Prevention Agency (KDCA) established the Korea National Antibiotic Use Analysis and Surveillance System (KONAS),

to reduce inappropriate antibiotic prescription by measuring and reporting the antibiotic use in each hospital. As of 2023, the *Second National Antimicrobial Resistance Management Plan (2021-2025)* is being implemented, and the Republic of Korea is actively participating in the global AMR surveillance system, especially with the designation of the Korea National Institute of Health (KNIH) as a WHO Collaborating Centre for Antimicrobial Resistance. Notably, while the first national plan (2016-2020) focused on improving AMR rates and infection prevention, the second national plan (2021-2025) emphasises improving the current system, managing the use of broad-spectrum antibiotics, and adapting the plan to small- and medium-sized hospitals and long-term care facilities [63].

Despite significant policy achievements, national health leaders face limitations to strengthen efforts to review antibiotic prescribing practices, improve surveillance systems, and broaden the scope of AMR interventions in all health care settings [62,65]. Antibiotic stewardship is widely promoted, but financial and educational support for human resources (e.g. doctors, pharmacists, nurses) and leadership to facilitate stewardship activities should be expanded across all hospitals, especially small centres [66,67]. Broadening participation in the KONAS system for monitoring antibiotic use in medical institutions, establishing a continuous evaluation system for appropriate antibiotic prescribing, and strengthening the Kor-GLASS surveillance system through regional expansion are essential to identify the most important antibiotic-resistant bacteria nationally [63,65]. National and global AMR efforts require robust collaborations to monitor and share data on antibiotic use and

resistance and respond promptly to disease outbreaks [63].

Rwanda

AMR remains a global health threat, especially across low- and middle-income African nations (like Rwanda), where there is limited understanding and evidence-based data on the AMR burden [68]. In Rwanda, the alarming increase of AMR resistance, driven by weak health surveillance systems, poor adherence to infection prevention and control measures, and inappropriate use and misuse of antimicrobials, undermine recent considerable improvements on health. Two recent studies conducted at the Kigali University Teaching Hospital reported antibiotic sensitivity to bacteria – specifically, *E. coli* and *Klebsiella* isolates – in biological samples collected from patients admitted to neonatal and medical wards [69,70]. Hence, there is an urgent need to conduct scientific research to identify the real-time burden of AMR and reframe national guidelines to mitigate risk and spread of AMR.

In response to this AMR challenge, the Government of Rwanda has instituted stringent regulations governing the responsible use of antimicrobials in both human and animal health, marking a pivotal stride towards mitigating AMR. First, Rwandan leaders adopted the *National Antimicrobial Resistance Action Plan 2020-2024*, a comprehensive framework that spans across human, animal, agriculture, and environmental sectors [71]. These efforts highlight Rwanda's embrace of a holistic One Health perspective, building upon the *One Health Strategic Plan (2014-2018)*, adopted by the Government of Rwanda in 2015, recognising the

necessity for collaborative action in effectively addressing AMR [72]. Second, a robust surveillance system was established to vigilantly monitor the emergence and proliferation of AMR, enabling prompt intervention and evidence-based decision-making within the health system. Third, the Rwandan health system has integrated antimicrobial stewardship programs, beginning with neonatal centres and critical care units, which advocate for prudent antimicrobial usage to minimise the risk of resistance. Finally, leaders launched capacity-building initiatives for human and animal health professionals to reinforce antibiotic prescribing and infection prevention and control practices.

Despite instituted stringent regulations governing the responsible use of antimicrobials in both human and animal health in Rwanda, integrating strong antimicrobial stewardship programs in health care institutions, marking a pivotal stride towards mitigating AMR is far from over. As effective AMR management is intrinsic to comprehensive health care enhancement, the implemented measures should be integrated into the broader health system with sustained commitment from the government, its development partners, and multiple community stakeholders. Furthermore, through active research collaborations with international partners, Rwanda can significantly contribute to the global understanding of AMR dynamics, thereby enriching the collective knowledge base.

Spain

In line with other European countries, health authorities and professionals across Spain remain extremely concerned about untreatable infections due to AMR. Over the past three decades, the Spanish Society of Hospital Preventive

Medicine, Public Health and Health Management (Sociedad Española de Medicina Preventiva, Salud Pública y Gestión Sanitaria, SEMSPSGS) has supported the Prevalence Study of Nosocomial Infections in Spain (Estudio de Prevalencia de Infecciones Nosocomiales en España, EPINE), to examine the AMR burden in Spain [73,74]. The EPINE 2022 (not published yet) reported ARM in a sample of *S. aureus* (26% resistant to methicillin), *E. coli* (16% resistant to third generation cephalosporins), and *K. pneumoniae* (7% resistant to carbapenems) in health care related infections.

At the national level, Ministry of Health leaders are prepared to maintain high-quality standards in laboratory diagnostics and clinical care. The Carlos III Health Institute (Instituto de Salud Carlos III, ISCIII) was established in 1986, after the adoption of *Law 14*, to provide scientific services and promote research applications aligned with the National Health System. As the National Centre of Microbiology (Centro Nacional de Microbiología, CNM) forms part of the ISCIII, this centre focuses on clinical diagnostics, AMR monitoring and surveillance (*National Antimicrobial Resistance Surveillance 2020* or *Vigilancia Nacional de la Resistencia a Antimicrobianos 2020*), references services, and research (including biosafety level 3 laboratory) for infectious diseases [75]. Also, the Spanish Agency of Medicines and Medical Devices (Agencia Española de Medicamentos y Productos Sanitarios, AEMPS) (<https://www.aemps.gob.es/>) guarantees high-quality and safe products as well as accurate health information to protect human, animal, and environmental health.

Other national initiatives are based

on the *National Plan against Antibiotic Resistance (Plan Nacional frente a la Resistencia a los Antibióticos, PRAN)* (<https://www.resistenciaantibioticos.es/es>), which was approved by the Interterritorial Council of the National Health System and the Intersectoral Conference on Agriculture in 2014 [76]. The PRAN, which published three action plans (2014-2018, 2019-2021, 2022-2024), is guided by the One Health concept and contains six strategic lines (surveillance, control, prevention, research, training, communication). As a major consensus-building effort between autonomous communities, federal ministries, scientific societies, professional organisations, and experts, it aims to increase awareness among health professionals and the public about AMR risks as well as offer tools and recommendations. One milestone event was the creation of the Programmes for Optimizing Antibiotic Use (Programas de Optimización de Uso de los Antibióticos, PROA) across Spanish hospitals, which aim to rationalise the use of antibiotics to improve health outcomes, reduce costs, and minimise contributions to AMR [77].

As the Spanish General Medical Council (CGCOM), we promote professional acts of excellence to master competencies in infectious disease epidemiology and cautiously adhere to the optimal therapeutic guidelines for infection control. We define a high-quality physician as a clinician who adheres to ethical principles and practices in the health care setting. Our ethical commitment to patients – namely, the first ethical principle of our practice, “*primum non nocere*” – obliges us to collectively follow the recommendations of the PRAN and other clinical protocols in order to combat AMR.

Taiwan

Taiwan stands at the forefront of combatting AMR, and has historically united its efforts in both infection control and judicious antibiotic usage. In the realm of infection control, Taiwan started official data collection for nosocomial infections in the late 1990s, and then established the Taiwan Nosocomial Infections Surveillance System (TNIS System) in 2007, overseen by the Taiwan Centers of Disease Control and Prevention (<https://www.cdc.gov.tw/En>) [78,79]. Evolving into the Taiwan Healthcare-associated Infection and Antimicrobial Resistance Surveillance System (THAS System) in 2020, this system actively monitors health care associated infections (HAIs) in medical centres and regional hospitals [80]. The latest report from 2021 revealed alarming statistics, with high proportions of various resistant strains in intensive care units. Notably, the surveillance highlights concerning trends, like the increase in carbapenem-resistant Enterobacterales (CRE) from 5.2% in 2016 to 7.6% in 2023, calling for urgent collaborative strategies to curb these escalating figures [81]. The Taiwan Centers of Disease Control and Prevention has responded by issuing guidance on preventing carbapenem-resistant Enterobacterales transmission within health care facilities, underscoring the gravity of the situation.

In the medical domain, Taiwan's universal National Health Insurance system, covering 99.6% of the population and extending to 93% of hospitals and clinics, ensures widespread access to health care. Policies, such as the discouragement of antibiotics usage for upper respiratory tract infections during outpatient visits and the integration of antibiotic stewardship into hospital accreditation, have led to a notable

reduction in unnecessary antibiotic prescriptions [82]. Moreover, the Infectious Disease Society of Taiwan's guidelines for treating infections caused by multidrug-resistant organisms underscore the commitment to proper management of AMR infections within the medical community.

Taiwan health leaders acknowledge AMR as a global public health concern that requires cross-sector collaboration and global campaigns (like WAAW) to address the prudent use of antimicrobial agents. Using the WAAW 2023 theme, "Preventing Antimicrobial Resistance Together," Taiwan Centers of Disease Control and Prevention spearheaded the "2023 World Antibiotics Week" to unify efforts across public and private sectors. Embracing the One Health concept, a collective commitment was made to implement antibiotic management and infection control measures, urging public engagement to thwart AMR. Taiwan's approach to prevent drug-resistant infections includes encouraging healthy lifestyles and hand hygiene, vaccination adherence, and responsible antibiotic usage.

Trinidad and Tobago

Although AMR is a growing threat to global communities, antimicrobial consumption rates in the Caribbean are unknown, as few regional survey responses were received upon data collection [83]. To propel collaborative discussion on AMR policies and guidelines, the Caribbean Public Health Agency and Public Health England organised a two-day meeting in 2014, highlighting the need to adopt a strategy that can enhance laboratory capacity to combat AMR [84]. A former Minister of Health of the Republic of Trinidad and Tobago, commented that "Physicians are the gatekeepers

of antibiotic use," marking the need for health professionals training and community education campaigns [84].

Over the past decade, the Trinidad and Tobago Medical Association (T&TMA) and other national leaders have demonstrated remarkable leadership to combat AMR, as they have collaborated to build a sustainable future for the 1.3 million residents. First, national leaders have supported the development of a Multisectoral Coordinating Committee to Combat AMR, which collectively works in alignment with the five strategic objectives of the *Global Action Plan on Antimicrobial Resistance* [85]. Using mainstream media, this committee has promoted multimodal interventions (including hand hygiene) as cost-effective approaches to stop the spread of infectious pathogens in human, animal, and agricultural production [86]. Second, as the first Caribbean nation to join the WHO GLASS in 2020, health leaders contribute freely available data on AMR surveillance [87]. Finally, health leaders have also independently explored antibiotic misuse and prescribing practices in humans and animals, including evaluating the knowledge, attitudes, and practices of pharmacists related to antibiotic dispensing, to improve and enforce AMR guidelines and policies [88].

As our global community recognises WAAW 2023, the T&TMA urges all health professionals across human and animal health sectors to promote infection prevention and control or biosecurity measures and antibiotic stewardship within human and livestock populations. By applying the One Health concept, global physicians have a moral obligation to educate the public about the dangers of misusing antimicrobial agents in humans, livestock, and agriculture,

and advocate for stronger national AMR guidelines and policies. Additional local, regional, and international efforts should include strengthening connections between physician-laboratory networks, developing innovative messaging for health education materials, and expanding community outreach to health professionals and the general public. With 13 sovereign countries and other territories in the Caribbean region, we can collectively improve our AMR response and develop robust regional initiatives that support strict antibiotic prescribing practices across sectors, which can strengthen population health and health system resilience.

Turkey

Health leaders of the Turkey Ministry of Health, supporting an estimated population of 82 million residents, have become increasingly aware of the high rates of AMR and antimicrobial consumption, when compared to other nations [89]. According to 2022 surveillance data, carbapenem resistance was reported in *A. baumannii* (92.2%), *K. pneumoniae* (66.6%), *P. aeruginosa* (67.6%), and *E. coli* (17.1%) isolates [90]. Also, resistance to methicillin was observed in *S. aureus* (MRSA) (50.0%) and coagulase-negative staphylococci (MRCoNS) (85.7%), and vancomycin resistance was reported in *E. faecium* (VRE) (23.2%) [90].

To combat AMR risk across the nation, health leaders implemented a national active surveillance system for health care associated infections and AMR with antibiotic restriction policies for antimicrobial use in health care [91]. They established the first national antimicrobial stewardship program (National Hospital Antimicrobial Restriction Program, NARP) in 2003, and subsequently the second national

program in 2014 [91]. As a result of this second national program (2014-2017), one report noted that the antibiotic prescription rate decreased from 35% to 25%, and that the total antibiotic expenditure to whole drug expenditure decreased from 14% to 4% [92]. Furthermore, infectious disease specialty associations have continued to organise AMR awareness activities with web conferences, local and national symposiums and meetings, podcasts, and video broadcasts to increase awareness among health professionals to lead efforts to prevent health care associated infections and reduce antibiotic consumption. Aligned with these actions, the Turkish Society of Infectious Disease and Clinical Microbiology (KLIMIK) (<https://www.klimik.org.tr>) is currently developing a national evidence-based guideline on the diagnosis and treatment of carbapenem-resistant gram-negative bacterial infections.

As physicians of the Turkish Medical Association, we urge health professionals to urgently accelerate national actions to prevent health care associated infections and reduce the risk of AMR spread. First, antibiotic consumption monitoring systems with feedback mechanisms should be implemented into national antimicrobial restriction programs and monitored by local antimicrobial stewardship programs [93]. Second, the Ministry of Health can activate health care associated infection surveillance programs, establish local antimicrobial stewardship programs, and reactivate the second national program that was halted due to the COVID-19 pandemic. They can also initiate communication between relevant stakeholders in the human, animal, and agricultural sectors, especially infectious disease specialty societies. Finally, as a global community, we can collectively organise public awareness campaigns

and evaluation studies that can assess the rational use of antibiotics across the wider society.

Uganda

Over the past decade, the Ministry of Health of Uganda, a country of approximately 42 million residents, has reported alarming rates of mortality due to AMR. One national study identified the three most common resistant strains of bacterial infections as *S. aureus*, *E. coli*, and *Salmonella typhi* [94]. Significant challenges have included limited funding for diagnostic testing, absence of strict federal policies for pharmaceutical regulation, sale of substandard drugs by unlicensed pharmacies and underutilization of epidemiological surveillance data to monitor real-time trends and prepare for potential disease outbreaks [94,95].

Health leaders in Uganda recognise the need to form multi-sectoral collaborations and take immediate action to combat AMR across the country and continent. In 2018, they developed the *Antimicrobial Resistance National Action Plan (AMR-NAP) 2018-2023*, to help strengthen the national response to AMR by encouraging stakeholders to prepare plans that help monitor and control the spread of AMR [96]. Next, they developed the *Uganda One Health Strategic Plan 2018-2022*, which focused on the three priority actions of AMR, zoonotic diseases, and biosecurity [97]. Finally, they established the National One Health Platform, which aimed to connect four federal ministries – Ministry of Agriculture, Animal Industries, and Fisheries, Uganda Wildlife Authority, Ministry of Water and Environment, and Ministry of Health – as well as identify synergies in One Health and improve communication across sectors and disciplines for collaborative initiatives [98].

As physicians of the Uganda Medical Association (UMA), we call upon all stakeholders to optimise the use of antimicrobial agents in humans, regulate antibiotics use in livestock, and encourage research on examining drug resistance to anti-fungal and anti-viral agents, especially in rural settings. As health leaders, we can help advocate for the implementation of stricter laws on antibiotic prescribing practices and educate health practitioners and the general public about the global threat of AMR. Without strict oversight and political commitment, our global community will not be ready to manage AMR as the next pandemic.

United Arab Emirates

In the United Arab Emirates (UAE), a country of nine million residents, the growing awareness of AMR has led the government and private sector to actively prioritise measures to combat AMR. As part of ongoing efforts, the UAE Ministry of Health and Prevention have assigned infectious disease specialists across hospitals and other health care facilities to identify drug sensitivity and support antimicrobial stewardship [99]. To strengthen the collective efforts of the health system, the Government adopted *Federal Law No. 14 of 2014 (Combating Communicable Diseases)* and *Federal Law No. 13 of 2020 (Public Health)* [100].

To support current AMR initiatives, the Government of UAE prepared two key guidance documents that outline the established procedures that health stakeholders should follow in their clinical management and health education activities. In 2019, health leaders adopted the *National Strategy and Action Plan for Combating Antimicrobial Resistance (NAP-AMR) 2019-2023*, as a roadmap for the UAE to tackle AMR by applying the One Health approach [101].

These efforts also include promoting behavioural changes among health professionals and the public. In 2022, they launched the *UAE Surveillance of Antimicrobial Resistance Annual Report 2022*, which will be used as a guidance tool for creating national AMR control policies [102]. The report highlights the evidence-based guidelines for antibiotic prescribing practices and promotes academic research in pharmaceutical discovery [102].

Each year, government institutions and hospitals host educational seminars throughout the country alongside the global WAAW campaigns. Health professionals, governments, academic professors, and relevant stakeholders actively lead AMR awareness campaigns and training sessions. For example, the Gulf Medical University's College of Pharmacy Antimicrobial Stewardship Workshop in 2018, helped students from graduate programs in clinical pharmacy (PharmD and Master in Clinical Pharmacy) as well as pharmacy practitioners from the Thumbay Hospital in Ajman, to update their knowledge on AMR burden and how to address AMR infections within their role as pharmacy practitioners [103]. Also, the 7th UAE International Conference on Antimicrobial Resistance (ICAMR) will be held on 23-24 February 2024, under the patronage of H.E. Abdul Rahman Mohammed Al Owais and the Ministry of Health and Prevention (<https://www.icamr-uae.com/>), as an opportunity to share the latest scientific and academic advances through interactive case reports, presentations, open discussions, and networking opportunities. These prominent activities to increase awareness and understanding of AMR extend across public and private hospitals in the UAE.

As physicians, we must uphold practices for combating AMR, which include limiting rampant use of antimicrobial agents, adhering to judicious prescribing practices, and increasing AMR awareness across communities. It is important to provide junior doctors with a platform to raise their concerns to ensure meaningful youth engagement on AMR efforts. As we collaborate to improve national surveillance programs and promote antimicrobial stewardship, we can establish working relationships with government sector representatives to strengthen existing laws based on the scientific literature. Globally, countries can collaborate to expand knowledge and share resources, and health ministers can identify common goals and pathways within the geographic region to prevent the spread of resistant strains.

Uruguay

The Uruguay Ministry of Health, supporting 3.5 million residents, recognises the current and future challenges facing AMR, including antimicrobial treatments that are unavailable in the country, high costs for managing AMR infections, and epidemiological changes related to AMR resistance patterns that lead to complex clinical management. Between 2010 and 2017, the Ministry of Health's National Surveillance System of Hospital-acquired Infections reported an increased number of AMR infections, including carbapenemase-producing and extended-spectrum beta-lactamase-producing Enterobacteriaceae, *P. aeruginosa*, *A. baumannii* complex, and colistin-resistant *E. coli* (<https://www.gub.uy/salud>). Health leaders have also recognised pathogen adaptation and the global spread of these diverse strains, as colistin resistance in gram-negative bacteria (type mrc-1) was reported in China in 2015 and subsequently in Uruguay

in 2017 [104].

For more than two decades, governmental and academic institutions in Uruguay have led efforts to strengthen AMR surveillance across health centres, including reports of hospital-acquired infections. In 1997, Ministry of Health adopted the *Decree 437/997 (Decreto No. 437/997)*, which ensured that hospital infection control committees (Comités de Prevención y Control de Infecciones Hospitalarias, CIH) would be created across the country's hospitals [105]. Additional actions have included *Decree No. 098/2011* for the prohibition of the use of antibiotics in production chains since 2011, and *Decree No. 141/019* for the prohibition of the use of colistin in veterinary health. Since 2016, the Ministry of Livestock, Agriculture and Fisheries (Ministerio de Ganadería, Agricultura y Pesca, MGAP) and the Ministry of Public Health (Ministerio de Salud Pública, MSP) have developed the *National Plan for Containment of Antimicrobial Resistance* and the *National Action Plan to Combat Antimicrobial Resistance*, as efforts to guide health leaders and stakeholders in reducing risk and spread of AMR [106,107].

In November 2018, the Government of Uruguay reconfirmed their commitment to the *National Action Plan to Combat Antimicrobial Resistance*, support of the One Health objective, and collaboration with three ministries (MGAP, MSP, Ministry of Environment) [108]. This single national plan, comprised of five thematic sections, incorporates key strategic objectives and actions to protect human, animal, and environment health and reduce risk and spread of AMR. Health leaders are currently updating the *National Action Plan to Combat Antimicrobial Resistance* for an expected publication in 2024.

Conclusion

The WAAW 2023 opens a global forum to recognise the AMR burden across all countries, examine the driving factors that propel the spread of drug-resistant strains, identify knowledge and practice gaps related to inconsistent adherence to infection control practices, and develop key policies and agendas to protect population health. As global leaders prepare for the UN General Assembly High-Level Meeting on AMR in September 2024, two recent AMR guidance documents can help guide leaders in the revision of national action plans on AMR and the implementation of additional local and national interventions to strengthen health system preparedness. First, the *WHO Global Research Agenda for Antimicrobial Resistance*, which was launched in July 2023, highlighted 40 research topics that call for appraisals of the evidence-based literature (spanning the epidemiology of AMR infections to cost-effective community interventions) to help inform policies aligned with the 2030 Agenda for Sustainable Development [109]. Second, the *WHO Core Package of Interventions to Support National Action Plans*, which was published in October 2023, incorporated a people-centred approach into 13 AMR interventions and actions linked two four pillars (infection prevention, health care service access, prompt diagnosis, high-quality treatment) and two foundational steps (effective awareness and oversight, evidence-based surveillance and research), to help national health systems eliminate barriers related to AMR response and health services [110].

Representing diverse clinical and surgical disciplines, WMA members are poised with a strategic leadership role to help national leaders refine the national action plans to combat AMR, including strengthening AMR

surveillance reporting, enhancing appropriate antibiotic prescribing practices and use, and identifying best clinical and community interventions. As this collective article provides a comprehensive overview of relevant policies, capacity building activities, and community initiatives across 20 countries, our global community can gain insight and inspiration from these reports, increase global awareness of the AMR burden and impacts on the economy and health systems, and advocate for urgent collective actions to combat AMR through a One Health framework. These multidisciplinary and multisectoral collaborations highlight robust regional leadership and political commitment across the African, Americas, East Mediterranean, European, South-East Asian, and Western Pacific regions, recognising a promising future to collectively promote antimicrobial stewardship and combat AMR across human, animal, and agricultural sectors.

References

1. Antimicrobial Resistance Collaborators. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. *Lancet*. 2022;399(10325):629-55.
2. World Bank. Drug-resistant infections: a threat to our economic future. Washington DC: World Bank; 2017. Available from: <https://www.worldbank.org/en/topic/health/publication/drug-resistant-infections-a-threat-to-our-economic-future>
3. Katz R, Sorrell EM, Kornblat SA, Fischer JE. Global health security agenda and the international health regulations: moving forward. *Biosecurity & Bioterror*. 2014;12(5):231-8.
4. World Health Organization. Global action plan on antimicrobial resistance. Geneva: WHO; 2016. Available from: <https://www.who.int/publications/item/9789241509763>
5. World Health Organization. Antimicrobial resistance [Internet]. 2023 [cited 2023 Dec 1]. Available from: <https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>
6. FAO, UNEP, WHO, WOA. One Health joint plan of action (2022-2026): working together for the health of humans, animals, plants and the environment. Rome; FAO, UNEP WHO, WOA; 2022. Available from: <https://doi.org/10.4060/cc2289en>
7. World Health Organization. World AMR awareness week, 18-24 November 2023 [Internet]. 2023 [cited 2023 Dec 1]. Available from: <https://www.who.int/campaigns/world-amr-awareness-week/2023>
8. Boni S, Marin GH, Campaña L, Marin L, Corso A, Risso-Patron S, et al. Disparities in antimicrobial consumption and resistance within a country: the case of beta-lactams in Argentina. *Rev Panam Salud Publica*. 2021;45:e76.
9. Pan American Health Organization; World Health Organization. Argentina develops a strategy and action plan for the governance of data on antimicrobial resistance [Internet]. n.d. [cited 2023 Nov 1]. Available from: <https://www3.paho.org/ish/index.php/en/all-stories?id=121>
10. Pan American Health Organization. Argentina hosts the 4th meeting of the World Health Organization's (WHO) Collaborating Centers Network for Surveillance and Evaluation

- of Antimicrobial Resistance [Internet]. 2023 [cited 2023 Oct 24]. Available from: <https://www.paho.org/en/news/23-3-2023-argentina-hosts-4th-meeting-world-health-organizations-who-collaborating-centers>
11. Government of Argentina. Ley de prevención y control de la resistencia a los antimicrobianos [Internet]. 2022 [cited 2023 Oct 24]. Spanish. Available from: <https://www.argentina.gob.ar/normativa/nacional/ley-27680-2022-370267>
 12. Australian Medical Association. Antimicrobial resistance: the silent global pandemic. Canberra: Australian Medical Association, 2022. Available from: <https://www.ama.com.au/sites/default/files/2022-11/Antimicrobial-resistance-the-silent-global-pandemic.pdf>
 13. Australian Commission on Safety and Quality in Health Care. Antimicrobial use and resistance in Australia (AURA) [Internet]. 2023 [cited 2023 Oct 27]. Available from: <https://www.safetyandquality.gov.au/our-work/antimicrobial-resistance/antimicrobial-use-and-resistance-australia-aura>
 14. Australian Government. Australia's national antimicrobial resistance strategy-2020 and beyond. 2023 [cited 2023 Oct 4]. Canberra: Australian Government; 2023. Available from: <https://www.amr.gov.au/resources/australias-national-antimicrobial-resistance-strategy-2020-and-beyond>
 15. Australian Commission on Safety and Quality in Health Care. World AMR awareness week [Internet]. 2023 [cited 2023 Oct 27]. Available from: www.safetyandquality.gov.au/our-work/antimicrobial-stewardship/world-amr-awareness-week
 16. Department of Health and Aged Care, Australian Government. Australia Centre for Disease Control [Internet]. 2023 [cited 2023 Oct 27]. Available from: <https://www.health.gov.au/our-work/Australian-CDC>
 17. National Institute of Health Research, Ecuador. Reporte de datos de resistencia a los antimicrobianos en Ecuador 2014-2018 [Internet]. 2019 [cited 2023 Nov 12]. Spanish. Available from: <https://www.salud.gob.ec/wp-content/uploads/2019/08/gaceta-ram2018.pdf>
 18. Ross J, Larco D, Colon O, Coalson J, Gaus D, Taylor K, et al. Índices de resistencia a los antibióticos en aislamientos clínicos en Santo Domingo, Ecuador. *Práctica Familiar Rural*. 2020;5(1). Spanish.
 19. Ministry of Health, Ecuador. Plan nacional para la prevención y control de la resistencia antimicrobiana (RAM), 2019-2023. Quito: Ministry of Health, Ecuador; 2019. Spanish. Available from: <https://www.salud.gob.ec/msp-presento-plan-nacional-para-la-prevencion-y-control-de-la-resistencia-antimicrobiana-ram-2019-2023/>
 20. Goyes-Baca MJ, Sacon-Espinoza MR, Poveda-Paredes FX. Manejo del sistema de salud de Ecuador frente a la resistencia antimicrobiana. *Rev Inf Cient*. 2023;102(0). Spanish.
 21. Romo-Castillo HF, Pazin-Filho A. Towards implementing an antibiotic stewardship programme (ASP) in Ecuador: evaluating antibiotic consumption and the impact of an ASP in a tertiary hospital according to World Health Organization (WHO) recommendations. *J Glob Antimicrob Resist*. 2022;29:462-7.
 22. World Health Organization. India: National action plan on antimicrobial resistance (NAP-AMR) 2017-2021. Geneva: World Health Organization; 2017. Available from: <https://www.who.int/publications/m/item/india-national-action-plan-on-antimicrobial-resistance-%28nap-amr%29-2017-2021>
 23. Ministry of Health and Family Welfare, Government of India. National health policy 2017. New Delhi: Government of India; 2017. Available from: <https://main.mohfw.gov.in/sites/default/files/9147562941489753121.pdf>
 24. Ranjalkar J, Chandy SJ. India's national action plan for antimicrobial resistance – an overview of the context, status, and way ahead. *J Family Med Prim Care*. 2019;8(6):1828-34.
 25. Pharmacy Council of India. Pharmacy practice regulations, 2015 [Internet]. 2015 [cited 2023 Oct 26]. Available from: <https://www.thc.nic.in/Central%20Governmental%20Regulations/Pharmacy%20Practice%20Regulations%202015.pdf>
 26. Wangai FK, Masika MM, Lule GN, Karari EM, Maritim MC, Jaoko WG, et al. Bridging antimicrobial resistance knowledge gaps: the East African perspective on a global problem. *PLoS One*. 2019;14(2):e0212131.
 27. Lord J, Gikonyo A, Miwa A,

- Odoi A. Antimicrobial resistance among Enterobacteriaceae, Staphylococcus aureus, and Pseudomonas spp. isolates from clinical specimens from a hospital in Nairobi, Kenya. PeerJ. 2021;9:e11958.
28. Godman B, Egwuenu A, Wesangula E, Schellack N, Kalungia AC, Tiroyakgosi C, et al. Tackling antimicrobial resistance across sub-Saharan Africa: current challenges and implications for the future. Expert Opinion on Drug Safety. 2022;21(8):1089-111.
29. Kariuki S, Kering K, Wairimu C, Onsare R, Mbae C. Antimicrobial resistance rates and surveillance in sub-Saharan Africa: where are we now? Infect Drug Resist. 2022;15:3589-609.
30. Moirongo RM, Aglanu LM, Lamshöft M, Adero BO, Yator S, Anyona S, May J, Lorenz E, Eibach D. Laboratory-based surveillance of antimicrobial resistance in regions of Kenya: an assessment of capacities, practices, and barriers by means of multi-facility survey. Front Public Health. 2022;10:1003178.
31. Government of Kenya. Constitution of Kenya, 2010. 2010 [cited 2023 Nov 15]. Available from: <https://kdc.go.ke/wp-content/uploads/2021/12/Constitution-of-Kenya-2010-min.pdf>
32. Government of Kenya. National action plan for the containment and prevention of antimicrobial resistance: monitoring and evaluation framework. Nairobi: Government of Kenya; 2021. Available from: http://guidelines.health.go.ke:8000/media/NAP_Containment_Prevention-of-Antimicrobial-Resistance-ME-Framework-2021-2.pdf
33. Kenya Medical Association. Kenya Medical Association statement for Antimicrobial Resistance Awareness Week 2023 [Internet]. 2023 [cited 2023 Nov 20]. Available from: https://kma.co.ke/images/AMR_Statement_2023.pdf
34. Naeemmudeen NM, Mohd Ghazali NAN, Bahari H, Ibrahim R, Samsudin AD, Jasni AS. Trends in antimicrobial resistance in Malaysia. Med J Malaysia, 2021;76(5):698-705.
35. Lodz NA, Ramli MHT, Baharudin A, Tahir FA, Sander S, Ghafur SA, et al. Antibiotics resistance: how doctors and pharmacists could help? National Health and Morbidity Survey 2020: Communicable Disease. 2020. Available from: https://iku.gov.my/images/IKU/Document/REPORT/2020/research_highlights/6_Antibiotic_use_FA.pdf
36. Ministry of Health, Malaysia & Ministry of Agriculture and Agro-based Industry, Malaysia. Malaysian action plan on antimicrobial resistance (MyAP-AMR), 2017-2021. Putrajaya: Infection Prevention and Control Unit, Ministry of Health, Malaysia; 2017. Available from: [https://www.moh.gov.my/moh/resources/Penerbitan/Garis%20Panduan/Pengurusan%20KEsihatan%20&%20kawalan%20pykit/Malaysian_Action_Plan_on_Antimicrobial_Resistance_\(MyAP-AMR\)_2017-2021.pdf](https://www.moh.gov.my/moh/resources/Penerbitan/Garis%20Panduan/Pengurusan%20KEsihatan%20&%20kawalan%20pykit/Malaysian_Action_Plan_on_Antimicrobial_Resistance_(MyAP-AMR)_2017-2021.pdf)
37. Bernama. Increased antimicrobial resistance is a worrying threat, says Khairy [Internet]. New Straits Times. 2021 [cited 2023 Oct 15]. Available from: <https://www.thestar.com.my/news/nation/2021/11/20/increased-antimicrobial-resistance-a-worrying-threat-says-khairy>
38. Government of Myanmar. National action plan for containment of antimicrobial resistance, 2017-2022 [Internet]. 2017 [cited 2023 Nov 16]. Available from: <https://cdn.who.int/media/docs/default-source/antimicrobial-resistance/amr-spc-npm/nap-library/myanmar-national-action-plan-for-containment-of-antimicrobial-resistance.pdf>
39. Maryland Coordination and Analysis Center. Myanmar military junta 'deliberately bombing medical facilities' with secret jungle hospital now being sought [Internet]. 2023 [cited 2023 Nov 16]. Available from: <https://mcac.maryland.gov/2023/09/myanmar-military-junta-deliberately-bombing-medical-facilities-with-secret-jungle-hospital-now-being-sought/>
40. Physicians for Human Rights. "Our health workers are working in fear": after Myanmar's military coup, one year of targeted violence against health care [Internet]. 2022 [cited 2023 Nov 16]. Available from: <https://phr.org/our-work/resources/one-year-anniversary-of-the-myanmar-coup-detat/>
41. Khai TS. Vulnerability to health and well-being of internally displaced persons (IDPs) in Myanmar post-military coup and COVID-19. Arch Public Health. 2023;81(1):185.
42. Public Health Nigeria. Drug laws in Nigeria [Internet]. 2020 [cited 2023 Nov 15]. Available

- from: <https://www.publichealth.com.ng/drug-laws-in-nigeria/>
43. Federal Ministries of Agriculture and Rural Development, Environment and Health. National action plan for antimicrobial resistance, 2017-2022. Abuja: Federal Ministries of Agriculture and Rural Development, Environment and Health; 2017. Available from: <https://www.who.int/publications/m/item/nigeria-national-action-plan-for-antimicrobial-resistance>
 44. Federal Ministries of Agriculture and Rural Development, Environment and Health. Antimicrobial use and resistance in Nigeria, situation analysis and recommendation [Internet]. Abuja: Federal Ministries of Agriculture and Rural Development, Environment and Health; 2017. Available from: https://ncdc.gov.ng/themes/common/docs/protocols/56_1510840387.pdf
 45. Achi CR, Ayobami O, Mark G, Egwenu A, Ogbolu D, Kabir J. Operationalising One Health in Nigeria: reflections from a high-level expert panel discussion commemorating the 2020 World Antibiotics Awareness Week. *Front Public Health*. 2021;9:673504.
 46. World Health Organization. Global tuberculosis report 2023. Geneva; WHO; 2023. Available from: <https://www.who.int/teams/global-tuberculosis-programme/tb-reports/global-tuberculosis-report-2023>
 47. Khan MA, Bilal W, Asim H, Rahmat ZS, Essar MY, Ahmad S. MDR-TB in Pakistan: challenges, efforts, and recommendations. *Ann Med Surg (Lond)*. 2022;79:104009.
 48. Ministry of National Health Services, Regulations and Coordination, Government of Pakistan. National action plan on antimicrobial resistance, Pakistan. Islamabad: Government of Pakistan; 2017. <https://www.nih.org.pk/wp-content/uploads/2018/08/AMR-National-Action-Plan-Pakistan.pdf>
 49. Drug Regulatory Authority of Pakistan. Guidelines on responsible use of antimicrobials in human health. PHSR/GL/AH/003. Islamabad: Drug Regulatory Authority of Pakistan; 2021. <https://www.dra.gov.pk/wp-content/uploads/2022/02/Guidelines-Responsible-Use-of-Antimicrobials-1.pdf>
 50. National Institute of Health, Pakistan. National guidelines: infection prevention and control 2020. 2020. Available from: https://www.nih.org.pk/wp-content/uploads/2020/04/Complete_IPC_Guideliens.pdf
 51. Yam ELY, Hsu LY, Yap EP, Yeo TW, Lee V, Schlundt J, et al. Antimicrobial resistance in the Asia Pacific region: a meeting report. *Antimicrob Resist Infect Control*. 2019;8:202.
 52. Worldometer. Philippines population [Internet]. 2023 [cited 2023 Nov 12]. Available from: <https://www.worldometers.info/world-population/philippines-population/>
 53. Robredo JPG, Eala MAB, Paguio JA, Salamat MSS, Celi LAG. The challenges of combating antimicrobial resistance in the Philippines. *Lancet Microbe*. 2022;3(4):e246.
 54. Montemayor MT. DOH rallies health sector vs. antimicrobial resistance [Internet]. 2022 [cited 2023 Nov 12]. Available from: <https://www.pna.gov.ph/articles/1189168>
 55. Departments of Health and Agriculture, Republic of the Philippines. The Philippine action plan to combat antimicrobial resistance 2019-2023. 2018. Available from: <https://www.who.int/publications/m/item/philippines-the-philippine-action-plan-to-combat-antimicrobial-resistance-one-health-approach>
 56. Department of Health, Republic of the Philippines. Philippine Antimicrobial Awareness Week 2022 [Internet]. 2022 [cited 2023 Nov 12]. Available from <https://pharma.doh.gov.ph/2022/11/24/philippine-antimicrobial-awareness-week-2022/>
 57. Interagency Committee on Antimicrobial Resistance, Republic of the Philippines. World/Philippine Antimicrobial AwarenessWeek2023:callforAMRchampions [Internet]. ICAMR. 2023 [cited 2023 Nov 12]. Available from: <https://tinyurl.com/AMRChampions2022Mechanics>
 58. Wojkowska-Mach J, Godman B, Glassman A, Kurdi A, Pilc A, Rozanska A, et al. Antibiotic consumption and antimicrobial resistance in Poland; findings and implications. *Antimicrob Resist Infect Control*. 2018;7:136.
 59. National Reference Center for Antimicrobial Susceptibility. [Recommendations: carbapenemase-producing Enterobacterales (CPE): epidemiology, diagnostics, treatment and prevention of infections, 2022]. 2022 [cited 2023 Nov 7]. Polish. Available from: <https://korld.nil.gov.pl/>

[odpornosc-na-antybiotyki-2/czesto-zadawane-pytania/](#)

60. European Centre for Disease Prevention and Control. Annual surveillance reports on antimicrobial resistance [Internet]. 2023 [cited 2023 Nov 6]. Available from: <https://www.ecdc.europa.eu/en/antimicrobial-resistance/surveillance-and-disease-data/report>
61. Chong Y, Lee K. Present situation of antimicrobial resistance in Korea. *Journal of Infection and Chemotherapy*. 2000;6(4):189-95.
62. Organisation for Economic Co-operation and Development. Antimicrobial resistance: policy insights [Internet]. Paris: OECD; 2016 [cited 2023 Nov 23]. Available from: <https://www.oecd.org/health/health-systems/AMR-Policy-Insights-November2016.pdf>
63. Lee HY, Ryu SY, Yeong JG, Kang KM, Yoo H. Introduction to antimicrobial stewardship program (ASP): current status and policy direction of antimicrobial stewardship program (ASP) in Korea. *Public Health Weekly Report*. 2022;15(50):2971-3003.
64. Ryu S. The new Korean action plan for containment of antimicrobial resistance. *Journal of Global Antimicrobial Resistance*. 2017;8:70-3.
65. Kim D, Choi MH, Hong JS, Shin JH, Jeong SH. Current status and prospects of the national antimicrobial resistance surveillance system, Kor-GLASS. *Korean J Healthc Assoc Infect Control Prev*. 2022;27(2):96-103.
66. Park SY. Antibiotic stewardship: a key strategy to combat antibiotic resistance. *Korean J Med*. 2023;98(4):151-4.
67. Cheong HS, Park KH, Kim HB, Kim SW, Kim B, Moon C, et al. Core elements for implementing antimicrobial stewardship programs in Korean General Hospitals. *Korean J Med*. 2023;98(1):11-39.
68. World Health Organization. Antimicrobial resistance in the WHO African region: a systematic literature review. Brazzaville: WHO; 2021. Available from: <https://www.afro.who.int/publications/antimicrobial-resistance-who-african-region-systematic-literature-review>
69. Ntirenganya C, Manzi Olivier, Muvunyi C. M, Ogbuagu O. High prevalence of antimicrobial resistance among common bacterial isolates in a tertiary healthcare facility in Rwanda. *Am J Trop Med Hyg*. 2015;92(4):865-70.
70. Habimana R, Rogo T. High incidence of bacteria resistant to recommended empiric antibiotics for neonatal sepsis at a tertiary level neonatology unit in Rwanda. *Open Forum Infectious Diseases*. 2015;2(S1):1619.
71. National Action Plans and Monitoring and Evaluation, Ministry of Health, Rwanda. National action plan on antimicrobial resistance 2020-2024. Kigali: Ministry of Health, Rwanda; 2021. Available from: <https://www.who.int/publications/m/item/rwanda-national-action-plan-on-antimicrobial-resistance-2020-2024>
72. Nyatanyi T, Wilkes M, McDermott H, Nzietchueng S, Gafarasi I, Mudakikwa A, et al. Implementing One Health as an integrated approach to health in Rwanda. *BMJ Global Health*. 2017;2:e000121.
73. Cantero M, Jiménez E, Parra LM, Salcedo-Leal I, Ortí-Lucas RM, Asensio Á; EPINE Study Group. Trends of antimicrobial use through selected antimicrobial indicators in Spanish hospitals, 2012 to 2021. *J Hosp Infect*. 2023;138:19-26.
74. Asensio A, Cantón R, Vaqué J, Rosselló J, Arribas JL. Etiología de las infecciones hospitalarias en España (EPINE, 1990-1999) [Etiology of hospital-acquired infections in Spanish hospitals (EPINE, 1990-1999)]. *Med Clin (Barc)*. 2002;118(19):725-30. Spanish.
75. Ministry of Health, Government of Spain. Vigilancia nacional de la resistencia a antimicrobianos. 2020 [cited 2023 Oct 16]. Madrid: Government of Spain; 2020. Spanish. Available from: https://www.isciii.es/QueHacemos/Servicios/VigilanciaSaludPublicaRENAVE/EnfermedadesTransmisibles/Boletines/Documents/Boletin_Epidemiologico_en_red/boletines%20en%20red%202021/VIGILANCIA%20NACIONAL%20DE%20LA%20RESISTENCIA_ACC_FINAL_web.pdf
76. Ministry of Health, Government of Spain. Plan Nacional frente a las resistencias a los antibióticos, 2022-2024. Madrid: Government of Spain; 2022. Spanish. Available from: <https://www.resistenciaantibioticos.es/sites/default/files/2022-09/Plan%20Nacional%20Resistencia%20Antibi%C3%B3ticos%20%28PRAN%29%202022-2024.pdf>

77. Horcajada JP, Grau S, Paño-Pardo JR, López A, Oliver A, Cisneros JM, Rodríguez-Baño J. Antimicrobial stewardship in Spain: programs for optimizing the use of antibiotics (PROA) in Spanish hospitals. *Germes*. 2018;8(3):109-12.
78. Chang SC, Tsai CL, Wang JT, Hwang KP, Leu HS, Chuang YC, et al. Nosocomial infections in medical centers and regional hospitals between 1999 and 2002 in Taiwan. *Infect Control J*. 2004;14:1-11. Chinese.
79. Chang SC, Su CH, Su MR, Chou WH, Wang LH, Wang FD, et al. Taiwan nosocomial infection surveillance system annual report: 2007. *Infect Control J*. 2008;18:387-92. Chinese.
80. Chang SC, Wu CH, Wang LH, Wang JT, Wang FD, Wu HC, et al. Taiwan healthcare-associated infection and antimicrobial resistance surveillance system annual report: 2020. *Infect Control J*. 2022;32:389-97. Chinese.
81. Taiwan Centers for Disease Control. Guidance of prevention of carbapenem-resistant Enterobacteriales. 2023 [cited 2023 Nov 22]. Chinese. Available from <https://www.cdc.gov.tw/File/Get/daruU46NduPDkuRLhKaP2g>
82. Ho M, Hsiung CA, Yu HT, Chi CL, Chang HJ. Changes before and after a policy to restrict antimicrobial usage in upper respiratory infections in Taiwan. *Int. J Antimicrob Agents*. 2004;23:438-45.
83. World Health Organization. WHO report on surveillance of antibiotic consumption: 2016-2018 early implementation. Geneva: WHO; 2018. Available from: <https://iris.who.int/handle/10665/277359>
84. Caribbean Public Health Agency. CARPHA and Public Health England tackle threat of antimicrobial drug resistance [Internet]. 2014 [cited 2023 Oct 11]. Available from: <https://carpha.org/More/Media/Articles/ArticleID/86/CARPHA-and-Public-Health-England-Tackle-the-Threat-of-Antimicrobial-Drug-Resistance-in-the-Region>
85. Pan American Health Organization. Strengthening national and regional antimicrobial resistance (AMR) detection and surveillance in CARICOM member states 2019-2021 [Internet]. 2019 [cited 2023 Oct 11]. Available from: <https://www.paho.org/en/amr-detection-surveillance-caricom-member-states>
86. Nagassar RP, Bridgelal-Nagassar R, Daniel K, Harper L. The impact of interventions to improve compliance in hand hygiene – a prospective study from Sangre Grande Hospital. *Caribbean Medical Journal*. 2021.
87. World Health Organization. Global antimicrobial resistance and use surveillance system (GLASS) report 2022. Geneva: WHO; 2022. Available from: <https://www.who.int/publications/i/item/9789240062702>
88. Nagassar RP, Carrington A, Dookeeram DK, Daniel K, Bridgelal-Nagassar RJ. Knowledge, attitudes, and practices in antibiotic dispensing amongst pharmacists in Trinidad and Tobago: exploring a novel dichotomy of antibiotic laws. *Antibiotics*. 2023;12(7):1094.
89. Organisation for Economic Co-operation and Development. Health spending (indicator) [Internet]. 2023 [cited 2023 Nov 12]. Available from: <https://data.oecd.org/healthres/health-spending.htm>
90. Department of Infectious Diseases and Early Warning, Ministry of Health, Turkey. National health care related infection surveillance network (USHIESA): antibiotic resistance summary report, 2022. 2023 [cited 2023 Nov 12]. Ankara: Government of Turkey; 2023. Turkish. Available from: <https://hsgm.saglik.gov.tr/depo/birimler/bulasici-hastaliklar-ve-erken-uyari-db/Dokumanlar/Raporlar/ETKEN-DAGILIM VE DIRENC 2022 RAPOR-v2.pdf>
91. Isler B, Keske Ş, Aksoy M, Azap ÖK, Yılmaz M, Yavuz SŞ, et al. Antibiotic overconsumption and resistance in Turkey. *Clin Microbiol Infect*. 2019;25(6):651-3.
92. Aksoy M, Isli F, Kadi E, Varimli D, Gursoz H, Tolunay T, et al. Evaluation of more than one billion outpatient prescriptions and eight-year trend showing a remarkable reduction in antibiotic prescription in Turkey: a success model of governmental interventions at national level. *Pharmacoepidemiol Drug Saf*. 2021;30(9):1242-9.
93. Ertürk Şengel B, Bilgin H, Ören Bilgin B, Gidener T, Saydam S, Pekmezci A, et al. The need for an antibiotic stewardship program in a hospital using a computerized pre-authorization system. *Int J Infect Dis*. 2019;82:40-3.
94. Kizito SN, Migisha R, Okello PE, Simbwa B, Kabami Z, Agaba B, et al. Increasing trends of antibiotic resistance, Uganda: an analysis of

- national antimicrobial resistance surveillance data, 2018-2021 [Internet]. Bulletin of the Uganda National Institute of Public Health. 2023 [cited 2023 Nov 7]. Available from: <https://uniph.go.ug/increasing-trends-of-antibiotic-resistance-uganda-an-analysis-of-national-antimicrobial-resistance-surveillance-data-2018%ef%80%ad2021/>
95. Obakiro SB, Kiyimba K, Paasi G, Napyo A, Anthierens S, et al. Prevalence of antibiotic-resistant bacteria among patients in two tertiary hospitals in Eastern Uganda. *J Glob Antimicrob Resist*. 2021;25:82-6.
96. Ministry of Health, Government of Uganda. Antimicrobial resistance national action plan 2018-2023. Kampala: Ministry of Health, Government of Uganda; 2018. Available from: <https://www.who.int/publications/m/item/uganda-antimicrobial-resistance-national-action-plan-2018-2023>
97. Ministry of Health, Government of Uganda. Uganda One Health strategic plan 2018-2022. Kampala: Ministry of Health, Government of Uganda; 2018. Available from: <https://www.health.go.ug/cause/uganda-one-health-strategic-plan-2018-2022/>
98. Buregyeya E, Atusingwize E, Nsamba P, Musoke D, Naigaga I, Kabasa JD, et al. Operationalizing the One Health approach in Uganda: challenges and opportunities. *J Epidemiol Glob Health*. 2020;10(4):250-7.
99. Emirates News Agency. Health Ministry to launch national policy for disease prevention [Internet]. 2017 [cited 2023 Nov 21]. Available from: <https://wam.ae/en/details/1395302641519>
100. Government of United Arab Emirates. Health laws [Internet]. 2023 [cited 2023 Nov 20]. Available from: <https://u.ae/en/information-and-services/health-and-fitness/healthy-policy-and-laws/health-laws>
101. Ministry of Health and Prevention, Government of United Arab Emirates. National strategy and action plan for combating antimicrobial resistance (NAP-AMR) 2019-2023. Dubai: UAE; 2019. Available from: <https://cdn.who.int/media/docs/default-source/antimicrobial-resistance/amr-spc-npm/nap-library/uae-nap-amr-english.pdf>
102. Ministry of Health and Prevention, Government of United Arab Emirates. United Arab Emirates surveillance of antimicrobial resistance annual report 2022 [Internet]. 2022. Abu Dhabi: UAE; 2022. Available from: https://mohap.gov.ae/assets/f5a5705/National%20AMR%20Surveillance%20Report%202022%20MOHAP_638205230312192483.pdf.aspx
103. Gulf Medical University. College of Pharmacy organizes “Antimicrobial Stewardship Workshop in collaboration with Cleveland Clinic, Abu Dhabi” [Internet]. Gulf Medical University. 2018 [cited 2023 Nov 21]. Available from: https://gmu.ac.ae/cop_news/college-of-pharmacy-organizes-antimicrobial-stewardship-workshop-in-collaboration-with-cleveland-clinic-abu-dhabi/
104. Papa-Ezdra R, Grill Diaz F, Vieytes M, García-Fulgueiras V, Caiata L, Ávila P, et al. First three *Escherichia coli* isolates harbouring mcr-1 in Uruguay. *J Glob Antimicrob Resist*. 2020;20:187-90.
105. IMPO Center of Official Information. Decreto N° 437/997. 1997 [cited 2023 Nov 15]. Spanish. Available from: <https://www.impo.com.uy/bases/decretos-reglamento/436-1997>
106. Ministry of Health, Government of Uruguay. Plan nacional de contención de la resistencia a los antimicrobianos. 2023 [cited 2023 Nov 15]. Spanish. Available from: http://www.mgap.gub.uy/sites/default/files/plan_nacional_de_contencion_de_la_resistencia_antimicrobiana_de_uruguay.pdf
107. Ministry of Health, Government of Uruguay. Plan nacional de acción contra la resistencia antimicrobiana: abordaje desde la salud humana. 2023 [cited 2023 Nov 15]. Spanish. Available from: <https://www.gub.uy/ministerio-salud-publica/comunicacion/noticias/plan-nacional-de-accion-contra-la-resistencia-antimicrobiana>
108. Montevideo: Government of Uruguay; 2018. Spanish. Available from: <https://www.gub.uy/presidencia/comunicacion/audios/completos/presentacion-plan-nacional-prevencion-resistencia-antimicrobiana>
109. World Health Organization. Global research agenda for antimicrobial resistance in human health: policy brief. Geneva: WHO; 2023. Available from: <https://www.who.int/publications/m/item/global-research-agenda-for-antimicrobial-resistance-in-human-health>
110. World Health Organization.

People-centred approach to addressing antimicrobial resistance in human health: WHO core package of interventions to support national action plans. Geneva: WHO; 2023. Available from: <https://www.who.int/publications/item/9789240082496>

Authors

Sikander Afzal, MBBS, FRCS (Edin), CHPE

Professor of Surgery, Clinical Director, University College of Medicine & Dentistry, University of Lahore Lahore, Pakistan

Sharad Kumar Agarwal, MBBS, MD (Forensic Medicine)
National President, Indian Medical Association
New Delhi, India

Samprith Ala, MD
JDN Member
Narasaraopet, India

Dabota Yvonne Buowari, MBBS
Department of Accident and Emergency, University of Port Harcourt Teaching Hospital
Port Harcourt, Nigeria

Maria Minerva Calimag, MD, MSc, PhD
Departments of Pharmacology and Clinical Epidemiology, Faculty of Medicine and Surgery, University of Santo Tomas
President, Philippine Medical Association
Manila, Philippines

Brian Chang, MD, MSc, PhD(c)
Secretary General, Taiwan Medical Association
Taipei, Taiwan

Helena Chapman, MD, MPH, PhD
Milken Institute School of Public Health, George Washington University
Washington DC, United States

Maymona Choudry, RN, MD, MPH
Department of General Surgery, Vicente Sotto Memorial Medical Center
Cebu City, Philippines

Carolina Cardozo, BA
Press Officer, Confederación Médica de la República Argentina (COMRA)
Buenos Aires, Argentina

Tomás Cobo Castro, MD
President, Spanish General Medical Council (CGCOM)
Madrid, Spain

Jorge Coronel, MD
President, Confederación Médica de la República Argentina (COMRA)
Buenos Aires, Argentina

Amuza Dhabuliwo, MBChB
Uganda Medical Association
Member, WMA Junior Doctors Network
Kampala, Uganda

Katarzyna Dzierżanowska-Fangrat, MD, PhD
National Consultant, Field of Microbiology, Department of Microbiology and Clinical Immunology, Children's Memorial Health Institute (Instytut "Pomnik - Centrum Zdrowia Dziecka")
Warsaw, Poland

Krzysztof J. Filipiak, MD, PhD
Head, Drug Policy and Pharmacotherapy Working Group, Supreme Medical Council, Polish Chamber of Physicians and Dentists
Warsaw, Poland

Stanley Giddings, MBBS, ABIM
(Internal Medicine, Infectious Diseases), FRCP Edin, FIDSA
Lecturer, The University of the West Indies, Faculty of Medical Sciences
St. Augustine, Trinidad and Tobago

Fabio Grill, MD
Specialist in Infectious Diseases, Department of Infectious Diseases, Hospital Maciel
Montevideo, Uruguay

Minku Kang, MD
Department of Preventive Medicine, Korea University College of Medicine
Seoul, Republic of Korea

Ismael Lutta, MBBS
Member, Public Health Committee and Antimicrobial Resistance Sub-Committee, Kenya Medical Association
Kakamega, Kenya

Murallitharan M., MD, PhD
Public Health Physician
ASEAN Scholar & Research Fellow, College of Public Health Sciences, Chulalongkorn University
Adjunct Associate Professor, School of Medical and Life Sciences, Sunway University
Selangor, Malaysia

Deena Mariyam, MBBS
General physician
Dubai, United Arab Emirates

Nathan Mugenyi, MBChB
Member, AMR Multi-Stakeholders Platform
Kampala, Uganda

Shamim Nabadda, BScN
Nurse, PGDME
AMR Champion-ReACT Africa
Kampala, Uganda

Rajeev Nagassar, MBBS, DM, MHA

*Representative of the Trinidad
and Tobago Medical Association
to the National Multisectoral
Coordinating Committee to Combat
Antimicrobial Resistance
Specialist Medical Officer,
Department of Microbiology, Sangre
Grande Hospital, The Eastern
Regional Health Authority
Sangre Grande, Trinidad and Tobago*

Brenda Obondo, MBChB,
*MBAHealth Leadership
& Management
Chief Executive Officer,
Kenya Medical Association
Nairobi, Kenya*

Selcuk Ozger, MD
*Associate Professor of Medicine,
Department of Infectious Diseases,
Faculty of Medicine, Gazi University
Board, Turkish Society of Clinical
Microbiology and Infectious
Diseases (KLİMİK)
Ankara, Turkey*

Anilkumar J. Nayak,
*MBBS, MS (Ortho)
Honorary Secretary General,
Indian Medical Association
New Delhi, India*

Mubammad Ashraf Nizami,
*MD, FRCOS, PhD
Professor and Consultant,
Orthopaedic Surgeon
WMA Council Member
President, Pakistan Medical
Association Lahore
Lahore, Pakistan*

John Baptist Nkuranga, MD
*President, Rwanda Medical Association
Kigali, Rwanda*

Daniela Paciel, MD
*Specialist in Infectious Diseases
and Critical Care
General Secretary, Sindicato
Médico del Uruguay
Montevideo, Uruguay*

Sung-Ching Pan, MD
*Division of Infectious Diseases,
Department of Internal Medicine,
National Taiwan University Hospital
Taipei, Taiwan*

**Luis Felipe Recalde
Samaniego, MD, MPH**
*General physician
Quito, Ecuador*

Steve Robson, BMedSc, MBBS,
*MMed, MPH, MD, PhD,
FRANZCOG, FRCOG, FACOG
President, Australian
Medical Association*

Canberra, Australia
Narendra Saini, MBBS
*Chairman, AMR Committee,
Indian Medical Association
New Delhi, India*

Esin Senol, MD
*Professor of Medicine, Department
of Infectious Diseases
Faculty of Medicine, Gazi University
Member, Pandemic Study Group,
Turkish Medical Association
Ankara, Turkey*

Merlinda Shazellenne, MBBS, OHD
*Occupational Health Doctor
Medical Education Director,
Junior Doctors Network (JDN)
Past Chairperson, JDN Malaysia
Seremban, Malaysia*

Wunna Tun, MBBS, MD
*Fellow, Medical Education
JDN Secretary
Yangon, Myanmar*

Jann-Tay Wang, MD
*Division of Infectious Diseases,
Department of Internal Medicine,
National Taiwan University Hospital
Taipei, Taiwan*