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Editorial

Over the summer months, global health priorities continued to evolve amid emerging infectious disease threats, persistent non-communicable disease burdens, and growing environmental and climate-related risks. Among these concerns, attention remained focused on emerging outbreaks, including the spread of Ebola virus disease in the Democratic Republic of the Congo. At the same time, non-communicable diseases (like cancer and dementia) represented a major global health concern, with cancer ranking as the second leading cause of death worldwide and accounting for approximately 20.6 million new cases and 10 million deaths each year. The global community also witnessed the direct and cascading health risks associated with environmental disasters, including the earthquakes in northwestern and central Venezuela (24 June 2026) and northwestern Colombia (10 August 2026), as well as the flash flooding in Nepal (26 August 2026). These events, compounded by geopolitical conflicts and constrained health financing, pose significant challenges for global leaders seeking to develop effective action plans to protect population health. Within this context, the World Medical Association (WMA) issued four press releases calling for the protection of health personnel and facilities in conflict settings, greater investment in the health workforce, and recognition of the first-ever leadership programme for physicians in Africa.

Efforts to advance the One Health approach (human-animal-environment nexus) remain high on the global agenda. In July 2026, during the 62nd session of the United Nations Human Rights Council, Resolution 62/21 on “Human rights and neglected tropical diseases” was adopted. Also, the World Health Organization (WHO) and the International Agency for Research on Cancer (IARC) published the WHO’s *Global Status Report on Cancer 2026*, providing an updated overview of the global cancer burden and progress in cancer prevention, control, and care. In August 2026, the Quadripartite organisations confirmed the extension of the *One Health Joint Plan of Action* to 2029 (originally 2022–2026), which aligns with the renewed Quadripartite Memorandum of Understanding (2025–2030). In September 2026, leading institutions (European Union’s Copernicus Climate Service, U.S. National Oceanic and Atmospheric Administration, U.S. National Aeronautics and Space Administration) reported that the Northern Hemisphere documented its warmest summer on record, with August as the hottest month globally, while the Southern Hemisphere experienced a near-record warm winter. Together, these developments underscore the need for coordinated, cross-sectoral action to address increasingly complex and interconnected health challenges.

In this issue, Dr. Jacqueline Kitulu and Dr. Ramin Parsa-Parsi shared insightful interviews reflecting on their respective leadership roles as President and Secretary

General. Dr. Mohamed Osman Gafar Abdalla and colleagues highlighted key takeaways and advocacy outcomes from the 79th World Health Assembly. Dr. Saheed Olaide Ahmed emphasised the need for global policies on antimicrobial resistance to incorporate frontline voices (including veterinary medicine). Dr. Lindsey Nissenbaum and colleagues discussed the importance of adopting a One Health vision to strengthen human health. Dr. Ankush Bansal examined trends in misinformation and disinformation surrounding fossil fuels, climate change, and health. Dr. Gonçalo Dias Fernandes and colleagues commented on the urgent need to ensure that digital health transformation is human-centred and equitable.

Additional bioethics and medical education topics are featured in this issue. Dr. Richard Fitton and Dr. Venkatesh Karthikeyan analysed how clinicians could empower patients through universal access to electronic records. Dr. Luka Mišič discussed Slovenia’s Act on Voluntary Assisted Dying with Parliamentary approval without enactment. Dr. Helena Pereira de Melo explored the principle of respect for human vulnerability and personal integrity in global biolaw. Dr. Carlos Serrano, Jr., and colleagues summarised the epidemiology, biological mechanisms, and health system challenges associated with obesity and cardiovascular risk. Dr. Ceyhun Dalkan commented on health system challenges in Northern Cyprus. Finally, Ms. Silindubuhle Mqeta and colleagues synthesised the key outcomes of South Africa’s 2026 Council for Medical Schemes Industry Indaba and their implications for ongoing reforms to medical scheme regulation.

As the WMA represents 117 medical associations, WMA members embody medical excellence and leadership across their nations and geographic regions, contribute meaningfully to local, national, and international discourse, and inspire the next generation of physician leaders. WMA members have significant reach and influential voices, advocating for improved healthcare service delivery and patient-centred care across their countries and regions. Our teamwork is exemplified through Helen Keller’s words: “*Alone we can do so little; together we can do so much.*” The scientific session, “Practising under pressure: Balancing moral distress and resilience,” will undoubtedly enrich and shape discussions at the 77th WMA General Assembly, taking place in Rotterdam, the Netherlands, from 7–10 October 2026.

We look forward to interactive discussions and networking at the 77th WMA General Assembly in Rotterdam!

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Invitation to the 77th WMA General Assembly in Rotterdam, the Netherlands



Dear colleagues,

The World Medical Association (WMA) brings together physicians from across the globe, united not by geography or language, but by a shared commitment to medical ethics and the delivery of responsible, patient-centred healthcare. In this spirit, the Royal Dutch Medical Association (RDMA) is proud that the 77th WMA General Assembly from 7-10 October 2026 will be held in Rotterdam.

Rotterdam is a city that rebuilt itself after near-total destruction in World War II. Today, it is the second-largest city in the Netherlands and home to Europe's largest seaport. It has emerged as one of Europe's most dynamic cities, renowned for its bold architecture, its vital port, and its diverse population. We believe it is a fitting place for the global medical community to gather.

During the WMA General Assembly, the statutory sessions

will address a range of policy matters that shape the conditions in which physicians work around the world. They will provide an opportunity for members to discuss updates from the committees. Among these policies, the topic of medical neutrality (<https://www.wma.net/policy-tags/medical-neutrality/>), including the Declaration on Medical Neutrality, is a subject of particular importance to the RDMA.

The scientific session, entitled "Practising under pressure: Balancing moral distress and resilience," will be held on 8 October 2026. This issue cuts across medical specialties and national contexts. Physicians are increasingly confronted with situations in which they know what the right course of medical action, yet are sometimes unable to act on that knowledge due to institutional, legal, or systemic constraints. Internationally renowned experts, researchers, and practitioners will explore how moral distress manifests in medical practice, what

is known about its causes and contributing factors, and how medical associations, healthcare institutions, and medical professionals can do to address this challenge.

As always, the WMA General Assembly offers an opportunity to meet colleagues from diverse backgrounds and healthcare systems, share perspectives on challenges that transcend national boundaries, and draw inspiration from one another as we work to make the world a little healthier. The true value of this gathering lies in the people who come together, the perspectives they share, and the connections they forge.

We look forward to welcoming you to the beautiful city of Rotterdam!

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Interview with the WMA President



Jacqueline W. Kitulu

Dr. Jacqueline Kitulu, the WMA President, is a distinguished health leader with over two decades of experience advancing health systems, policy, and governance in Kenya, across Africa, and worldwide. Notably, she is the first Kenyan physician and second African female physician to assume the prestigious role of WMA President. Her passion in global health advocacy, medical ethics, and mentorship for women in medicine has earned her international recognition. In this interview, she shares her perspectives on her WMA leadership achievements over her tenure, reflections on current WMA activities and initiatives, and recommendations to strengthen the contributions of national medical associations (NMAs) and junior doctors with Dr. Helena Chapman, the WMJ Editor in Chief.

Reflecting on the past six months, what have been the WMA's three highest priorities, and what progress has been made on each priority?

I would highlight three important WMA priorities during this period. First, given the WMA's long history of providing ethical guidance to the

profession, we should promote and update the its seminal documents on medical ethics to ensure that these foundational documents remain relevant to the realities of modern medicine. A major focus has therefore been the ongoing revision of the Declaration of Taipei, with several expert consultations held and a fourth meeting planned in Oslo to ensure that the process genuinely reflects diverse perspectives and experiences from around the world.

Second, we should continue to promote physician-led care, as the traditional physician-patient relationship is increasingly under pressure from corporate practices, algorithmic decision-making, and political interference in healthcare. We need to ensure that, as medicine evolves, clinical decisions remain grounded in professional ethics, evidence, and the best interests of the patient. Physician autonomy and professional independence are fundamental to patient safety and high-quality care.

Third, we should address emerging technologies, particularly artificial intelligence (AI), which have enormous potential to improve healthcare, but also present significant ethical and professional challenges. I am particularly pleased with the WMA's work on Augmented Intelligence, which recognises that technology should augment, rather than replace, the knowledge, judgement, and human relationship of the physician. For me, these priorities demonstrate the WMA's commitment to ensuring that the medical profession remains both ethically grounded and forward-looking in a rapidly changing world.

Can you describe three leadership challenges that you have encountered during your presidency, and explain how have you approached each challenge?

First, one of the key challenges has been leading an organisation that represents such a very diverse



Photo 1. Delegates attended the inaugural Coalition of African National Medical Associations (CANMA) Leadership Conference in Livingstone, Zambia, from 17–20 August 2026. Credit: CANMA

global membership. The priorities and realities of a medical association in Africa may differ considerably from those in Europe, Asia or the Americas. I have approached this nuance by listening carefully, seeking common ground, and emphasising that our diversity should be a strength rather than a barrier. This has also reinforced my belief in interregional collaboration, as my work in Africa, particularly through Coalition of African National Medical Associations (CANMA), has shown me that regional voices become stronger when they come together – a principle that applies equally at the global level (Photo 1).

Second, ensuring that policy statements translate into meaningful action remains a significant challenge. The WMA has a very strong body of declarations, resolutions, and statements, but their real value is realised when they influence practice and policy at the national level. I have therefore emphasised

stronger collaboration with NMAs to ensure that our global policies are translated into meaningful action at the local level (Photo 2).

Third, balancing the many competing priorities facing the medical profession and the WMA requires careful prioritisation and sustained attention. We are dealing with workforce shortages, armed conflicts, ethical challenges, technological disruption, and growing pressures on health systems. My approach has been to remain focused on our core purpose: protecting patients, supporting physicians, and defending ethical, high-quality medical practice. Throughout these challenges, I have sought to lead through consultation, collaboration, and integrity, recognising that effective leadership does not mean having all the answers.

What inspirational quote best embodies your leadership philosophy, and why?

The quote that perhaps best

captures my leadership philosophy can be expressed through the Ubuntu philosophy: “I am because we are.” For me, leadership has never been about the individual; it is about recognising that none of us succeeds alone. Whatever I have achieved has been possible because people opened doors for me, mentored me, challenged me, supported me, and simply believed in me. That is why I believe that leadership carries a responsibility to lift others as we rise. If I become the first woman to occupy a particular leadership position, but I am the only person who benefits from that achievement, then I have not done enough.

This philosophy has shaped the way that I have approached my WMA presidency, particularly my emphasis on collaboration and mentorship. Whether bringing medical associations together through CANMA or creating opportunities for young physicians through the Kenya Medical Association (KMA)’s Young Doctors Network and the WMA Junior Doctors Network, my aim has been to ensure that leadership creates pathways for others to grow and contribute. Ultimately, leadership should create opportunities for others and leave institutions stronger than we found them.

How would you describe the observed impact of the WMA declarations, resolutions, and statements in the health sector? Please share two examples that you have observed during your WMA tenure.

I believe that the greatest impact of WMA policy is that it provides



Photo 2. Delegates attended the WMA Council Meeting in Belgrade, Serbia, in 23–25 April 2026. Credit: WMA

physicians and NMAs with a strong, internationally recognised ethical and professional framework from which to advocate at both national and global levels. One example is the WMA's continuing work on the Declaration of Helsinki and the revision of other seminal ethical documents. The ongoing revision of the Declaration of Taipei has further demonstrated the importance of keeping these principles relevant to the realities of modern medicine while ensuring that diverse perspectives around the world are heard.

A second example is our work on issues such as medical care for migrants, scope of practice, and physician-led care. These are issues that NMAs are confronting in very practical ways. Having a clear WMA position enables physicians to advocate for patient safety, appropriate standards of care, and the ethical responsibilities of the medical profession. For me, the true measure of a WMA policy is not the document itself, but whether physicians and medical associations can take that position home and use it to influence policy, protect patients, and strengthen medical practice.

How can the WMA help support specific national challenges faced by NMAs, including medical education and training and health policy reform. Please share two examples of how the WMA has helped support NMAs during your WMA tenure.

The WMA is most useful when it connects global expertise with national and regional realities. NMAs understand their own environments best, but they do not have to face their challenges alone. One important example

during my tenure has been the WMA's support for CANMA's first African Leadership Conference, which brought together medical associations from 14 African countries and strengthened a more coordinated regional voice. This is important because a stronger African voice can contribute to the WMA's work and ensure that African perspectives are represented in global medical policy discussions. Another example has been supporting the development and engagement of young physicians. Through the WMA Junior Doctors Network, young doctors have a platform to participate in global policy discussions, build professional networks, and develop leadership capacity. More broadly, the WMA can support NMAs through its policy positions, expertise, and convening power. We can connect associations facing similar challenges so that they can learn from one another. Sometimes, the most effective solution to a national problem is already being successfully implemented by another medical association somewhere else.

Your professional journey has helped pave the way for women in medicine, culminating in your election as the first female President of the KMA. What guidance would you offer to women in medicine who aspire to these national and international leadership roles?

I would like to share five messages that have shaped my own leadership journey and that I hope will inspire other women to step forward and lead. First, do not wait until you feel completely ready. Leadership opportunities often come before we think that we are ready for them. Prepare yourself, understand your field,

build credibility, and then have the courage to step forward. Second, build relationships and networks deliberately. Find mentors, but also become a mentor. Build alliances across professional, institutional, national, and international boundaries. Third, do not allow being a woman to become a limitation you place on yourself. There will be barriers, and sometimes the system will make leadership more difficult for women. We need to acknowledge those barriers and work to change them, but we must also continue to put ourselves forward.

Fourth, we need male allies. Gender equity in leadership is not something that women can achieve alone. Men who recognise the value of diversity have an important role to play in opening doors, challenging unconscious bias, sponsoring women for leadership opportunities, and creating environments in which women can succeed. Finally, lift as you climb. When one woman gets into the room, she should not be the last woman in that room. She should be thinking about who else she can bring with her. My own journey – from becoming the first female President of the KMA to serving as President of the WMA – has reinforced for me that representation matters. When young women see women occupying leadership positions, they begin to believe that it is possible for them too.

How can NMAs continue to support junior doctors in advancing their professional education, clinical training, and community engagement?

NMAs have a tremendous role to play because they provide something that universities and hospitals cannot provide on their own: a

professional home and a lifelong community. First, NMAs should create structured opportunities for mentorship and professional development. This should go beyond informal advice. Young health professionals need access to experienced colleagues who can guide them in clinical practice, leadership, ethics, career development, and navigating the health system. I have particularly championed this topic within the KMA, where the structured mentorship programme that I initiated now supports young health professionals – not only doctors, but members of the broader healthcare team. This reflects my belief that healthcare is fundamentally a team effort.

Second, NMAs should give young professionals a voice and a seat at the table. They should not simply be invited to attend meetings; they should be meaningfully involved in committees, policy discussions, and decision-making. Third, we should encourage community engagement. Medicine is ultimately about serving society, and young professionals should have opportunities from early in their careers to participate in public health initiatives, advocacy, and community programmes. At the global level, structures such as the WMA Junior Doctors Network provide an additional opportunity for young physicians to gain global exposure, contribute to policy, and develop international

professional networks. Ultimately, if we want strong medical associations tomorrow, we must invest in young health professionals today. We should not simply prepare them to inherit leadership; we should empower them to shape and transform it.

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Interview with the WMA Secretary General



Ramin W. Parsa-Parsi

The World Medical Association (WMA) is pleased to welcome Dr. Ramin Parsa-Parsi, the newly appointed WMA Secretary General, whose distinguished career spans global health, medical ethics, and international medical leadership. In this interview, Dr. Parsa-Parsi shares his experiences that shaped his journey, his vision for the future of the WMA, and the priorities and passions that will guide his leadership in advancing the global medical profession with Dr. Helena Chapman, the WMJ Editor in Chief.

Reflecting on your medical training and career, what experiences have most shaped your approach to physician leadership?

My approach to physician leadership was shaped early in my career, first through my experience as a junior doctor and later through my initial involvement in organised medicine. Medicine is a profession built on trust, professional competence, ethical responsibility, and accountability. I have always believed that these commitments extend beyond the individual patient encounter: physicians have a responsibility to their profession, the health system, and society. I

believe that medical self-governance is especially important, since it empowers the profession to uphold high standards, ethical practice, and the quality patient care.

I had my first experience with organised medicine shortly after graduating from medical school, while working as a junior doctor at a university hospital. At the time, I felt that junior doctors should have a stronger voice in shaping their working conditions and professional future. I took the initiative to organise the first junior doctors' conference at our university hospital, opening it to colleagues from beyond the hospital. This event meant persuading skeptical colleagues, securing the support of the hospital administration, and ultimately convincing the state's health minister to participate. We also used the occasion to recognise junior doctors who were producing outstanding research alongside their clinical responsibilities.

The conference was a great success, but what stayed with me was less the event itself than what it taught me. I saw how bringing people together around a shared purpose and common values could build consensus, turn an idea into action, and create something with lasting meaning. At a very early stage in my career, it opened doors to working closely with outstanding physician leaders. I learned about organised medicine and what leadership looks like in practice – how to combine professional commitment with a willingness to take responsibility, bring others along, and make a difference beyond the workplace.

The experience strengthened my interest in becoming more actively engaged in organised medicine. Since then, I have continuously worked at the intersection of medicine, public health, medical ethics, and international health policy. I have had the privilege of working with physicians and medical organisations across diverse health systems and cultural settings, reinforcing my belief that, despite our differences, physicians are united by fundamental professional values. These experiences and the international perspective shaped my understanding of leadership and continues to influence how I approach it today.

What motivated you to accept the role of WMA Secretary General, and what does this position mean to you personally?

The WMA has a unique role in the global health community. It brings together national medical associations (NMAs) from around the world and gives the medical profession a collective voice on issues that go to the heart of medicine: medical ethics, patient rights, professional autonomy, quality of care, and population health.

My connection to the WMA goes back more than 20 years, to my time as head of the Department for International Affairs at the German Medical Association. I became involved in the WMA's work early on, often going well beyond the formal requirements of my role, because I could see how much was at stake in the policies it developed. Over the years, I had the opportunity to chair the work groups responsible for revising

the Declaration of Helsinki, the Declaration of Geneva, and the International Code of Medical Ethics. What struck me most through that work was the process itself: how genuinely democratic and inclusive it was, and how policies shaped through these deliberations could go on to influence the practice of medicine, and ultimately, the health of patients far beyond the WMA.

So when the position of Secretary General became open, applying felt less like a departure and more like a natural continuation of work I already cared deeply about. The opportunity to lead the Secretariat at this particular point in the WMA's history, and to help ensure that its policies remain both impactful and genuinely inclusive, felt like a meaningful opportunity to build on that work and help shape what comes next.

Personally, I see the position as both a great privilege and a significant responsibility. The WMA has a strong legacy, but that legacy must remain relevant to the challenges physicians and patients face today and in the future. My role is to help translate the priorities established by our members into effective action, while strengthening the organisation and ensuring that the WMA continues to be a trusted and influential voice for the medical profession.

What inspirational quote best reflects your approach to your career, and why?

If I had to choose a single guiding principle, it would not come from a well-known figure, but from something closer to home: WMA's own vision, *"United and empowered physicians leading the provision of ethical, equitable, and high-quality healthcare."* I find it

genuinely inspiring because it captures something fundamental to our profession: physicians carry a particular kind of responsibility every day, one that is often, quite literally, a matter of life and death. In an increasingly globalised world, we can meet that responsibility only if physicians are united and empowered, able to speak with a collective voice and to act on shared professional values in order to best serve their patients.

This matters more than ever at present. In many parts of the world, medical ethics and physician autonomy are under real pressure, from political interference in clinical decision-making and attempts to compel physicians to act against their professional and ethical judgment, to violations of medical neutrality and the erosion of the independence on which good medicine depends. No single NMA, and no individual physician, can address these pressures alone. It is precisely in these moments that collaboration across borders becomes essential: physicians can support one another, defend shared ethical standards, and ensure that the profession's voice remains strong, even where it is being challenged locally. This is exactly the role the WMA is meant to play: bringing physicians together so that, collectively, they are empowered to withstand these pressures and keep patients' interests at the centre of medicine.

What three topics in medical ethics and global health are you most passionate about, and what role do you believe the WMA should play in advancing progress on these issues?

If I had to identify three priority areas, I would highlight medical ethics and professional autonomy, health equity, and the ethical

governance of new technologies. First, medical ethics remains at the heart of the WMA's identity. Medicine is changing rapidly, but the fundamental ethical commitments of the profession do not change: respect for human dignity, patient autonomy, justice, non-maleficence and the relational elements of confidentiality, empathy and compassion, informed consent, non-discrimination, and the primacy of the patient's interests. At the same time, physicians' professional independence and their ability to make decisions in the best interests of their patients need to be protected. Given the pressures on medical ethics and physician autonomy, I believe the core principles set out in the Declaration of Geneva (the Physician's Pledge) and the International Code of Medical Ethics are what define the profession and underpin the trust and credibility physicians rely on everywhere. Many medical schools and regulatory authorities around the world already use the Physician's Pledge, and I would like to see the WMA do more to raise its profile and strengthen its place in medical education. Ideally, every graduating medical student would receive the Physician's Pledge, with more medical schools incorporating it formally into their graduation ceremonies. Patients, wherever they are in the world, should be able to trust that the physician caring for them is guided by the same ethical commitments. I would even like to see the Physician's Pledge displayed more widely – in physicians' waiting rooms and hospital lobbies – as a visible, daily reminder of what the profession stands for and the trust patients place in it. The WMA has a particular responsibility to safeguard and continually update these ethical foundations of medicine in response to the challenges of a changing world.

Second, I am deeply committed to health equity. A person's place of birth, socioeconomic circumstances or other social and environmental determinants should not determine whether they can access safe and high-quality healthcare. The WMA should use its global voice to advocate for more equitable health systems and ensure that the perspectives of both physicians and patients are reflected in international health policy.

Third, I believe technological progress must remain firmly anchored in medical ethics. Artificial intelligence (AI) and other digital technologies have enormous potential to improve healthcare, but they also raise important questions about privacy, bias, accountability, patient safety and the patient-physician relationship. The best role of AI is augmentative: it should support and enhance the work of physicians, not replace them. The WMA should help shape the international policy debate so that technology strengthens medical care without undermining the human and ethical foundations of medicine.

Across all three areas, I believe the WMA's role is to provide ethical leadership, develop authoritative policy, bring the voice of physicians into international decision-making, and help NMAs translate global principles into practice. The WMA's strengths lie in bringing the profession together around these shared values and turning those values into meaningful action across the world.

Over the next few years, what is your vision for the organisation, and what key priorities will guide your leadership?

My vision is for the WMA to be a united, influential, and relevant organisation for physicians and

patients worldwide, one that not only speaks for the medical profession, but also helps shape the future of medicine. I want the WMA to cement its position as the world's leading voice on medical ethics, a role that no other organisation is uniquely positioned to fulfill. That role carries particular weight at a time when ethical standards and physician independence are increasingly being tested.

The WMA has adopted an ambitious *Strategic Plan 2026-2030*, providing a clear roadmap for the years ahead. Externally, our priorities include strengthening and updating our seminal ethical documents, promoting physician-led care, advancing health equity, addressing emerging technologies such as AI, and increasing the WMA's influence in global health policy and through strategic partnerships.

At the same time, we need to strengthen the organisation itself. This means becoming considerably more visible, both to physicians and to the wider public, so that our positions and policies are recognised and heard where they matter most. It also means broadening our membership so that the WMA is truly representative of the global medical profession. I am particularly keen to see stronger representation from regions that remain underrepresented today, including Central Asia, the Eastern Mediterranean, and Africa. A more comprehensive global representation will make the WMA stronger and enable its work for patients around the world to have an even greater impact. Alongside this, we need to invest in the next generation of medical leaders, strengthen our communications, and ensure the organisation's long-term financial sustainability.

For me, these priorities are closely connected. A strong and representative membership gives us greater legitimacy; strong policies give us a clear voice; effective communication allows that voice is heard; and sound organisational foundations give us the capacity to deliver on our mission.

As WMA Secretary General, which ongoing or new WMA initiatives are top priorities for this year?

This year is particularly important because it marks the beginning of the implementation of the WMA's *Strategic Plan 2026-2030*. My immediate focus is therefore on turning the plan from a strategic document into concrete action and measurable progress. Within this broader agenda, I would like to highlight five specific priority areas.

First, we should continue to review and strengthen the WMA's seminal ethical documents. These policies are among the WMA's most significant contributions to medicine globally, and we need to ensure that they remain authoritative and relevant in a rapidly changing healthcare environment. The revision of the Declaration of Taipei, which addresses health databases, big data, and biobanks, is a particularly timely example. The updated provisions are highly anticipated, not only by the research community, but also by regulators and data protection authorities, biobank operators, the pharmaceutical and biotechnology sector, and patients and patient organisations who rightly want assurance about how their health data are collected, stored, and used. The importance of this revision extends far beyond the medical profession. It will help shape how health data are governed, how innovation

develops, and how patients' rights and trust are protected in an increasingly data-driven healthcare environment.

Second, we should continue the revision of the Declaration of Lisbon on the Rights of the Patient, one of the WMA's core documents. It speaks to something that sits at the very centre of medicine: whatever else changes in healthcare, the patient must always come first. The Declaration sets out the fundamental rights that every patient should be able to rely on, wherever they receive care: the right to good medical care without discrimination, the right to self-determination and to make free and informed decisions about their own care, the right to full information, the right to confidentiality, and the right to be treated with dignity. As medicine evolves, particularly with the growing role of digital health and AI, these principles need to be reaffirmed and, where necessary, clarified, so that patients can continue to trust that their fundamental rights are protected. This is why completing this revision is such a priority for me this year.

Third, we need to continue our collective work on emerging technologies, particularly AI, while ensuring that physician leadership, patient safety, human oversight and the patient-physician relationship remain central to their development and use. Fourth, by strengthening the WMA's engagement in global health policy, we can make better use of the WMA's existing policies and ensure that they are effectively represented in

international forums, including the World Health Organization. Stronger engagement includes advocating for physician-led care and physician autonomy as well as promoting equity in healthcare so that every patient has access to high-quality care. Finally, we can strengthen our relationship with NMAs, broaden WMA membership, and improve our communication particularly by expanding our social media activities. After all, the WMA has an important story to tell, and we need to make sure that physicians, policymakers, and the public understand what we stand for and the impact our work continues to have worldwide.

How can NMAs best support junior doctors in their professional education?

NMAs have a crucial role to play because the professional development of young physicians goes far beyond acquiring clinical knowledge. Junior doctors need opportunities to develop not only as clinicians, but also as ethical professionals, leaders and advocates for their patients and their profession. NMAs can support their professional development in several ways: by advocating for high-quality postgraduate education and appropriate working conditions; by ensuring that medical ethics, professionalism, and human rights remain integral to medical education; and by providing opportunities for mentorship, leadership development, and participation in professional organisations.

We also need to take physician well-being seriously. Junior doctors often work in demanding

environments and may be particularly vulnerable to excessive workloads, bullying, harassment, and discrimination. They need safe and supportive learning environments, where they can seek help without fear of stigma, judgment or professional repercussions.

Most importantly, I believe that young physicians should not simply be seen as the future of our profession; they are already an essential part of its present. NMAs should offer meaningful opportunities where they can participate in decision-making, contribute to policy development, and strengthen their leadership skills. The WMA's Junior Doctors Network is an excellent example of how young physicians can bring their perspectives and expertise to the international medical community. The energy, fresh perspectives, and new ideas that the JDN shares have made it an integral part of how the WMA operates, not a peripheral or symbolic one. As Secretary General, I would like to see more of our constituent members actively support their junior doctors in attending WMA statutory meetings and engaging with the JDN. This support is not only an investment in the future leadership of NMAs, but also in the future leadership of the WMA.

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From Policy to Practice: Key Takeaways and Advocacy Outcomes from the 79th World Health Assembly



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The 79th World Health Assembly (WHA79) convened in Geneva in May 2026 amid deepening political divides, mounting climate challenges, and reduced global health funding. For the World Medical Association (WMA), this high-level forum served as a critical space to safeguard health equity and advocate for the rights, safety, and training of the global health workforce. To drive these priorities, the WMA mobilised a comprehensive organisational presence led by WMA leadership, including Dr. Jacqueline Kitulu, WMA President, and Dr. Jack Resneck, Jr., Chair of Council, with support from the WMA Secretariat and advisors. Notably, the WMA Junior Doctors Network (JDN) had a delegation of 21 junior doctors

from 18 countries spanning all World Health Organization (WHO) regions (Photo 1).

Historically, international health policies have been developed by senior-level officials with limited



Photo 1. The WMA President, leaders, and the JDN delegation attend the WHA79 in May 2026. Credit: WMA

input from frontline experts and practitioners. The exclusion of frontline physicians from these discussions jeopardises the effectiveness and real-world applicability of global health decisions. Dr. Jacqueline Kitulu, WMA President, underscored the vital role of physician advocacy: *“It is crucial as doctors that we are right here where the policies are being discussed so we are co-creators of those policies, ensuring that we create systems that will serve our patients. All we do is at the end of the day for our patients.”*

Recognising this systemic gap, the WMA and JDN delegations spearheaded a deliberate, targeted, and track-based external engagement strategy to position physicians as credible implementers of global health diplomacy. By integrating structured pre-Assembly preparation with targeted multilateral advocacy, the delegations aimed to bridge the profound policy–practice disconnect that fuels workforce dissatisfaction and disrupts local healthcare delivery. True transformation within global health governance requires structural integration over tokenistic representation, ensuring that the frontline realities of workforce shortages and health system vulnerabilities directly inform high-level resolutions.

Beyond Official Interventions: Strategic Engagement and Youth Diplomacy

The WMA’s presence in Geneva extended far beyond the delivery of formal statements on the Assembly floor. To maximise policy impact and build strategic coalitions, the WMA and the World Health Professions Alliance (WHPA) hosted high-level side events, including key discussions co-hosted alongside WHO Member States inside the Palais des Nations.

Notably, the “Health is Wealth: Why Investing in Health Professionals Pays Off” side event highlighted that investment in health professionals will strengthen economic resilience and sustainable development, while promoting high-quality and

safe patient care. Throughout the Assembly, WMA representatives were also invited to share frontline evidence and clinical perspectives across numerous high-level panels and expert speaking engagements (Photos 2–3).



Photo 2. Representatives of the WMA and the World Health Professions Alliance (WHPA) at the “Health is Wealth” side event at WHA79, hosted by the WHPA. Credit: WMA



Photo 3. The WMA President, Secretary of Health of the Philippines, Assistant Director-General at WHO, and representatives of several ministries of health attend the “Sustaining the Global Health and Care Workforce Agenda in Times of Financial Challenges” side event inside the Palais des Nations at WHA79. Credit: WMA

Throughout the week, the JDN delegation engaged in robust youth diplomacy, working collaboratively to advance its priorities. In addition to speaking at various side events and delivering key statements on behalf of the WMA, delegates leveraged their standing within the WHO Youth Council to co-organise high-impact sessions alongside global youth advocates. These efforts championed intergenerational leadership, ensuring that early-career physicians remained central to discussions on health workforce governance and policy co-creation.

Strategic Review: Global Health Architecture Reform

A major focus at WHA79 was a comprehensive plan to reform the Global Health Architecture (GHA), the system that structures and governs global health. Building on the official Decision EB158(44) and a broader United Nations (UN) reform effort, this plan is organised around three main goals [1]:

1. Enhancing alignment among global health organisations across international, regional, and national tiers;
2. Streamlining fragmented decision-making structures to foster accountability; and
3. Correcting the stark, unsustainable contraction of predictable financing for global public health goods.

While the WHO Secretariat positioned these reforms as essential to eliminate institutional redundancy, negotiations revealed significant friction. High-income countries engaged in intense debates over control and allocation of funding, while low- and middle-income

countries called for safeguards to ensure that health resources would not be used as instruments of political pressure, and that national sovereignty would be respected. At the same time, civil society groups pointed out a major limitation: the reform's rules explicitly forbid merging UN agencies or changing their original mandates.

To guide and oversee the reform, a dedicated joint task force was created, consisting of two Member States from each WHO region and five major global health groups: Gavi, the Global Fund, Coalition for Epidemic Preparedness Innovations (CEPI), Unitaaid, and the Pandemic Fund. As the WHO shifts its focus toward supporting country-led primary healthcare, physicians must understand these new systems to guarantee that high-level organisational changes do not disrupt daily clinic operations or exacerbate the pressures on frontline staff [2].

Advocacy Tracks and Key Resolutions

Non-Communicable Diseases and Mental Health

The Political Declaration on the Prevention and Control of Non-communicable Diseases (NCDs) and the Promotion of Mental Health and Well-being, adopted by the UN General Assembly in 2025, set the tone for meaningful discussions during the WHA79 [3]. Emphasising the impact of NCDs on health systems, Member States formally requested the Director-General to support nationwide implementation and provide a progress report (Agenda item 12.1) [4,5]. Similarly, the WMA delivered a statement underscoring the need for person-centred primary healthcare-oriented systems capable of effective prevention, diagnosis,

and treatment of NCDs. A notable advancement over previous commitments, the declaration and accompanying statement emphasised the integration of mental health and NCDs into essential health benefit packages, alongside efforts to safeguard and strengthen the health workforce [4-6].

Acknowledging challenges related to implementation strategies and political will, the WHA79 provided a platform to examine current barriers and share concrete approaches to implementation. Evidence-based measures discussed included, for instance, alcohol taxation and restrictions on the marketing of unhealthy foods to children [6]. Overall, the WHA reinforced the need for multilateral action to improve NCD and mental health outcomes and affirmed WHO's role in supporting countries' implementation of international standards. It also highlighted the availability of actionable data and cost-effectiveness frameworks, notably the WHO 'Best Buys' for NCDs and evidence toolkits developed by civil society coalitions like the Global Health Advocacy Incubator.

Digital Health and Health Workforce

The governance of digital health and artificial intelligence (AI) in healthcare was a prominent agenda item. Although no standalone resolution or decision was adopted, concerns were reflected in adjacent resolutions on precision medicine, teleradiology, stroke care, and smart pharmacovigilance. Discussions also advanced preparations for the *Global Strategy on Digital Health 2028-2033*, mandated at WHA78, emphasising privacy, workforce training, validation, and human oversight [7]. During the Assembly, the WMA delivered a statement on

behalf of the WHPA supporting AI that strengthens, rather than replaces, the patient–professional relationship while preserving clinical authority [8]. For national systems, the immediate priority is to build AI literacy and assess bias to ensure ethical, equitable, and accountable deployment.

The WHA79 delivered a landmark update to the WHO *Global Code of Practice on the International Recruitment of Health Personnel*, a total of 16 years after its adoption in 2010 [9]. Resolution WHA79.12 amended Articles 2, 5, and 10, clarifying that the Code remains applicable during pandemics, disasters, and humanitarian or economic crises. Additionally, it fosters sustainable national workforce planning, reporting by Member States on health professional migration (including students and trainees), and clear co-investment from destination countries in the training, employment, and retention of health professionals within source nations [4].

The WHPA intervention, delivered by the International Pharmaceutical Federation (FIP), welcomed the reforms but warned that voluntary measures may be insufficient to counter increasingly market-driven recruitment and the depletion of under-resourced health systems. The intervention therefore urged Member States to require, rather than merely encourage, high-income destination countries to co-invest, an obligation not retained in the final approved text [10]. For the WMA, this outcome reinforces longstanding principles: physicians' right to mobility must be protected, while destination countries should not address workforce shortages at the expense of source countries' health systems. For junior doctors

and national medical associations (NMAs), Resolution WHA79.12 offers a stronger framework to demand ethical recruitment, migrant worker protections, improved working conditions and retention, reliable workforce data, and bilateral agreements that deliver demonstrable benefits to both countries [4,11].

Health Systems Strengthening

Under Agenda Item 12.5, the WMA delivered a statement reaffirming the essential role of primary healthcare systems as a well-integrated entry point into secondary- and tertiary-level healthcare. The statement highlighted existing gaps in funding and capacity and called for Member States to invest in the health workforce through fair working conditions, education, career development, and ethical recruitment [12].

The WHA79 adopted the *Emergency, Critical and Operative Care Strategy 2026–2035*, which aims to integrate emergency, critical and surgical care into universal health coverage (UHC) and close the equality gap in access to life-saving care, particularly in low- and middle-income countries. The objectives include strengthening governance structures, integrating workforce planning with capacity-building efforts, and establishing quality assessment and continuous improvement. It also outlines responsibilities for the WHO, Member States, and partners to implement the strategy, develop measurable targets, strengthen national systems, and report progress [4]. Additionally, the WHA79 observed the adoption of Resolution WHA79.11, which urged Member States to modernise

national pharmacovigilance systems, integrate the means of safety monitoring across different levels of care, and strengthen regulatory capacity in the detection and management of adverse events of pharmaceuticals [4].

Antimicrobial Resistance and Vaccination

Addressing Agenda Item 12.9, the WMA identified antimicrobial resistance (AMR) as one of the foremost threats to global health and the achievement of UHC. The WMA welcomed the progress made on the draft updated Global Action Plan and advocated for a “One Health” approach that strengthens stewardship across human, animal, and environmental sectors alike [13]. The WMA identified four key priorities – robust surveillance systems, infection prevention and control, laboratory capacity, and enforcement of regulations – all backed by steady, long-term financing [14]. The WMA emphasised that equitable access to effective antimicrobials, diagnostics, and vaccines is essential for vulnerable populations, and that keeping antimicrobials effective for future generations will depend on workforce education and accountability [13].

Member States voiced broad support for these priorities during the session, culminating in the adoption of the updated *Global Action Plan on Antimicrobial Resistance (GAP-AMR) 2026–2036*. This plan provides the international community with a shared framework for coordinated action over the next decade. It prioritises prevention measures (e.g., biosecurity, vaccination, and water, sanitation, and hygiene), while emphasising the need for sustainable financing and

international cooperation to protect human, animal, and plant health through 2036 [4].

Spotlighting Youth Engagement in WHO Spaces

A noteworthy highlight of the WHA79 was the active participation of youth delegates and early-career professionals in global health discussions across both formal and informal sessions [14]. While this growing participation is encouraging, opportunities remain to deepen the engagement of young voices. Presence in the room does not always translate into meaningful approaches to shape decisions or influence outcomes. As the global health arena continues to promote youth engagement, it is important to move beyond representation and create more opportunities for early-career professionals to actively participate in discussions and decision-making processes [15,16] (Photo 4).

At the same time, WHA79 showed the value that early-career professionals bring to these spaces. Through side events, professional networks, and exchanges with leaders from different sectors, youth delegates shared experiences, learned from others, and contributed to discussions on pressing global health challenges [14-16]. These opportunities benefit global institutions and local communities alike, as early-career professionals return to their countries with new ideas, stronger networks, and a broader understanding of how to address health challenges. Investing in meaningful youth engagement today will help strengthen the next generation of health leaders and build more resilient health systems for the future [15-17].

Moving Beyond Geneva: From Policy Negotiation to Global Health Action

The conclusion of WHA79 in Geneva marks not the end of a mission, but the start of an accountability pipeline. By securing a seat at the negotiating table, the WMA demonstrated that physician-led advocacy is vital to shaping sustainable global health policy. However, policy adoption in multilateral halls holds little value unless it translates directly into transformed clinical environments and a protected healthcare workforce.

To bridge the gap between high-level declarations and daily medical practice, NMAs, health sector leaders, and early-career physicians worldwide are urged to:

1. Empower frontline advocacy in national governance

NMAs must actively create structured pathways for their physician members to participate in domestic policy and decision-making processes, ensuring that local health system vulnerabilities and frontline clinical realities directly shape national legislative priorities.

2. Institutionalise youth delegate programs

Building on the significant traction gained at WHA79, NMAs are urged to advocate for national Youth Delegate Programs. Creating formal, institutionalised tracks for early-career involvement guarantees diverse representation and sustained capacity in global



Photo 4. The WMA-JDN delegation at the Palais des Nations at WHA79. Credit: WMA

health diplomacy.

3. *Foster global health leadership early across all specialties*

Global health governance can no longer be treated as a niche specialty. Medical institutions and NMAs must foster a professional culture that encourages and equips junior doctors to engage in global health diplomacy from the outset of their careers, regardless of clinical specialty.

By positioning physicians as lifelong co-creators of health policy, we can strengthen the resilience of our global health workforce while advancing the ultimate end-goal of global health diplomacy: better outcomes for patients.

Author Contribution Statement

All authors contributed to the conceptualisation and design of the study and prepared the original draft of the manuscript, with each author drafting at least one section. MOGA edited the article and ensured overall consistency across sections. MP compiled and verified the reference list. All authors critically reviewed, revised, and approved the final manuscript for publication.

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Antimicrobial Resistance and One Health: Why Global Policy Must Listen to Frontline Voices



Saheed Olaide Ahmed

Antimicrobial resistance (AMR) has emerged as an urgent global health challenge, causing an estimated five million deaths annually and disproportionately affecting populations in low- and middle-income countries [1]. Yet the frameworks designed to combat AMR remain structurally misaligned with the settings where resistance is most entrenched. A growing body of evidence documents a profound divide between Global North and Global South priorities in AMR mitigation, with inequities in sanitation, water access, and healthcare infrastructure creating the precise conditions under which resistance spreads and stewardship fails [2].

As a veterinarian who has conducted AMR campaigns in Nigerian abattoirs, cattle markets, and pastoralist communities, while also participating in international policy discussions, I have witnessed firsthand the disconnect between global AMR strategies and local realities. This commentary draws on personal experience in the veterinary profession and outlines next steps for advancing community-owned action in addressing AMR. Effective AMR response will require more than the development

of stronger frameworks, as it demands that the voices, realities, and structural constraints of frontline communities be placed at the center of policy and practice.

A Seat at the Table, but No Voice in the Room

Most global AMR frameworks are developed in policy spaces far removed from the realities of AMR in low-resource settings, often by individuals with limited field experiences. As an example, I recall attending a conference session where a speaker from a high-income country emphasised electronic prescription tracking for farm animals. I found myself reflecting on the clinics in rural Nigeria that operate without reliable electricity, and farmers who struggle to read the drug labels to administer to their animals. The gap between the speaker's proposed solutions and the real-world realities was striking. Although the policies were logically constructed and driven by noble intentions, a fundamental disconnect was evident. Frontline communities are not constrained by a lack of intelligence or motivation, but by inadequate infrastructure and insufficient empathy in policymaking.

Youth and community voices must be integrated into national and international AMR frameworks – not as passive beneficiaries, but as active co-designers of solutions. The WHO Tricycle Protocol, a One Health surveillance method covering the human, animal, food-chain, and environmental sectors, offers a practical foundation for AMR monitoring. Its effectiveness, especially in low-resource settings, could be further

strengthened through the inclusion of community-based validation mechanisms and youth-led field data collection initiatives, thereby ensuring that surveillance efforts are contextually relevant and locally informed [3].

The One Health Rhetoric Versus Reality

The One Health concept, recognising the interdependence of human, animal, and environmental health, has become central to AMR discourse. Yet across much of the world, it remains more an aspirational framework than an operational reality. Global AMR discourse praises One Health while consistently sidelining its environmental pillar, which remains the most neglected component of the One Health triad [4]. The *One Health Joint Plan of Action 2022-2026* addresses this gap by establishing environment as a sixth action track – a critical step that nevertheless requires genuine resourcing and implementation, rather than rhetorical endorsement.

During my tenure as National President of the International Veterinary Students' Association (IVSA) Nigeria and lead of the Bioshield Squad Initiative (<https://bioshield.amrnow.org>), I worked to operationalise a unified One Health model through vaccination campaigns in cattle markets, biosecurity training for smallholder farmers, students and young professionals, and grassroots AMR education programs. Despite persistent funding constraints, attempts to scale these programs were consistently challenged, often feeling like pushing water uphill. Similarly, although intersectoral

collaboration was frequently promised in principle, it was rarely implemented in practice. Also, during my internship with the Global Health Network at the University of Oxford, I observed that donors and funding bodies continued to prioritise human-centric projects. Together, these two examples reveal a global knowledge ecosystem with a structural blind spot, and a One Health framework that exists largely on paper while entire sectors remain underfunded and marginalised.

The Equity Gap: From Visa Denials to Vaccine Markets

The exclusion of Global South voices from AMR science is not abstract; rather, it is embedded in bureaucratic, financial, and deeply personal constraints. In one instance, visa delays nearly cost me my summer studentship at Oxford. On another occasion, I had to decline a research collaboration with an international team because my visa application was denied – not for lack of merit. I had received the grant, confirmed the supervisor, and completed all credentialing requirements, but not the privilege of a powerful passport that would allow my participation. These are not isolated inconveniences; they point to systemic inequality in which gaps in sanitation, water access, and healthcare infrastructure create the precise conditions under which AMR thrives, while those most affected remain least included in designing solutions [2].

This inequity extends into the economics of antimicrobial stewardship. In sub-Saharan Africa, where government support and capital access are limited, livestock farming is pursued precisely because it requires minimal investment. In this context, designing policies that

impose AMR compliance burdens on farmers without addressing the economic structures of veterinary drug markets is fundamentally unjust [5]. The annual cost of infectious animal diseases in Africa is estimated at US \$9.35 billion, yet policy responses continue to emphasise restriction over support. Real equity in AMR means co-designing solutions with affected communities, ensuring shared power rather than mere visibility.

Where Do We Go from Here?

Turning the silent pandemic of AMR into community-owned action requires structural interventions that respond to the specific barriers encountered by frontline workers in their daily practice. Four evidence-grounded priorities emerge as key interventions for strengthening antimicrobial stewardship and reducing implementation barriers.

1. Build linguistically inclusive AMR communication systems

As I collected knowledge, attitude, and practice (KAP) surveys from Fulani pastoralist farmers in Iseyin and Ogbomoso (Oyo State, Nigeria), a critical gap emerged: the absence of field-validated, multilingual communication tools. When a community's primary language is neither English nor a dominant regional language, AMR education often fails at the point of delivery. A translator without domain expertise cannot effectively convey the nuance of withdrawal periods, resistance mechanisms or antimicrobial stewardship rationale. The analysis of global AMR policy documents shows that self-interest framing targeting farmers and farm workers is rarely used, and that messaging accessibility remains a significant gap [6].

Global funders must mandate linguistically adapted, culturally contextualised AMR communication materials as a condition of stewardship program funding, not an afterthought.

2. Shift AMR education from awareness to professional integration

Across Africa, a persistent gap between knowledge and practice in antimicrobial use within livestock systems continues to drive inappropriate antimicrobial use and contribute to rising AMR. In sub-Saharan Africa, farmers frequently demonstrated product-level familiarity with antimicrobials (e.g., oxytetracycline, amoxicillin, tylosin, penicillin), yet this knowledge does not translate into prudent use. In Kenya, research indicated that knowledge alone is insufficient to drive behavioral change; instead, an enabling environment built on effective policy enforcement, deployment of alternatives such as vaccines, and strengthened cross-sector collaboration is required [7]. In Nigeria, research concluded that the deeper problem is a perceived hierarchy between farmers and veterinary professionals that discourages consultation. Finally, a systematic review of AMR education in the WHO African Region found that health extension workers and animal health practitioners can significantly improve farmers' knowledge when properly trained, yet AMR content remains inadequately integrated into veterinary and agricultural extension curricula across the region [8].

Hence, antimicrobial stewardship competencies must be embedded into agricultural extension officer training nationally, repositioning veterinarians as accessible colleagues

rather than distant authorities.

3. Align government accountability with farmers' economic realities

Pilot data from smallholder and pastoralist farmers in Ogbomosho (Oyo State, Nigeria), revealed a structural contradiction: while farmers are aware of antibiotic residue risks, they operate in systems that provide no compensation for losses, no veterinary subsidies, and no regulatory safety nets, making withdrawal period compliance economically irrational. Policies that place AMR compliance burdens on farmers without addressing the economic structures of veterinary drug markets are fundamentally inequitable in contexts with limited capital and government support [9]. In Nigeria, with just over 10,000 registered veterinarians overseeing millions of livestock, rural communities often lack accessible professional guidance, pushing farmers toward unregulated self-medication [9]. National AMR Action Plans must include veterinary service subsidies, farmer compensation frameworks, and enforceable, adequately resourced regulatory oversight.

4. Engage traditional knowledge systems rather than displacing them

Among pastoralist communities in Oyo State, Nigeria, the most persistent barrier to AMR behavior change was not ignorance, but rather generational legitimacy. Practices inherited across generations carry cultural authority that one-off campaigns cannot override. In Tanzania, a mixed-methods study among Maasai pastoralists found that knowledge and attitudes were often not correlated with actual antimicrobial

use practices, as surveys fail to capture the cultural and historical contexts shaping drug-use decisions [10]. A five-country KAP survey across African livestock systems similarly found that antimicrobial use decisions are driven by personal experience rather than professional input, and that effective interventions must be grounded in bottom-up approaches that account for these sociocultural patterns [11]. The structural fix lies in participatory research models that position pastoralist and smallholder communities as co-investigators, integrating indigenous animal health knowledge into antimicrobial stewardship program designs rather than treating it as an obstacle.

A Personal Call to the Global Medical Community

One Health is not an abstract policy concept, but rather a lived reality on farms, in clinics, and in communities across the Global South. As a veterinarian, I have observed human-grade antibiotics intended for intensive care wards being administered to poultry, drug vendors selling antimicrobials as everyday commodities, and deep health inequities contributing to AMR. These are not isolated stories; they are frontline expressions of a global crisis. The medical community must move beyond rhetoric by dismantling silos, shifting from top-down prescriptions to genuine collaboration, and building intergenerational One Health alliances. Responsible antimicrobial stewardship cannot remain the duty of a few professions or wealthy nations; it must become a shared global mandate, grounded in equity, empathy, and evidence.

The World Veterinary Association is already supporting this systemic

change through resources like the Essential Veterinary Medicines List (<https://worldvet.org/evml/>), which guides veterinarians globally on prudent antibiotic use. The fight against AMR will not be won in policy rooms alone, but only when the lived realities of farmers, veterinarians, community health personnel, and patients are fully reflected in how solutions are designed, funded, and implemented. As a landmark *Lancet* AMR Series argues, AMR is a “symptom of global health inequities” that cannot be addressed by a global plan driven largely by high-income country priorities [12]. Global leaders must move beyond disciplinary silos and act as a One Health community committed to ensuring that effective medicines remain a right for all.

AI Disclosure Statement

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Overcoming the Blind Spot: A One Health Vision to Enhance Human Medicine



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Are human healthcare clinicians fully considering the broader determinants of their patients' health, such as interactions with animals and access to clean water, air, and nature? Although these factors significantly impact individual health outcomes, they are often overlooked in clinical practice. Recognition of the interdependence of human, animal, and environmental health is central to One Health, a global initiative that supports collaboration between animal, environmental, and human health professionals. This transdisciplinary approach is critical for addressing today's most pressing human health challenges and urges immediate action for human health clinicians. The One Health approach considers human health through its interactions with biodiversity, climate change,

pollution, medical and industrial waste, microplastics, companion animals and wildlife, medications, agricultural systems, and local ecosystems with possible vector-borne diseases (Figure 1).



Figure 1. A One Health approach considers human health in its full ecological context. Authors created this figure with BioRender.com.

The One Health concept stems from centuries of collaborative thought and is guided by the ongoing need for transdisciplinary work. In ancient times, healers attended to both humans and animals. In the 1800s, physician Rudolf Virchow stated, "*Between animal and human medicine there is no dividing line—nor should there be*" [1]. In the 1960s, the term "One Medicine" emerged, followed in the 1990s by the term "Conservation Medicine," and more recently, terms such as "Planetary Health," "Zooobiology," "Zooecology," and "Interprofessional Education" [1]. Although there are different definitions and emphases, these approaches share a common foundation: recognition that the health of humans, animals, and ecosystems are interconnected and that addressing

contemporary health threats requires collaboration across disciplines and communities.

The current One Health conversation was strengthened in the early 1990s with the discovery that over 75% of emerging infectious diseases in humans are zoonotic [2]. Although rarely mentioned, the 1918 flu pandemic that killed 50-100 million people around the world is thought to have emerged from pigs at a U.S. Army base in Kansas (United States), and the human immunodeficiency virus (HIV) resulted from multiple cross-species transmissions of simian immunodeficiency virus [3,4]. The severe acute respiratory syndrome coronavirus 1 (SARS-CoV-1) epidemic in 2003-2004 increased awareness of the need for human and animal health professionals to work together, which has been further validated by the emergence of the Ebola virus, Middle East Respiratory Syndrome coronavirus, and Zika virus.

Why is this One Health way of thinking important to human health practitioners? Evidence shows that individual patient health may be significantly harmed by the effects of climate change, such as wildfire smoke and extreme heat, and environmental exposure to endocrine disruptors and forever chemicals. The loss of biodiversity, including potential "dilutional hosts" with low reservoir competence, can increase risk of mosquito- and tick-borne disease transmission to other hosts [5]. Conversely, fostering connections to nature improves mental and physical health outcomes for humans [6]. Ultimately, when human health clinicians take a One Health approach to patient care, they

are more likely to connect how animal and environmental health directly and indirectly impacts their patients' health. They are thus more aware of the effects of lifestyle (e.g., social determinants of health) and occupational risks (e.g., animal contact or outdoor work) and are better prepared to successfully advocate for, educate, diagnose, and treat their patients. The authors highlight the need for multidisciplinary collaborations in relevant areas, including zoonotic and vector-borne diseases, comparative medicine and translational research, nature-based solutions, access to healthcare, ecological interdependence, and current threats affecting human, animal, and ecosystem health (e.g., climate change, antimicrobial resistance, increased infectious disease prevalence).

Zoonotic and Vector-Borne Diseases

A One Health approach is urgently needed to address zoonotic and vector-borne diseases (VBDs), such as Lyme disease, malaria, babesiosis, and bartonellosis. Pathogen spillovers are growing more common and consequential as human populations encroach on wild places through urbanisation, habitat destruction, unsustainable agricultural and forestry practices, and climate change [4]. The coronavirus disease 2019 (COVID-19), thought to have originated in bats, has caused over seven million human deaths with millions more suffering from post-acute sequelae of COVID-19 and economic hardship [4]. Currently, highly pathogenic avian influenza (H5N1) is infecting species, including cows, cats, and humans, causing concerns about viral mutations that will enable person-to-person transmission and another pandemic [7].

Ixodes ticks carry Lyme disease as well as *Flaviviridae* viruses, and their range and incidence are spreading across Europe into Russia and across the United States and into Canada [8]. Similarly, the tick-borne diseases of ehrlichiosis and anaplasmosis are on the rise in dogs and cats, which could serve as sentinels for human disease [9]. Further, rising global temperatures are expanding the geographic range of VBDs by increasing vector distributions, prolonging seasonal activity, and extending disease transmission [2]. Although beyond the scope of this paper, climate change also impacts health directly through severe weather, sea-level rise, wildfires and poor air quality, food insecurity, and limited access to clean water, and indirectly through infectious disease spread [8,10].

Figure 2 demonstrates an example of the interconnectedness of ecosystems, such as how invasive plant species may further facilitate VBD transmission by changing the pathogen, vector, host, and environment epidemiology [11]. For instance, bush honeysuckle (*Lonicera maackii*) is among the most prolific invasive plants in North America and grows in thickets that are 18 times more dense than native vegetation. This protective cover is preferred by white-tailed deer (*Odocoileus virginianus*), which are tick hosts and serve as reservoirs for *Ehrlichia* bacteria. Within honeysuckle thickets, more ticks become infected with *Ehrlichia* spp. allowing the ticks to transmit that pathogen to humans and their companion animals (Figure 2, left side). Fortunately, removal of bush honeysuckle decreases the prevalence of *Ehrlichia* spp. in ticks, revealing a One Health-framed intervention that re-establishes native flora while decreasing ehrlichiosis incidence

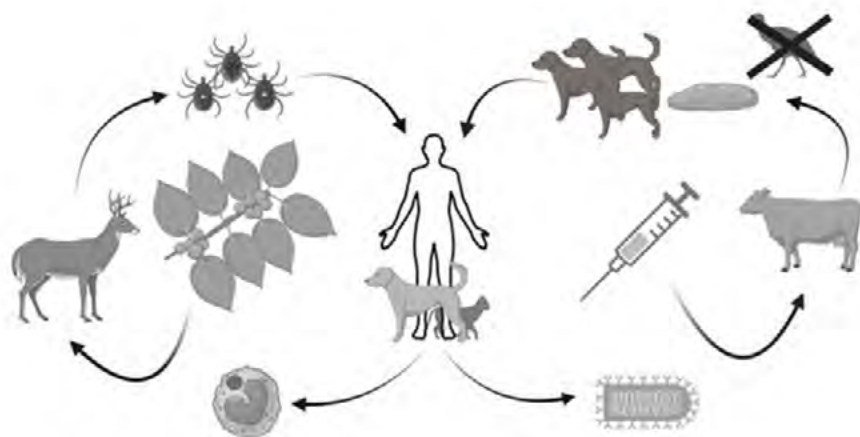


Figure 2. A One Health approach is needed to combat the many complex and inter-related causes for increased disease exposure, such as ehrlichiosis from ticks and rabies from feral dogs. Authors created this figure with BioRender.com.

in humans and other animals. Appropriate tick prevention in pets can also decrease human VBD exposure, and supporting biodiversity can increase the prevalence of both “dilutional hosts” and animals that ingest ticks [5]. In another example, increased use of non-steroidal anti-inflammatory drugs in aging cows in India caused renal failure in vulture populations that fed on their carcasses (Figure 2, right side) [12]. The loss of vultures led to more food for an increasing population of feral and rabid dogs and a subsequent increase in human rabies cases. These examples of zoonotic and VBDs highlight the benefits of collaboration between physicians, veterinarians, wildlife biologists, and ecologists.

Comparative Medicine and Translational Research

Combining human and animal disease surveillance may help mitigate the damage caused by outbreaks and environmental contaminants as pathogens may be detected in livestock, wild animal populations, or companion animals before being documented in humans. Maps depicting where dogs have Lyme borreliosis antibodies can be almost perfectly overlaid with the

U.S. Centers for Disease Control and Prevention’s maps of Lyme disease in humans [13]. Knowing disease patterns of companion animals in the community can inform the human health practitioners history taking and diagnostic testing.

Beyond infectious disease, One Health also informs clinician understanding of disease models and development of new treatment modalities. Spontaneous companion animal models of disease can provide significant insight into the effects of environmental exposures as well as disease development, such as aging and cancer susceptibility, and novel treatments [14]. For example, the diagnosis of hyperthyroid cats in the late 1980s led to the realization that certain flame retardants were endocrine disruptors, and hence manufacturers stopped adding these compounds to children’s pajamas [14]. Additionally, cats with the highest serum concentrations of per- and polyfluoroalkyl substances (PFAS), the “forever chemicals” found in many household items, had the highest rates of obesity and indoor time, which may yield insight to causes of rising rates of human obesity [14].

Tap water contaminants and airborne environmental pollutants are associated with the risk of both urothelial carcinoma and lymphoma in dogs [15]. Thus, tap water filtration and more effective air pollution controls could decrease the overall incidence of these cancers in dogs, and potentially also humans, as companion animals often share the same air and water sources as their human caretakers. The higher incidence of osteosarcoma in dogs, combined with its biological and clinical similarities to the human disease, makes canine patients particularly valuable models for evaluating novel therapies. For example, a two-drug protocol tested in dogs with metastatic osteosarcoma led to a pediatric clinical trial at Children’s Hospital Colorado [16]. Because companion animals develop cancer naturally and often experience faster disease progression, comparative oncology can accelerate therapeutic discovery while benefiting both human and veterinary cancer patients.

Benefits of Nature

When human-built environments dominate daily lives, people may forget their reliance on the natural world for shelter, food, climate stability, medicine, and psychological health. Researchers have linked exposure to nature with a myriad of health benefits for people via increased physical activity, stress reduction, and attention restoration [17]. One study demonstrated that time in nature reduced blood pressure and anxiety and enhanced immune function and self-esteem [18]. Forest bathing (sensory experience upon immersion in the forest setting) has been shown to increase immune function and decrease levels of stress hormones [19]. The One

Health lens reminds people to actively seek and protect green spaces for physical and mental healing, restoration, and motivation.

The Human-Animal Bond

Approximately 86.9 million U.S. households (66%) own at least one pet, including 56.3 million with dogs and 43 million with cats [20]. The human-animal bond and its implications for health and well-being is closely linked to the benefits of the natural world. The concept of *biophilia*, first proposed by E.O. Wilson in 1984, describes people's innate affinity for living systems and tendency to seek connections with other organisms [21]. This bond spans relationships from companion animals in the home to highly trained service animals, therapy animals, emotional support animals, and attachment to wildlife. The health benefits of these relationships are substantial. Service animals provide physical and psychological support, reduce anxiety and stress across diverse settings, and can be trained to detect medical emergencies, such as hypoglycemia [22]. Beyond these specialised roles, companion animals in U.S. households provide important physical, emotional, and social benefits. Evidence links human-animal interaction with lower blood pressure, improved cardiovascular risk profiles, increased physical activity, and a greater sense of purpose [23]. During the COVID-19 pandemic, pets supported emotional well-being and reduced loneliness during a time of limited social interaction [24].

These benefits highlight the human-animal bond as a meaningful yet often overlooked social

determinant of health, shaping behaviors, emotional resilience, and healthcare utilisation. Public health frameworks recognise the human-animal bond as an intervention that can influence health outcomes, while studies highlight both its health benefits and structural barriers it can create to accessing housing, employment, and healthcare [6,25]. For example, individuals experiencing homelessness or domestic violence may delay seeking safety or healthcare due to concerns for their animals, while older adults may prioritise their pets' needs over their own, including refusing to be hospitalised if they do not have anyone to care for their pet. One Health clinics serving both humans and companion animals may help improve healthcare access [26]. Clinicians should routinely assess animal exposure as part of the comprehensive social and environmental history to identify both benefits and potential risks.

Antimicrobial Resistance

While awareness of antibiotic stewardship is increasing, agricultural antimicrobial use remains an important yet underappreciated contributor to resistance. Antimicrobials are frequently used prophylactically in feedlot animals, often at low doses over prolonged periods, with significant environmental exposure through antimicrobial residues in manure – conditions that maximise growth of resistant organisms [27]. In some countries, low-dose antimicrobials are used as growth promoters, although the benefit is modest (1–10%) and may disappear under sanitary conditions. Resistance genes can spread relatively easily through the environment, ultimately making infections more

difficult to treat across species.

Of particular concern is the agricultural use of critically important antimicrobials, including fluoroquinolones, cephalosporins, macrolides, and colistin [27]. In areas where these medications have been used extensively for prophylaxis, resistance among human populations has increased, including vancomycin-resistant enterococci following agricultural use of avoparcin, a compound structurally similar to vancomycin. Consequently, the World Health Organization has called for the end of these practices. Environmental contamination can further drive resistance through human and animal sewage laden with antimicrobials, their metabolites, and resistant bacteria, and from industrial pharmaceutical waste [27]. Rising antibiotic resistance threatens treatment of infections and medical interventions that depend on effective antimicrobials, such as invasive surgeries, cancer chemotherapy, organ transplantation, and immunomodulatory treatments [28]. These hurdles and potential consequences affect both human and animal patients.

Ecological Interdependence

One Health takes an ecological approach that moves from the individual patient to the broader community and environment, revealing how actions in one part of the system can have consequences across species and ecosystems. For instance, exposure to endocrine disruptor chemicals found in consumer products (e.g., beauty products, pesticides, flame retardants, industrial by-products, pollutants, and plastics) has been linked to

cancer, obesity, diabetes, infertility, osteoporosis, and reproductive disorders, including early onset of puberty and menopause [29]. As global plastic production, which is already exceeding tens of billions of tons annually, is projected to triple over the next 30 years, these health risks are likely to become more prevalent [29]. Human health clinicians will increasingly need to think about environmental contaminants as they relate to patient care and advocate for practices that prioritise patient safety.

Conclusion

All professionals, living creatures, and ecosystems can benefit from adopting a One Health approach that encourages us to overcome existing blind spots and develop more effective, collaborative solutions (Table 1). Human health clinicians play a critical leadership role in breaking down professional silos and fostering transdisciplinary collaborations to support a more inclusive practice of medicine. They can also promote the interconnected health of people, animals, and the planet, understanding that their patients' health depends on healthy and biodiverse environments and that animal, environmental, and occupational exposures impact patient outcomes.

What can you do today to implement One Health in your life and clinical practice?

- Walk outside on your break to boost your immune system and health
- Recommend time in nature to improve mood and help treat depression
- Ask patients about pets and environmental exposures, which can impact health
- Grow plants in your workspace and pollinator-friendly plants outside
- Practice and encourage antibiotic stewardship
- Collaborate with One Health-related professionals
- Minimise plastic use
- Advocate for improved waste management and environmental protections

Table 1. Recommendations on incorporating One Health principles into your daily life.

Author Contribution Statement

All authors contributed to the design and preparation of the original manuscript draft. TLW created the figures using BioRender.com. All authors critically reviewed and revised the manuscript and approved the final version for publication.

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Misinformation and Disinformation, Then and Now: Fossil Fuels, Climate Change, and Health



Ankush K. Bansal

In 1953, the heads of the major U.S. tobacco companies gathered at the Plaza Hotel in New York to respond to growing evidence linking smoking to lung cancer. Rather than accepting the emerging scientific consensus, they adopted a coordinated public relations approach to challenge the evidence. Through industry-funded research bodies, hand-picked “experts”, front organisations, and never-ending calls for more research, they manufactured doubt about a fairly settled scientific question, delaying effective tobacco control for decades at the cost of millions of lives [1]. A 1969 Brown & Williamson memorandum simplified the strategy down to four words: “Doubt is our product.”

Beginning in the 1980s, the fossil fuel industry used the same strategy, including hiring the same public relations firms, think tanks, and scientists, to undermine public understanding of climate change [2]. The historical evidence shows that the American Petroleum Institute was already disseminating false and misleading information about global warming in 1980, nearly a decade earlier than previously documented [3]. For physicians and other health

professionals, this history matters. Climate change is widely regarded as the defining health threat of this century, and the disinformation that has delayed the global response is itself a modifiable determinant of health. Table 1 summarises six disinformation tactics used by the tobacco and fossil fuel industries from the 1950s to present date.

with the same or greater accuracy than contemporaneous academic and government climate models. Although they correctly anticipated approximately 0.2°C of warming per decade, their public communications, however, heavily emphasised uncertainty and doubt [4,5]. In 2006, a U.S. federal court found that major tobacco companies had violated the Racketeer Influenced and Corrupt

Tactic	Tobacco industry (1950s–1990s)	Fossil fuel industry (1980s–present)
Manufacture doubt	“Doubt is our product” (internal memorandum, 1969)	“Emphasise the uncertainty” in communications strategies
Fund friendly science	Tobacco Industry Research Committee (1954)	Industry-funded think tanks and contrarian researchers
Create front groups	“Whitecoat” projects and smokers’ rights groups	Global Climate Coalition and “grassroots” energy citizen groups
Attack the messenger	Discrediting epidemiologists and the U.S. Surgeon General	Harassment of climate scientists and health advocates
Shift the blame	“Smoking is a personal choice”	“Check your personal carbon footprint”
Delay, not deny	“More research is needed”	“Transition fuels,” distant net-zero pledges, and unproven carbon capture at scale

Table 1. Selected disinformation tactics of the tobacco and fossil fuel industries [1,2].

Private Knowledge, Public Denial

Similar to the tobacco industry, the fossil fuel industry’s internal scientific research often diverged from its public messaging. Repeated analyses of internal documents show that between 1977 and 2003, ExxonMobil’s scientists projected future warming

Organizations (RICO) Act for concealing and misrepresenting what they knew about health risks of smoking and nicotine addictiveness. Several U.S. states and municipalities are currently pursuing fraud and deception claims against major oil companies. A landmark review by Stoddard et al. (2021) concluded that well-

organised obstruction by the fossil fuel industry was a central reason global emissions failed to decline over three decades of climate mitigation efforts [6].

Captured Governments: Three National Snapshots

United States. The fossil fuel industry is one of the largest political special interests in Washington, D.C., spending hundreds of millions of dollars each election cycle on lobbying and financing fossil fuel “friendly” candidates. Front groups such as the Global Climate Coalition opposed the Kyoto Protocol throughout the 1990s, despite privately acknowledging that their own technical advisers knew that the science linking greenhouse gas emissions to global warming was well established [2]. Subsequent events included continued subsidies for fossil fuel production, the appointment of industry-aligned leaders to agencies responsible for regulating the sector, restrictions or suppression of federal climate scientists, and weakening or withdrawal from international climate commitments.

Australia. An example of an industry-captured, Global North parliamentary system, Australia is one of the world’s largest exporters of coal and liquefied natural gas. Just as the mining industry advertising helped overthrow a prime minister over a proposed resources tax in 2010, an industry-backed campaign was mounted ahead of the 2014 repeal of Australia’s carbon price, which was the first abolition of a functioning carbon pricing scheme by any country. Political scientists attribute Australia’s two decades of climate policy failure mostly to structural dependence on fossil fuels and

conservative political networks aligned with the industry [7]. Despite the tragedy that Australians endured in the 2019–2020 “Black Summer” bushfires, when smoke exposure was associated with hundreds of excess deaths and thousands of hospital admissions, the scale of the health impacts did not lead to urgent policy action as expected.

The Philippines. The Global South bears the heaviest burden of decisions made elsewhere, particularly the Global North. After Typhoon Haiyan killed more than 6,300 people in 2013, the public, including civil society organisations, petitioned the Commission on Human Rights of the Philippines to investigate the responsibility of the world’s largest fossil fuel producers. Their 2022 report entitled “National Inquiry on Climate Change” concluded that a) the major carbon producers (fossil fuel companies) had engaged in willful disinformation of climate science and obstruction of energy transition (e.g., to renewables), b) their actions were driven by profit, and c) they could be held morally and legally liable for resulting human rights harms [8]. However, at the 2025 Belém climate summit (COP30), fossil fuel lobbyists outnumbered the official Philippine delegation by more than 40 to one, highlighting the disproportionate influence of industry representatives [9].

The Health Toll: Physical, Mental, Community, and Generational

For physicians, disinformation is not an abstraction; its consequences present daily in clinics and emergency departments. Every year of manufactured delay has translated into additional warming, increased fossil fuel combustion,

and a measurable rise in the burden of disease, distributed unevenly across populations and time.

Physical health. The 2024 Lancet Countdown reports that heat-related mortality among adults older than 65 years has risen by 167% compared with the 1990s, while extreme heat erodes safe labor, sleep, and physical activity and the climatic suitability for dengue and other infections continues to expand [10]. Air pollution from fossil fuel combustion compounds this burden directly, accounting for an estimated 8.7 million premature deaths in 2018 alone, roughly one in five deaths worldwide [11]. For clinicians, these impacts are not distant projections but present-day realities, reflected daily in the growing burden of respiratory, cardiovascular, metabolic, and other pollution-related diseases.

Mental health. In a survey of 10,000 adolescents and young adults aged 16–25 years across 10 countries, 59% of respondents were very or extremely worried about climate change and more than 45% reported that these feelings adversely affected their daily functioning [12]. Critically, distress was strongly associated with perceptions of government betrayal and inaction, making political delay itself a determinant of psychological harm. Disasters can leave post-traumatic stress and depression in their wake, and extreme heat is associated with increased suicide, interpersonal violence, and psychiatric admissions. For this reason, clinicians should be prepared to recognise, manage, and respond to the growing mental health consequences of climate change across diverse patient populations.

Community health. Storms, floods, and fires destroy health facilities, sever supply chains, and displace

populations at precisely the moment that clinical need peaks. Loss of livelihoods, food insecurity, and water insecurity follow, compounding the disruption long after the acute event has passed [10]. Because these shocks land hardest on communities already disadvantaged, each disaster widens pre-existing health inequities rather than distributing harm evenly. Clinicians are frequently the first to witness these disparities, caring for patients whose economic, environmental, and social vulnerabilities compound the health impacts of climate-related events.

Generational health. Children born today face far greater lifetime exposure to heatwaves, crop failure, and disasters than their grandparents did, an inheritance determined by decisions taken before they were born [10]. Prenatal exposure to heat and combustion-related air pollution is already linked to preterm birth and impaired development, meaning harm begins before birth. Delay therefore does not merely postpone the reckoning; it transfers it to those with no voice in the decision. Clinicians have a critical role in recognising and managing the health consequences of environmental exposures that influence patients across the life course.

Highlights from the Conference of the Parties (COP) Meetings

The influence of the fossil fuel industry extends into international climate negotiations, shaping debates and decisions at the highest levels of global climate governance. At COP26 in Glasgow, 503 delegates with fossil fuel affiliations were granted access, more than the delegation of any single country [13]. Before 2023, affiliations were not required to be disclosed, meaning that the true scale of fossil

fuel representation may have been underestimated. Even now, disclosure rules do not apply to industry representatives that form part of official government delegations. This loophole has allowed fossil fuel lobbyists to participate in climate negotiations without their affiliations being fully transparent, and as a result, at least 164 lobbyists were granted access to COP30 [9]. At COP28 in Dubai, with the summit president who also served as the chief executive of the host nation's state-owned oil company, 2,456 fossil fuel lobbyists were accredited, underscoring ongoing concerns about the influence of fossil fuel interests in climate negotiations. At COP30 in Belém, one in every 25 participants was a fossil fuel lobbyist, and together they received two-thirds as many accreditation passes as all delegates from the 10 most climate-vulnerable nations combined [9].

In an analysis spanning nearly three decades of negotiations, van Daalen et al. (2024), including the World Medical Association (WMA)'s Workgroup on Environment member Dr. Johanna Schauer-Berg, several WMA Junior Doctors Network (JDN) members, and former WMA President Dr. Lujain Alqodmani, traced the health community's

participation from COP1 to COP28. Although COP28 hosted the first official Health Day and brought together the largest number of health ministers ever at a COP, the global health community remained a small and largely sidelined presence, vastly outnumbered by industry representatives. The authors concluded that without a commitment to fossil fuel phase-out and meaningful action on climate justice, the promise of health for all cannot be realised [14]. Figure 1 illustrates the number of fossil fuel lobbyists attending climate negotiations from COP26 to COP30 between 2021 and 2025.

Call to Action for Health Professionals

Medicine has confronted an industry of doubt before and prevailed. The World Health Organization (WHO) Framework Convention on Tobacco Control recognises the inherent conflict of interest by the tobacco industry and excludes their interference from health policymaking. Global health organisations are now calling for safeguards against fossil fuel industry influence in climate negotiations. Furthermore, the WHO has emphasised fossil

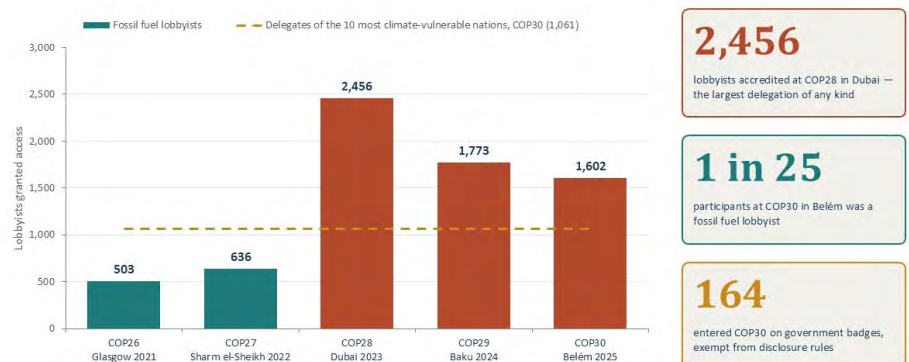


Figure 1. Fossil fuel lobbyists granted access to UN climate negotiations, 2021–2025 (COP26–COP30). The dashed line indicates the combined delegations of the 10 most climate-vulnerable nations at COP30 (1,061 delegates) [9,13]. This figure was generated using AI tools. Sources: Global Witness (COP26); Kick Big Polluters Out coalition analyses of UNFCCC provisional participant lists (COP27–COP30). Affiliation disclosure was first required in 2023.

fuel phase-out as the “health argument for climate action” [15].

As a global medical community, physicians have a powerful role in confronting climate disinformation, communicating the health consequences of climate change, and advocating for policies that protect current and future generations. First, by understanding these strategies, physicians can teach patients, trainees, other clinicians, and policymakers about disinformation campaigns designed to sow doubt, delay action, and undermine public health responses. Second, they can frame climate change as a health issue, highlighting its impacts on asthma, heat stroke, vector-borne diseases, pregnancy outcomes, and children's future health and well-being. This health-centred framing can help build broader public support for meaningful climate action. Third, medical organisations, hospitals, universities, academic journals, and pension and retirement funds should end financial relationships with fossil fuel interests, as many have done with the tobacco industry. Fourth, they should demand greater accountability through robust conflict-of-interest policies, transparent disclosure of lobbying activities, and appropriate inquiries and/or legal action. Fifth, physicians can document and testify, as clinical records of heat illness, disaster trauma, and pollution-related disease provide powerful evidence for courts, legislatures, and the public. Notably, all clinicians can contribute to this action within their own clinical practice and hospitals, transforming the health impacts they witness each day into evidence that can guide policy and inform accountability.

Conclusion

The fight against the tobacco companies taught health professionals a critical lesson: harm does not come only from the products themselves, but also from the deliberate creation of doubt that delays action and costs lives. Decades ago, the scientific evidence was clear that cigarettes caused cancer, even as industry efforts sought to obscure and undermine this truth. Today, the scientific consensus confirms that fossil fuel emissions are the primary driver of climate change. Our professional obligation remains unchanged: to protect the health and well-being of our patients and communities by confronting both the harmful products and the malinformation.

AI Disclosure Statement

The author used artificial intelligence tools for language editing and proofreading (using Grammarly) to improve grammar, structure, and clarity. AI-generated or AI-edited visuals (using Claude) are identified in the corresponding figure caption. The intellectual content, analysis, and conclusions remain entirely those of the author.

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Bridging the Divide: Ensuring Human-Centred and Equitable Digital Health Transformation



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The turn of the millennium accelerated a digital revolution that reshaped health. Building on the expansion of telehealth in the 1990s, World Health Organization (WHO) Member States adopted the first eHealth resolution at the 58th World Health Assembly (WHA) in 2005 [1]. Today, however, digital transformation in health conveys far more meaning than just electronic records, telemedicine, or artificial intelligence (AI). It entails integrating digital technologies and data across health systems, alongside the organisational and cultural changes required to support this transformation [2]. Successive WHA commitments culminated in the formulation of WHO's *Global Strategy on Digital Health 2020–2027*, embedding digital

health within national priorities, and, by 2024, 126 countries had reported having a national digital health strategy or roadmap [3,4].

Despite these advances, major gaps remain in connectivity, affordability, regulation, workforce readiness, and data quality. Progress, therefore, cannot be measured by strategy adoption alone, and digitalisation must not become an end in itself. Digital technologies should serve the ultimate goal of building stronger, more equitable, and people-centred health systems, with success judged not by technologies deployed but by their contribution to health outcomes, access, and quality of care [5].

Digital Health Transformation in the Global Agenda

Beyond the adoption of digital technologies, digital health transformation has the potential to accelerate the United Nations (UN) 2030 Agenda for Sustainable Development by extending care to underserved populations, improving continuity of care, strengthening surveillance and health financing, and enabling timely, data-informed decision-making. Achieving these benefits requires equity, interoperability,

public stewardship, sustainable investment, workforce competence, community participation, and accountable data governance [2]. At the WHA79 in May 2026, Member States discussed harmonised regulation, governance standards for health data, digital health, and AI under agenda item 12.10. While the Assembly did not adopt a dedicated resolution on digital health, related priorities were nevertheless advanced through resolutions addressing precision medicine, teleradiology, stroke care, and pharmacovigilance [6].

Concrete progress was also reported at the WHA79, with WHO's Global Digital Health Certification Network having expanded to 82 countries, supporting digital access to health records for around two billion people. At the service-delivery level, teleradiology was endorsed to address imaging-workforce shortages and extend expertise to remote settings, while the stroke resolution integrated registries, telemedicine, decision support, and mobile follow-up [6]. From the side of civil society, the World Health Professions Alliance (WHPA), of which the World Medical Association (WMA)

is a founding member, issued a statement emphasising that AI should augment rather than replace clinical judgement, with licensed professionals retaining final clinical authority and accountability shared among relevant stakeholders [7].

Looking ahead, the WHO is preparing the successor to its *Global Strategy on Digital Health 2020–2027*. Mandated by the WHA78, the *Global Strategy on Digital Health 2028–2033* is due for consideration at the WHA80, scheduled for May 2027 [6]. In September 2027, the UN High-Level Meeting on universal health coverage (UHC) will review implementation of the 2023 Political Declaration on UHC and seek an action-oriented declaration for the remaining years towards 2030. The challenge now is to translate global commitments into sustainable national systems that measurably improve access, quality, and equity without reproducing existing inequities [8].

Increased Health Biases in Digital Health Systems

The benefits of digital health do not depend solely on the progress of digitalisation; rather, they emerge as a well-executed transformation. Digital health systems and interventions may exacerbate existing health inequities if transformation is not grounded in equity-centred measures. Therefore, a question might be raised about whether a lack of proper political commitment can be afforded for digital transformation to fill in the gaps, or whether it distances us from achieving UHC [3].

The International Telecommunication Union (ITU) reported that 26% of the world's population was still offline in 2025,

increasing to 77% in low-income countries, with persistent gender disparities (280 million more men online than women) and rural–urban gaps in internet access remain [9]. Without addressing these digital determinants of health, digitalisation may deepen existing inequalities and create new ones. For instance, mobile appointment systems and telemedicine can exclude individuals with limited digital access or literacy unless paired with measures to support them [10]. Additionally, AI health technologies may systematise and amplify biases when trained on unrepresentative datasets. Small sample sizes, underrepresentation of minorities, geographically concentrated data collection, and limited funding and infrastructure in resource-constrained settings can leave entire sociodemographic groups excluded. Consequently, AI outputs based on biased data can reinforce inequities in healthcare, further marginalising underserved populations [11].

From Global Commitments to Local Action

A cost-effective UHC-driven digital transformation of health requires country-specific implementation strategies aligned with national priorities and resources, responsive to local needs and focused on equity [3]. Since 2005, the WHO and other international organisations have worked to help countries translate global goals into locally tailored actions and measure progress. Even though the *Global Strategy on Digital Health 2020–2027* provides valuable objectives, emphasising global collaboration, knowledge sharing, strong digital health governance, and nationally driven strategies, global frameworks cannot prescribe context-specific pathways for every setting [3]. Therefore, complementary toolkits and guides for national

and local implementation provide practical step-by-step guidance and cost-effective measures that can be adapted to country needs. Key examples include the WHO's *Guideline on Digital Interventions for Health System Strengthening*, the *National eHealth Strategy Toolkit*, and the *Digital Implementation Investment Guide (DIIG)* [12–14].

Despite several guiding documents and political discussions, patients and physicians still encounter barriers arising from limited digital literacy and resources, poorly adapted technologies, and algorithms that may not reflect local populations' clinical needs. This represents a mismatch between global commitments and the capacity to translate them into local progress. Accordingly, UHC 2030, a multi-stakeholder platform hosted by WHO, the World Bank, and the Organization for Economic Co-operation and Development (OECD), launched a strategic narrative on digital transformation to address this implementation gap by emphasising equitable, rights-based, and nationally owned approaches. The narrative was formulated in collaboration with a wide spectrum of international agencies, civil society organisations, and alliances, including the CSEM, the OECD, DTH-Lab, Transform Health, the GIDH and the Asian Development Bank. It calls for stronger digital infrastructure and digital literacy, while leveraging digital tools to improve health-system efficiency and financing [2].

This narrative is increasingly important as global health leaders prepare for the *Global Strategy on Digital Health 2028–2033* and for the 2027 UN High-Level Meeting on UHC. Given concerns that digitalisation may exacerbate inequities and overlook digital

determinants of health, translating these principles into sustained national action will be critical to ensuring that digital transformation advances, rather than undermines, progress towards UHC. Furthermore, successful implementation depends on a health workforce equipped to use digital technologies while also understanding their limitations and risks. Structured, evidence-based capacity building is therefore essential to translating digital health strategies into equitable improvements in care and advancing UHC [15].

The Role of Physicians in Digital Health

In 2009, and again in 2022, physicians worldwide called for their inclusion in the digital health transformation, underscoring their role in ensuring that it meets the needs of patients and health professionals [16]. However, physicians have no single role in digital transformation; their contributions include clinical practice, education, co-design, evaluation, advocacy, and policy-making. As a starting point, they need the knowledge and skills to engage effectively, supported by capacity building and an understanding of how digital tools work, their potential, and their implications [17]. These competencies should be introduced early during medical education and be reinforced through lifelong learning [16]. Institutional cultures that support digital health education and implementation should be fostered, including through structured change management approaches such as Kotter's eight-step model, as proposed by the DIIG [14].

Despite ongoing debate over whether digital tools, particularly AI, will replace physicians,

global leaders and scholars have reiterated that these systems should complement, not replace, physicians. This concept reinforces the notion that physicians should develop the skills to use such tools effectively, while reinforcing that replacing physicians with digital systems and algorithms, especially in countries facing workforce shortages, is not a viable solution. Health professionals are well positioned to assess institutional and clinical needs and identify gaps that technology can address. Accordingly, physicians should be involved in co-designing technologies and implementation strategies, helping identify problems and adapt tools to patients' needs. This approach promotes digital transformation focused on improving quality of care, rather than adopting technologies with limited clinical utility [18]. Importantly, ongoing evaluation is essential to determine whether digital tools improve health outcomes, quality of care, and working conditions. Physicians have the responsibility to identify when their use of digital health technologies becomes excessive or inappropriate and to assess their safety, efficacy, cost-effectiveness, feasibility, and impact on patient outcomes [14].

Given the risks of digital health transformation that is not human-rights-based or patient-centred, physicians should advocate for medical ethics, human rights, and alignment with the 2030 Agenda for Sustainable Development. Digital health transformation should adhere to established frameworks, such as the Declaration of Geneva, the International Code of Medical Ethics, the Declaration of Helsinki, and the Universal Declaration of Human Rights. Physicians can engage in policy-making, either

as policy-makers or end-user advisors, to support the continuous assessment and improvement of digital health across national and global health institutions [14].

"Equity is at the heart of Transform Health's work. Across our coalitions, we see that digital health can only be transformative when it actively reduces barriers to access, strengthens trust, and empowers those left behind. Our work focuses on building governance, financing, and accountability systems that ensure digital tools serve everyone fairly. Bridging global frameworks with local practice is essential – and junior doctors, youth, and frontline providers are central to making digital health truly equitable."
– Mathilde Forslund, CEO, Transform Health

Charting the Path to 2033 and Beyond

The draft *Global Strategy on Digital Health 2028–2033* places vital emphasis on robust health information systems, interoperability, and stringent data protection, crucial for both high-income countries (HICs) and low- and middle-income countries (LMICs). However, while the technical direction is sound, LMICs are left grappling with the harsh reality of severe resource constraints. Where HICs can build upon mature infrastructure, many LMICs must first navigate fundamental digital divides, often lacking baseline telecommunications coverage, reliable power, and sufficient fiscal space.

The WHO serves as a normative and technical advisory body, establishing benchmarks, guidance, and evidence-based standards rather than financing national infrastructure. Addressing the substantial equity gaps highlighted by ITU data

requires structural capabilities that extend far beyond the mandate of any single health agency. The key question is how the global ecosystem can coordinate to ensure that technical standards translate into tangible health outcomes rather than wider disparities. As the *Global Strategy on Digital Health 2028–2033* takes shape, international dialogue must expand from policy design to implementation, bringing development banks, donors, and cross-sectoral partners together to link technical guidance with locally tailored financing.

Digital transformation has moved from peripheral innovation to a defining force shaping health systems toward 2030 and beyond. Its promise cannot be fulfilled by technology alone. The same tools that can extend access, strengthen surveillance, and support clinical decision-making can also deepen inequities, erode trust, and increase complexity when implemented without adequate governance, evidence, and attention to local realities. The task ahead is therefore one of translation: turning global commitments into sustainable, context-sensitive systems that serve people rather than technology itself. This task requires political leadership, long-term investment, and meaningful participation from those who deliver and receive care. Physicians have a particular responsibility as users of digital tools and as co-designers, advocates, and policy partners. Ultimately, digital transformation should be judged by whether it advances equitable, high-quality, people-centred health for all.

Author Contribution Statement

All authors contributed to the conceptualisation and design of the study and prepared the original

draft of the manuscript, with each author drafting at least one section. GDF developed the initial framework of the article. MP compiled and verified the list of references and edited the article to ensure overall consistency across sections. All authors critically reviewed, revised, and approved the final manuscript for publication.

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Empowering Patients through Universal Access to Electronic Health Records



Richard Fitton



Venkatesh Karthikeyan

A rigorous appreciation of why patients require access to their records must begin with precision regarding what those records contain and what epistemic value they hold. Clinical documentation, in its raw form, constitutes data – discrete, decontextualised biomedical facts. These data points, when organised and presented in a form comprehensible to a non-specialist reader, become information. The distinction is not trivial: a patient who receives a printed laboratory result but cannot interpret its clinical significance has acquired data, not information, and the therapeutic utility of that transaction remains minimal.

Knowledge emerges when two or more informational inputs are synthesised in relation to a known reference. For instance, a patient

should understand that an elevated hemoglobin A1c (HbA1c) in the context of a high-carbohydrate diet and physical inactivity is not an isolated laboratory anomaly, but rather the expression of poorly controlled glycaemia with implications for nephropathy and retinopathy. Understanding, a further cognitive layer, arises when the patient applies accumulated knowledge to their own specific longitudinal experience, producing a personalised interpretative framework. This patient-derived understanding, while idiosyncratic and at times partially incorrect, represents an irreplaceable epistemological resource that differs from, and adds to, the clinician's view.

The World Health Organization (WHO) defines health literacy as *“representing the personal knowledge and competencies that accumulate through daily activities, social interactions and across generations. Personal knowledge and competencies are mediated by the organizational structures and availability of resources that enable people to access, understand, appraise, and use information and services in ways that promote and maintain good health and well-being for themselves and those around them”* [1]. Without access to their own records, patients cannot achieve the full potential benefit. Data remain sequestered within systems that, however sophisticated, cannot substitute for the individual's capacity to self-monitor, self-interpret, and self-advocate.

Clinical Safety, Quality, and the Patient Avatar

Electronic health records (EHRs) function not merely as administrative repositories but as dynamic digital representations of the patient – which can be described as the “patient avatar.” This conceptualisation carries profound implications. Just as a detailed anatomical model must be accurate to be clinically useful, the EHR must be complete, current, and validated by the most informed possible source: patients themselves. The systematic exclusion of patients from the co-authorship and ongoing verification of their own records introduces a structural vulnerability into the safety architecture of clinical care.

Peer-reviewed evidence demonstrates the magnitude of this vulnerability. Studies have identified that a significant percentage of clinical records contain errors or omissions of potential clinical significance – that would be deemed unacceptable in any other safety-critical industry [2,3]. The aviation sector, widely cited as a comparator for its systemic approach to failure prevention, has developed layered inspection protocols premised on the recognition that individual expertise, however excellent, is an insufficient safeguard against the accumulation of small errors. The parallel with patient co-inspection of health records is direct: patients reviewing their own records have been shown to identify inaccuracies in documented diagnoses, allergies, medication lists, and procedural histories. These corrections prevent adverse drug reactions, diagnostic misattributions, and the perpetuation of clinical errors

across institutional boundaries.

The temporal reality of chronic disease management renders this co-inspection as structurally necessary. In typical outpatient practice, a physician may interact with a patient for approximately 15 minutes, with even shorter consultation times in resource-limited settings [4]. In contrast, the patient lives with their condition for approximately 525,600 minutes annually – every conscious moment spent negotiating symptoms, managing medications, observing responses to treatment, and navigating daily functional limitations. During this vast interval of unsupervised self-management, the EHR functions as a “Memory Palace”: a structured repository of clinical history that the patient can consult, study, and annotate, transforming passive data storage into an active instrument of self-knowledge. Research examining the OpenNotes initiative – which enabled patients in the United States to read their physicians’ clinical notes – has demonstrated that access to records improves treatment adherence, increases patient preparedness for clinical encounters, and reduces emergency department utilisation, particularly among patients managing complex, multi-system chronic disease [5,6].

The safety imperative is not hypothetical. The case of Harold Shipman – a British physician subsequently convicted of the murder of about 250 patients through illicit opioid administration, with deaths obscured by falsified records – illustrates an extreme instance of what can occur when patients have no independent access to the documentation purporting to represent their clinical history [7]. Patients and families who possessed copies of their own records would have been positioned

to detect alterations in clinical entries, thereby providing an independent audit trail. While it would be reductive to frame the case for universal record access around the prevention of criminal conduct, the case nonetheless crystallises the epistemic argument: a record that cannot be independently verified by its subject is a record that cannot be fully trusted.

Systemic Barriers

The desirability of universal patient access to EHRs is largely uncontested. Those working in health informatics and digital health governance frequently command sophisticated technical competencies while underestimating or misapplying the sociological, anthropological, and other dimensions of implementation. The introduction of digital records into clinical practice requires the simultaneous transformation of consultation habits, professional identities, institutional cultures, and patient expectations. Its implementation is constrained by infrastructural, policy, and structural constraints.

• *Infrastructural challenges:* Economies characterised by pronounced urban-rural disparities in digital access and healthcare provision face the greatest infrastructural challenges. The frameworks articulated by the Black Report and subsequently the Acheson Report demonstrated that health outcomes are substantially determined by socioeconomic position, and that the systematic under-resourcing of primary care in deprived communities perpetuates these differentials [8,9]. The absence of robust, accessible digital health records in these communities with

the highest clinical complexity and the greatest need for coordinated care constitutes a contemporary manifestation of this historical pattern.

- *Policy challenges:* The integration of digital health infrastructure confronts a structural and policy paradox that is replicated across multiple national contexts. In many low- and middle-income countries, the agencies responsible for health system governance and information technology investment operate as entirely independent governmental entities, with separate legislative mandates. Achieving the degree of inter-ministerial coordination necessary to develop, procure, and implement a nationally standardised EHR system demands sustained political will across governmental silos that are not structurally incentivised to collaborate.
- *Structural challenges:* Standardisation and data portability represent the technical prerequisites for the vision of universal record access to be realised. A patient who moves between healthcare providers, regions, or countries must be able to carry a complete, machine-readable health history whose integrity is preserved across institutional boundaries. The current global landscape is characterised by non-interoperable systems and commercial arrangements that impede data flow across institutions and geographies. The consolidation of health data within commercial cloud infrastructure – including the storage of the United Kingdom’s National Health Service (NHS) patient data within major technology corporation servers

– introduces further questions regarding data governance, sovereignty, and the financial architecture under which personal health information is processed and potentially commercialised [10]. Dynamic consent, whereby patients retain ongoing, revisable control over data and use, is an essential safeguard for patient-centred digital health systems, though its implementation at scale remains challenging [11].

The Ethics of Shared Records

A persistent concern raised by clinicians considering the expansion of patient record access is the risk of professional responsibility being transferred to or claimed by, the patient. The physician who enables a patient to read, understand, and contribute to their own clinical record does not thereby surrender the professional and ethical obligations of clinical stewardship. The physician retains responsibility for the accuracy of clinical judgement, the appropriateness of therapeutic interventions, the timeliness of referrals, and the overall architecture of the care plan. Information (not responsibility) is shared, enhancing the patient's ability to contribute meaningfully to the clinical encounter, monitor their own progress, and advocate effectively for themselves in interactions with healthcare providers who do not know their medical history.

This framing is consistent with the broader trajectory of international health policy. The WHO's Patient Safety Charter, revised in 2023, explicitly articulates a patient's right to access their own records as the eighth right within its framework – a recognition that transparency in clinical documentation is integral to the safety and dignity of the therapeutic

relationship [12]. Although incorporating this right into an internationally recognised charter does not resolve the structural barriers to its implementation, it establishes a standard for evaluating national health systems.

Towards a Global Standard

The transition from paternalistic medicine to genuine patient partnership requires more than attitudinal reform at the level of the individual clinician. It warrants the systematic redesign of health information infrastructure to place patients at the centre of their own clinical documentation. Rather than remaining passive recipients of information about themselves, patients should be recognised as active co-producers and validators of the records that shape their care. Universal patient access to EHRs is the necessary technical and ethical precondition for this transformation.

The evidence base is robust: patients with access to their records demonstrate superior treatment adherence, enhanced self-management competency, and reduced acute care utilisation. The patient safety case is clear: a significant rate of errors in clinical documentation constitutes a structural failure that patient review is uniquely positioned to address. The equity argument is urgent: in the absence of deliberate policy intervention, the benefits of digital health will accrue disproportionately to those with the existing resources, literacy, and digital access to exploit them, while the populations with the greatest clinical need are left furthest behind.

This analysis gives rise to actionable recommendations at both structural and grassroots levels. Structurally,

health ministries should implement mandatory interoperability standards, dynamic consent frameworks, and data portability architectures that enable patients to access their complete health records regardless of provider or institutional context. At the inter-governmental level, coordinated investment across health and information technology portfolios is essential, with shared strategic planning replacing fragmented ministerial mandates. At the clinical level, the most durable driver of change is the cultivation of genuine partnership with patients, including their representation on clinical excellence and patient safety governance boards.

Conclusion

The patient who can read, annotate, and contribute to their own problem-oriented record is not a threat to the clinical enterprise; they are its most reliable collaborator. By bridging the gap between passive data storage and active therapeutic partnership, universal access to EHRs acts as a foundational intervention that promotes health equity, literacy, and safety. As the technological infrastructure for universal access matures – and as the policy architecture supporting data portability, standardisation, and dynamic consent is progressively constructed – the fundamental obligation of healthcare providers and health systems is to resist the inertia of historical paternalism and embrace the empirically demonstrated, ethically mandated reality. After all, the patient is not merely the subject of the health record but, in every meaningful sense, its author.

Author Contribution Statement

RF and VK conceptualised the design and prepared the original manuscript draft. All authors critically reviewed and revised the manuscript and approved the final version for publication.

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The Slovenian Act on Voluntary Assisted Dying: Parliamentary Approval Without Enactment



Luka Mišič

In 2025, the *Slovenian Act on Voluntary Assisted Dying* (hereinafter: The Act) introduced the right to medically assisted suicide for full-aged patients experiencing unbearable suffering with no acceptable form of relief [1]. It was based on the participation of physicians, first and foremost, confirming the patient's dire state of health, and nurses in different stages of the proceedings. The Act, which did not legalise euthanasia and excluded mental illness as a basis for claims, was passed in Parliament; however, it was rejected in the referendum a few months later and never enacted. This article provides a brief description of the final version of the Act and its most relevant provisions.

The Act's Legislative Path

The Act's legislative process began in 2021, marked by increased involvement from the Civil Society working group in public debates, professional discussions, and the drafting and refinement of the text, which eventually formalised into a legislative proposal. In 2023, enough voter signatures were collected to present the proposal before Parliament. Although the bill did not advance past the initial stages

of Parliamentary proceedings when first presented, a promise was made that it would later be brought before Parliament by the then-leading political party. This was a deliberate political strategy to first legitimise the decision, or from a different perspective, to assess the political landscape and prevent a backlash from the electorate.

In the summer of 2024, a deliberative referendum was held, where a total of 54.9% of participating voters supported a law permitting medically-assisted suicide [2]. This referendum, however, included only a general question on medically-assisted suicide rather than focusing on a specific piece of legislation. After the unbinding popular vote, Parliament officially passed the Act in July 2025. At this point, voter signatures were gathered to submit the newly passed legislation to a legislative referendum in November 2025. The referendum, this time around binding, drew a total of 696,341 voters (41.0% of the electorate), and opponents of the Act ultimately prevailed, with the measure being rejected by a margin of 53.4% to 46.6% [3]. In early 2026, a group of voters petitioned to annul the referendum, alleging unlawful interference by physicians' organisations (e.g., display of political messages opposing the Act in public institutions) and the Roman Catholic church, which despite not registered as a campaign organiser was alleged to have functioned as one. In adjudicating the referendum dispute – without addressing the right to medically assisted suicide – the Supreme Court identified certain irregularities in the referendum campaign, but upheld the

referendum's validity, concluding that the irregularities had not affected the outcome of the vote [4].

Currently, the Constitutional Court is reviewing the legality of the referendum. The legalisation on medically-assisted suicide and euthanasia nevertheless appears highly unlikely. This scenario is due to the one-year moratorium following the referendum's rejection of the measure, but also to the position of the newly elected government, which strongly opposes such legalisation.

Basic Conditions

Articles 3, 5, and 6 are the key articles of the Act that make up the content of the right to medically-assisted suicide. Article 3 highlights the principles of patient autonomy, their greatest health benefit, personal dignity, and transparency and influences, by means of its basic principles, the interpretation and use of other provisions of the Act. Perhaps the most important principle, stemming from Article 3, is respect for patient autonomy, which requires that the patient's wishes be respected throughout the procedure. The patient may withdraw from the procedure at any time, and no person may be compelled to enter or continue with the medically-assisted suicide.

Article 6 describes two medical conditions under which medically-assisted suicide is permissible: 1) if a patient is experiencing unbearable suffering and no form of relief that the patient finds acceptable is available; and 2) according to a physician, results from a serious incurable illness

or another severe permanent impairment of health, the treatment of which has been exhausted and offers no reasonable prospect of recovery or improvement in health. The patient also must have made an informed decision to exercise the right to “voluntary assisted dying” and has applied to exercise that right, as called under the Act. The right may not be exercised on the basis of unbearable suffering that is solely the manifestation of a mental illness.

Notably, Article 6 has been amended multiple times by the working group, initially focusing on a more subjective notion or wording of unbearable suffering – the suffering the patient finds unbearable – which still had to be confirmed by the physician. These modifications have led to extensive debates about how to define the state of health and whether disability or mental illness should be included under the Act. In the final version, only mental illness was excluded, although some doctors also recommended excluding disability as legal grounds.

Article 5 specifies the formal conditions for the right to medically-assisted suicide, which can be granted to mandatorily insured persons in Slovenia who are of full age and Slovenian nationals, since the right is included in the mandatory health insurance scheme. However, this provision is problematic because it may exclude other mandatorily insured persons, such as permanent residents or migrant workers who pay social security contributions in Slovenia and access healthcare services there, but would be ineligible for this specific type of healthcare service. If the Act had been enacted, it is doubtful whether this provision would have

passed constitutional review. One of the reasons for its introduction, though, was to prevent cross-border healthcare provision. Although this scenario is highly unlikely, European Union law and the corresponding national legislation provide that patients (or in this case, their heirs) are entitled to reimbursement only for treatment that is covered by their Member State of insurance. Patients would also not be able to rely on the European Health Insurance Card, as it covers only medically necessary healthcare required to avoid a premature return to the Member State of insurance and applies only to unplanned treatment.

Professional Duties of Healthcare Professionals

The Act foresees the participation of numerous healthcare professionals, such as attending physicians, substitute physicians, psychiatrists, and nurses. In later versions of the draft, prior to its introduction to Parliamentary proceedings, the psychiatrist's role was expanded after public discussion to additionally ensure that the patient's decision was made with full capacity. Article 4 provides for the exercise of conscientious objection by all healthcare professionals, including pharmacists, whose right to conscientious objection was recently abolished through an amendment to the *Pharmacy Services Act* and whose loss of that right was subsequently upheld by the Constitutional Court [5,6]. The Court explicitly clarified that it did not consider the regulation on medically-assisted suicide. Unlike the *Pharmacy Services Act*, the court noted that the specific legislation on medically-assisted suicide permitted pharmacists to

exercise conscientious objection.

Initially, the Act included an explicit obligation of healthcare professionals to participate in medically-assisted suicides, establishing a new professional duty. The aim was to prevent medical organisations from disciplining physicians who would perform their lawful duties. With significant opposition from the medical community, however, this clause was excluded from the official legislative proposal. Nonetheless, medical organisations cannot discipline physicians for lawful actions under their autonomous law (e.g., ethical codes), especially when those actions involve exercising rights from compulsory health insurance, as it could hinder patients' equal and effective access to healthcare services.

The *Code of Medical Ethics* (hereinafter: The Code) consists of three articles – 27 on futile treatment, 28 on palliative care, and 29 on euthanasia and assisted suicide – concerning end-of-life decisions under the chapter on end-of-life medical aid [7]. Most importantly, Article 29 explicitly states that physicians shall reject both euthanasia and assisted suicide. From this perspective, the Code follows the provisions of the Criminal Code, which prohibit any type of solicitation and assistance in suicide [8]. However, if the Criminal Code were to decriminalise medically-assisted suicide or if any other act were to introduce a patient's right to medically-assisted suicide or even euthanasia, the Code would have to adapt to the amended heteronomous legislation within the hierarchy of legal norms so as not to violate the principle of legality [9].

Medically-Assisted Suicide

The process starts with a claim notification to the designated attending physician – either the patient's general physician or another physician currently treating the patient for the illness justifying their request for medically-assisted suicide, commonly at the hospital level. After the request is made formal, additional physicians are recruited to assess the patient and their health. The decision, after which the patient may take their life with the assistance of a medical team, is passed by a special committee with judicial oversight by specialised social courts.

Informing the patient. In accordance with Article 7, the attending physician must inform the patient in a clear and comprehensible manner of four elements: 1) expected progression of the disease or health condition; 2) irreversible nature of the assisted dying procedure; and 3) other options for alleviating suffering (e.g., supportive treatment, pain management including palliative care, other healthcare procedures not available in Slovenia or not covered by compulsory health insurance); and 4) potential adverse side effects of the lethal substance or of any supportive medications used in the procedure. Importantly, all healthcare professionals are prohibited from actively encouraging the patient to claim the right, since physicians' organisations or representatives feared their prosecution on grounds of abetting suicide.

Conversely, under the Act, the physician must encourage the patient to discuss their intention with persons close to them and, if the patient is hospitalised, ensure the patient has the opportunity to actually engage in these conversations.

The attending physician must verify that the patient's decision to submit a notice of claim for assisted dying was made voluntarily and without any deception, force, threats, or other forms of coercion, through consultations with other persons lawfully participating in the proceedings. The attending physician must, crucially, inform the patient of their right to withdraw from the process at any time. After the initial conversation with the patient, the claim notification must be reviewed with the patient again within 3 to 14 days to ensure the decision remains valid.

Conducting the informed consent process. Following the review of the claim notification, patients sign the informed consent, which contains all vital information regarding their treatment and the irreversibility of the procedure, and confirm their decision before a notary. The consent is accompanied by the attending physician's opinion on whether the patient fulfils the conditions. Within three days of receiving the claim, the Assisted-Dying Committee (hereafter: The Committee) designates an independent physician and a psychiatrist, who should have no relationship with the attending physician, be an expert in the patient's disease, and have at least 10 years of clinical experience. The additional consent requirements were introduced as a higher level of protection to modify earlier working drafts of the Act, in which only a trustworthy witness was required and psychiatrists were not designated.

Seeking Committee review. Under Article 13, the final decision is made by the Committee, established within the Ministry of Health and composed of two physicians and one nurse (each with at least 10 years of

clinical experience), a legal expert, and a social sciences expert, within 15 days of receiving the opinions of both physicians. The composition of the Committee, including the possibility of appointing additional experts, varied between successive working drafts. As with other healthcare professionals, participation is open only to those who have not declared a conscientious objection against medically-assisted suicide in order to protect equal and effective access to the right. This provision sparked considerable public controversy, as many argued that the Committee would favour death over life.

The Committee approves the claim when both attending and independent physicians provide positive opinions, supported by the psychiatrist's positive opinion. Conversely, it rejects the claim if both opinions are negative or if the psychiatrist's decision is negative. The Committee only undertakes a full deliberation when the attending and independent physicians' opinions differ. Judicial protection is afforded before specialised social courts, since the right to is provided within the compulsory health insurance scheme.

After a negative decision by the Committee, the patient can still reinstate the procedure if their health condition changes. To better protect the patient's right to life, the Act prohibits advance decisions about medically-assisted suicide, even if this means that an unresponsive patient's true wishes, reflecting their previously conscious choice, might not be honoured. The Act also does not affect the general rules on advance directives set out in the Patients' Rights Act [10].

Performing the procedure. The assisted-dying process begins only after the patient's request, following

the Committee's positive decision. The Act's various versions specified different time limits for the procedure to begin, ensuring that the patient is not pressured into committing suicide, remains mentally sharp during the end stages of the proceedings, and has at least minimal physical capacity (e.g., ability to self-administer the lethal substance by ingestion or self-injection). These specificities of the procedure were left to by-law regulation. Under Article 20, the procedure stops if the patient cannot actively participate. Noting these requirements about the patient's physical and mental health status, approving this legislation may trigger equal treatment concerns for severely disabled persons.

The attending physician and the patient decide on the date, time, location, and method of administration. The procedure may take place at the patient's home or another suitable location chosen by the patient (e.g., hospital), and property owners (e.g., in the case of renters) cannot prevent its occurrence. The attending physician or nurse prepares the medication and may consult with close contacts, healthcare team members, or home-care providers with the patient's consent. The patient can choose who is present, and additional healthcare professionals may be involved if needed. If any healthcare professional has a conscientious objection during this process, a qualified substitute who does not object may perform the required duties, with the Committee maintaining a register of eligible substitutes.

Before performing the assisted-dying procedure, the attending physician or nurse must confirm the patient's wish to proceed. If the patient declines, the procedure is halted, the medication and related

devices are removed and returned to the pharmacy, and the refusal is documented and reported. If the patient agrees to continue, the healthcare professional must assist in administering the prescribed substance using the patient's chosen method. If the patient cannot actively participate at the scheduled time, the procedure is suspended. Euthanasia, commonly referred to as "active" medically-assisted suicide, is not allowed.

The attending physician or nurse must remain with the patient until death is confirmed, at which point the death examiner is notified. Various versions of the Act, shaped by public feedback, included different healthcare professionals in the final step, such as the attending physician or the patient's general physician. The final version mandates the involvement of either a physician or a nurse and permits the formation of specialised healthcare teams to perform the procedure, thereby avoiding pressure on all healthcare professionals who might otherwise be involved.

Conclusion

Regarding medically-assisted suicide or broader end-of-life decisions, Slovenian laws – covering criminal, civil, and patients' rights – permit withholding or withdrawing futile treatments. Generally, medical treatments are not provided if the patient, even if terminally ill, has not given full, informed consent or has withdrawn it. However, medically-assisted suicide, including euthanasia, remains prohibited. Under current laws, any assisted suicide or killing upon request, whether carried out by a healthcare professional or a layperson out of mercy or compassion, is considered a criminal offence – even if the patient or individual explicitly consents

– and typically also counts as a civil wrong. Some scholars argue that, in general, the law imposes ethical or deontological limits on physicians and medical staff involved in what they refer to as self-destructive behaviour [10]. Their involvement in such actions, such as assisted suicide or on-demand killing, could result in civil, criminal, and disciplinary liabilities [11]. Current regulation, unlike the Dutch or Swiss models of regulating medically-assisted suicide and euthanasia, gives priority to the principle of sanctity of life over the principle of autonomy [12].

The *Act on Voluntary Assisted Dying* aimed to bring change with the original intention to legalise both medically-assisted suicide and euthanasia. The draft, comprising both procedures, was first presented to the Slovenian public in 2021. However, it was passed four years later, in the summer of 2025, to only include the legalisation of medically-assisted suicide, where the patient self-injects or consumes the lethal substance on their own, in the presence of medical professionals and trusted persons. Ultimately, the Act was rejected in a legislative referendum in late 2025 and was never enacted to date.

Author Disclaimer

The author has been a member of the working group behind the Act on Voluntary Assisted Dying since 2020. Further discussion on the Act, including patients' rights and criminal law, can be reviewed in author's reference 8. Following the recent legislative action in the field, the author is preparing a new chapter on Slovenia within an edited volume, published in French by Éditions Hospitalières (LEH) as part of the IFTRAAVIE project planned for March 2027.

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The author used artificial intelligence tools for language editing and proofreading to improve grammar, structure, and clarity. AI-generated or AI-edited visuals are identified in the corresponding figure captions. The intellectual content, analysis, and conclusions remain entirely those of the author.

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Examining the Principle of Respect for Human Vulnerability and Personal Integrity in Global Biolaw



Helena Pereira de Melo

The word “vulnerability” derives etymologically from the Latin term *vulnus, vulneris*, meaning “wound.” Vulnerability signifies susceptibility to physical or mental harm, stressing that all human beings are inherently vulnerable simply by virtue of existing. These vulnerabilities can include acute or chronic illness, disability, harmful environmental exposures, and accidents. If being vulnerable is inevitable, ensuring recognition of the principles of respect of human vulnerability and personal integrity in Global Biolaw becomes challenging. It also raises the question of how the principle of respect of human dignity, as the main principle of International Human Rights Law, interrelates with the new principle that aims to protect each vulnerable human being from the possibility of suffering harm to their life or personal integrity. This article will discuss the importance of the new approach to human dignity, mainly understood as vulnerability, in the three United Nations Educational, Scientific, and Cultural Organization (UNESCO)’s Bioethics Declarations: The Universal Declaration on Bioethics and Human Rights (2005), the International Declaration on Human Genetic Data (2003), and the Universal Declaration on Human

Genome and Human Rights (1997).

Over the past two decades, the UNESCO’s International Bioethics Committee has recognised the difficulty in understanding and incorporating the concepts of human vulnerability in key global policies. With the adoption of the Universal Declaration on Bioethics and Human Rights by the UNESCO General Conference on 19 October 2005, the UNESCO Committee noted that Article 8 explicitly references “human vulnerability”: *“Thus, attempts to define vulnerability in general risk drawing the concept too widely or too narrowly, thereby triggering disputes rather than resolving them. In most cases, however, it is relatively easy to recognize vulnerability when it arises: something fundamental is indeed at stake”* [1]. So, this UNESCO Committee recognised that it is not feasible, at an international human rights level, to precisely define “human vulnerability” or pinpoint exactly when it should be respected when applying Global Bioethics instruments. As it is not a measurable quantity, it reflects a qualitative concept, much like the concept of “human dignity.” When applying the Declaration to a person, group, or community, the responsible entity distinguishes their dignity and vulnerability as inherent to all humans, warranting respect by virtue of humanity.

In International Human Rights Law, “vulnerability” and “human dignity” are open concepts, frequently defined by interpreters within international and national organisations in only a *contrario sensu* (in the opposite sense), acknowledging that something fundamental has been violated,

and that the essential of what defines us as “human” (based on the bioethical and legal understanding of being “human”) is at stake. From a bioethical perspective, the work of the French Personalists, like Emmanuel Lévinas, is essential to understand this new concept of “vulnerability”: we become responsible for the other person the exact moment they turn their face toward us, and our responsibility is infinite, asymmetrical, and inescapable. Although we may not choose to be responsible for the other person, the demand for ethical responsibility, love, and care is imposed on us by their mere presence. The face (vulnerable presence) of the other mirrors our immediate responsibility towards them, even if we have never met this person before [2]. Or, as Dostoiévsky clearly stated, *“everyone is responsible for everyone and everything,”* moral responsibility requires universal interconnectedness, mutual recognition, respect, and active care among all human beings [3].

UNESCO’s gradual incorporation of the principles of respect for human vulnerability and human integrity as key criteria for assessing the ethical acceptability of applications of scientific progress reflects a broader deontological recognition, that “vulnerability” is an essential feature of the human condition, especially in contexts such as medical care and participation in clinical research. Three fundamental policies were pivotal to UNESCO’s progressive recognition of the principle of respect for human vulnerability. First, the Declaration of Helsinki, approved by the World Medical Association in Finland in 1964, and

revised multiple times until 2024, establishes the ethical principles for medical subjects to guide human research. Second, the *International Ethical Guidelines for Health-related Research involving Humans*, prepared by the Council of International Organizations of Medical Sciences in collaboration with the World Health Organization, in 1982, sets forth the ethical principles that should be upheld in research protocols. Third, the *Belmont Report on Ethical Principles and Guidelines for the Protection of Human Subjects in Research*, published by the U.S. National Commission for the Protection of Human Subjects and Behavioural Research in April 1979, recognises the principle of respect for human vulnerability and personal integrity in Bioethics and Biolaw [4].

Universal Declaration on Bioethics and Human Rights

UNESCO's Universal Declaration on Bioethics and Human Rights is the landmark international legal text that recognises the principle of respect for human vulnerability in Global Biolaw. Specifically, Article 1 addresses *"ethical issues related to medicine, life sciences and associated technologies as applied to human beings, taking into account their social, legal and environmental dimensions"*. Addressing the UNESCO's Member States and civil society (individuals, groups, communities, institutions, corporations), the Declaration has a broad material scope, since the text applies to clinical practice, biomedical research, and the development of public policies in healthcare provision. For this reason, who can be considered as "vulnerable" in the application of the Declaration across these fields of activity?

The principles of respect for human vulnerability and personal integrity, which applies to all the activities undertaken within the scope of the Declaration, is clearly stated in Article 8: *"In applying and advancing scientific knowledge, medical practice and associated technologies, human vulnerability should be taken into account. Individuals and groups of special vulnerability should be protected and the personal integrity of such individuals respected"*. "Vulnerability" represents a quality that certain individuals, families, and groups display in the social, legal, and environmental contexts where they live [5]. Its interpretation is related with the Christian idea of *"noli me tangere"* (i.e., no one should interfere with my personal integrity or my freedom without my free and informed consent). It is regarded as an open concept, interpreted differently depending on the underlying concept of Justice, given that Western Legal Philosophy offers more than 20 different interpretations of this core value. It is flexible enough to protect the human being against the new harms biomedical progress may bring in the future to human dignity, human rights, and fundamental freedoms.

Some scholars who have analysed the new principle of respect for human vulnerability argue that both human vulnerability and human dignity are foundational elements of Global Bioethics and Global Biolaw, dating back to the post-World War II period [6,7]. This shift of interpretation reflects a broadened understanding of human dignity. It is interpreted not only in line with the Kantian imperative of treating people as ends in themselves and not merely as means, but also as requiring enhanced legal protection in light

of particular vulnerability, arising from individual characteristics or group membership that is disadvantaged relative to the general population.

We may consider two large groups of vulnerable people based on their biological characteristics or socio-economic status. The first group (biological characteristics) includes persons living with an acute or chronic disease (who are afraid of poor health or mortality), temporary or permanent physical or mental disabilities or susceptibility based on age or gender (e.g., elderly, children, women). The second group (socio-economic status) may include low-income populations, gender minorities, immigrants, asylum seekers, victims of armed conflict, persons without employment or low levels of education, and inmates. Nevertheless, a person may present physical characteristics or a social-economic status that renders the fair application of this principle, since some people are more objectively vulnerable than others, and vulnerability may be perceived differently by individuals in similar life circumstances. The principle of respect for human vulnerability interacts with other important principles that underlie the Declaration text, such as the principles of the human dignity, beneficence, autonomy, respect for privacy and confidentiality of personal information, and non-discrimination and non-stigmatisation in the exercise of human rights and fundamental freedoms.

UNESCO Member States have duties according to this soft law (non-binding) instrument, which may either be negative or positive. Negative duties are a

consequence of the respect of first-generation human rights (e.g., right to life, right to personal integrity) and impose abstention, so that these rights are not offended by State institutions and public or private agents. Positive duties imply action and the adoption of public policies by Member States (e.g., promoting bioethics education and training). Solidarity between States and vulnerable individuals and groups is foreseen in the Declaration text. Article 24(3) states that vulnerability results from “disease or disability or other personal, societal or environmental conditions” or of having access to “limited resources.” Governments of more affluent nations shall provide, for instance, assistance to vulnerable populations residing in countries severely impacted by climate change or experiencing economic hardship.

International Declaration on Human Genetic Data

“Vulnerability” is well described in the International Declaration on Human Genetic Data, adopted unanimously at the UNESCO’s 32nd General Conference on 16 October 2003. In Article 1(a), the Declaration aims primarily to “*ensure the respect of human dignity and protection of human rights and fundamental freedoms in the collection, processing, use and storage of human genetic data, human proteomic data and of the biological samples from which they are derived.*” The Preamble refers expressly to vulnerability in what concerns “*to the special needs and vulnerabilities of developing countries and the need to reinforce international cooperation in the field of human genetics.*” Human genetics has developed predominantly in high-income countries of the Northern

Hemisphere over the last 25 years, and its applications in predictive and preventive medicine remain relatively expensive. Low-income countries in the Global South face significant economic constraints in providing their populations with the benefits of biomedical progress. Therefore, international scientific and cultural cooperation in the international community in this field and equitable sharing of its benefits between the Global North and the Global South, is essential to address the consequences of population vulnerability arising from limited economic and scientific resources and inadequate access to new applications of scientific progress.

Universal Declaration on the Human Genome and Human Rights

The Universal Declaration on Human Genome and Human Rights was the first of the Global Bioethics Declarations adopted by UNESCO’s General Conference on 11 November 1997, afterwards endorsed by UN General Assembly Resolution 53/152 of 9 December 1998. Article 2(b) of the Declaration promotes the principle of respect for human dignity of each individual regardless of their genetic characteristics, thereby rejecting genetic reductionism: no person can be reduced to their genetic traits, and everyone has the right to be respected in “their uniqueness and diversity.” In Article 10, respect for the principle of the primacy of the human being over the sole interests of research or research applications concerning the human genome also reflects respect for the human dignity of the individuals in the fields of Genetics and Medicine. Article 17 refers to the principle of respect for human vulnerability: “*States should respect and promote the practice of solidarity towards*

individuals, families and population groups who are particularly vulnerable to or affected by disease or disability of a genetic character. They should foster, inter alia, research on the identification, prevention and treatment of genetically based and genetically influenced diseases, in particular rare as well as endemic diseases, which affect large numbers of the world’s population.”

Conclusion

These three Universal Declarations – Universal Declaration on Bioethics and Human Rights, International Declaration on Human Genetic Data, and Universal Declaration on Human Genome and Human Rights – serve as guidance documents (soft law instruments), which not legally binding and carry no legal sanctions if Member States fail to comply. The proclamation of the principle of respect for human vulnerability in these texts has both a symbolic and pedagogical value, such as guiding national legislators in UNESCO Member States when adopting national laws and policies in the field of Bioethics and Biolaw. If national legislators adhere to the main principles of these Global Biolaw instruments, a degree of global harmonisation may emerge, ensuring that vulnerable individuals have their human rights equally respected across the jurisdictions of all UN Member States.

Gradually, the principle of respect for human vulnerability is likely to become a mainstream legal principle, not only at a Global International Human Rights level, but also at regional levels (e.g., European Union and Council of Europe Member States are UN Member States) and the national level (e.g., almost all the existing States are UN Members States). The jurisprudence of the main regional Courts (e.g., European Court of Human Rights, Court of

Justice of the European Union) will also play an important role in ensuring a harmonised level of protection, as they may draw on the three UNESCO's Universal Declarations when interpreting and applying binding treaties, like the European Convention on Human Rights (1950) and the Charter of Fundamental Rights of the European Union (2000). The multilevel system with universal, regional, and national frameworks will provide a broader application of the Biolaw principles recognised at the international level, namely the principle of respect for human vulnerability, to situations where fundamental rights and freedoms may be affected by medical and scientific advancements.

AI Disclosure Statement

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Obesity and Cardiovascular Risk: Epidemiology, Biological Mechanisms, and Health System Challenges



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José Eduardo Dolci



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Cardiovascular diseases (CVD) remain the leading cause of premature mortality and disability worldwide, attributing to an estimated 32% of all global deaths (or 19.8 million people) in 2022 [1]. Approximately 80% of these deaths occur in low- and middle-income countries (LMICs), where weak primary care infrastructure delays detection, prevention, and treatment. As a result, individuals are often diagnosed late, which can lead to premature mortality during their peak working years and impose severe financial burdens on families through high out-of-pocket medical costs [2]. Despite substantial advances in preventive cardiology and evidence-based therapeutics, the global epidemiology of CVD reflects an escalating burden driven primarily by modifiable risk factors.

Central to this trend is obesity, an escalating global pandemic now affecting over one billion people and contributing to millions of preventable deaths annually [2,3]. Demographic shifts, rapid urbanisation, and nutritional transitions are accelerating these rates, with projections indicating that over half the global population will be overweight or obese by the mid-2030s. The resulting surge in

cardiometabolic conditions creates profound global health implications, threatening to overwhelm health systems and reverse decades of life expectancy gains, particularly in resource-limited settings. Mitigating these upstream determinants of CVD requires coordinated, cross-sectoral policy interventions and scalable, population-level prevention strategies.

Historically, policy frameworks have been fragmented, often framing obesity as a lifestyle failure rather than a chronic biological condition. Recent World Medical Association (WMA) declarations and World Health Organization (WHO) guidelines have elevated obesity as a global health priority [5,6]. Meanwhile, the emergence of glucagon-like peptide-1 (GLP-1) receptor agonists and dual incretin therapies has reshaped the therapeutic landscape, intensifying policy debates over equitable access, reimbursement, affordability, and health system sustainability.

In this article, we examine obesity through a global policy lens, establish its role as a CVD driver, and assess how health systems must adapt to the paradigm shift introduced by incretin-based therapies. Integrating clinical and

public health perspectives, we characterise the disease burden, examine the role of medical associations, and propose strategies for the clinical management. Ultimately, we outline actionable pathways to integrate therapeutic innovation with robust primary care infrastructure and translate advances in obesity treatment into sustainable population-level health gains.

Epidemiological and Clinical Evidence of Obesity

To guide health system interventions, obesity should be understood as a biological and epidemiological continuum spanning a patient's life course. This perspective helps clinicians to identify critical windows for preventive strategies and inform targeted protocols to reduce long-term CVD risk. The rapid rise in obesity across all income settings reflects a profound epidemiological transition driven by urbanisation, dietary shifts, declining physical activity, and widespread availability and targeted marketing of ultra-processed foods [3]. Socioeconomic disparities further amplify this burden, with obesity disproportionately affecting vulnerable populations and reinforcing health inequities [4].

Beyond its clinical consequences, obesity imposes a substantial economic burden on health systems through direct medical costs and productivity losses, cementing its status as an urgent public policy priority [7].

Obesity promotes CVD through interconnected metabolic, hemodynamic, and inflammatory pathways [2]. Insulin resistance disrupts glucose homeostasis and contributes to endothelial dysfunction, while atherogenic dyslipidemia, characterised by elevated triglycerides and low-density lipoprotein (LDL) cholesterol and low high-density lipoprotein (HDL) cholesterol, accelerates atherosclerosis. Hypertension is driven by sympathetic nervous system activation, renin-angiotensin-aldosterone system overactivity, and renal compression from visceral fat. Chronic low-grade inflammation mediated by adipokine dysregulation and adipose tissue macrophage infiltration within the adipose tissue further promotes vascular injury. These mechanisms are compounded by obstructive sleep apnea, oxidative stress, and adverse cardiac remodeling, increasing risk of coronary plaque progression, myocardial infarction, ischemic stroke, and heart failure [8].

Life-Course Perspectives and Nutritional Determinants of Obesity

Obesity evolves across the life course, with early-life exposures strongly shaping adult cardiometabolic health. Childhood obesity predicts adult adiposity and premature cardiovascular events, emphasising the importance of prevention early in life [9]. A life-course approach therefore captures the cumulative effects of cardiometabolic risk and the need

for structural interventions, including focusing on diet as a modifiable determinant of risk, must begin in early childhood to alter adult health trajectories. Diets high in ultra-processed foods and refined sugars induce inflammation and metabolic dysfunction, whereas patterns emphasising whole foods, plant-based nutrients, and unsaturated fats are associated with cardiometabolic and anti-inflammatory benefits [10]. These insights validate a dual strategy combining individualised nutritional counseling with population-level policies that improve access to healthier foods.

Evolving Therapeutic and Policy Landscape

Obesity management is undergoing a major paradigm shift with the introduction of highly effective incretin-based therapies. GLP-1 receptor agonists (e.g., semaglutide) and dual glucose-dependent insulinotropic polypeptide (GIP)/GLP-1 receptor agonists (e.g., tirzepatide) have redefined weight-loss expectations, with trials reporting reductions between 15% to 25%, alongside improvements in CVD risk factors and reductions in major adverse cardiovascular events (MACE) [12]. However, therapeutic advances have outpaced traditional health system structures, sparking policy efforts to support their ethical, sustainable, and equitable implementation. Health authorities must now adapt clinical recommendations while addressing challenges of resource allocation, coverage, affordability, and equitable access [5].

Recently, policy frameworks have shifted toward treating obesity as a chronic, multi-systemic disease rather than a lifestyle flaw, prioritising systemic interventions over individual blame. First, the

WMA published the WMA Statement on Obesity in 2025, advocating for expanded physician education, elimination of weight-based stigma in clinical practice, and comprehensive, multidisciplinary care that moves beyond framing obesity as a failure of personal willpower [5]. This recognition is vital for ensuring equitable, non-judgmental care. Second, the WHO added GLP-1 receptor agonists to its Essential Medicines List for high-risk type 2 diabetes, establishing a precedent for broader coverage of incretin-based therapies [13]. This information provides a benchmark for national health systems considering formulary inclusion for metabolic disease.

Third, the WHO published the guideline on the use of GLP-1 therapies for the pharmacological management of obesity in adults in 2025 [6]. It conditionally recommends long-term GLP-1 therapy (at least 6 months) alongside intensive behavioral interventions for adults with a BMI $\geq 30\text{kg/m}^2$. Despite providing a framework for standardised clinical use, high costs, manufacturing constraints, and inadequate health system preparedness mean that even with scaled production, these therapies are projected to reach fewer than 10% of eligible individuals globally [6]. Without proactive policy intervention, these therapies could widen disparities between high-income countries and LMICs. Consequently, international bodies call for a multi-pronged approach combining health technology assessments to evaluate local cost-effectiveness with equitable access strategies, such as pooled procurement, tiered pricing, and voluntary licensing [6].

Importantly, global practice guidelines emphasise that

anti-obesity pharmacotherapy must complement, rather than supplant, robust primary healthcare infrastructure and population-level prevention. While targeted medical therapies address individual disease management, structural interventions – such as restrictive marketing to children, targeted sugar-sweetened beverage taxes, standardised front-of-package nutrition labelling, and structural subsidies for nutrient-dense foods – are essential to shape healthier food environments. Integrated within universal health coverage frameworks, these dual strategies bridge clinical care and public health policy, establishing the necessary foundation for equitable, sustainable obesity management and long-term CVD risk reduction [6].

Call to Action for Physicians

The escalating global prevalence of obesity demands immediate, unified action across the clinical–policy spectrum. Figure 1 represents a schematic map that illustrates the clinical, health system, and public health policy landscape in obesity management. The panels highlight five key elements: 1) clinical benefits of incretin-based therapies (e.g., semaglutide, tirzepatide); 2) risk of widening health global health disparities due to high costs and limited access in LMICs; 3) systemic strategies (e.g., equitable pricing, primary care integration, and health technology assessment; 4) WHO-recommended public health measures that combine structural regulation with universal coverage; and 5) population-level goals.

and 5) population-level goals.

To ensure that future efforts are effective, sustainable, and equitable, medical communities and public health organisations must prioritise several key strategies. First, physicians and public health professionals can provide preventive leadership through multisectoral advocacy, promoting healthy lifestyles and healthier food environments. Their clinical expertise and community standing uniquely positions them to lead community initiatives, advance early childhood nutrition interventions, and integrate obesity management into routine care while reducing stigma. By extending their influence beyond the clinic, clinicians can help shape public

Evolving Therapeutic and Policy Landscape in Obesity Management

Innovation, Equity and Integration for Population Health Impact

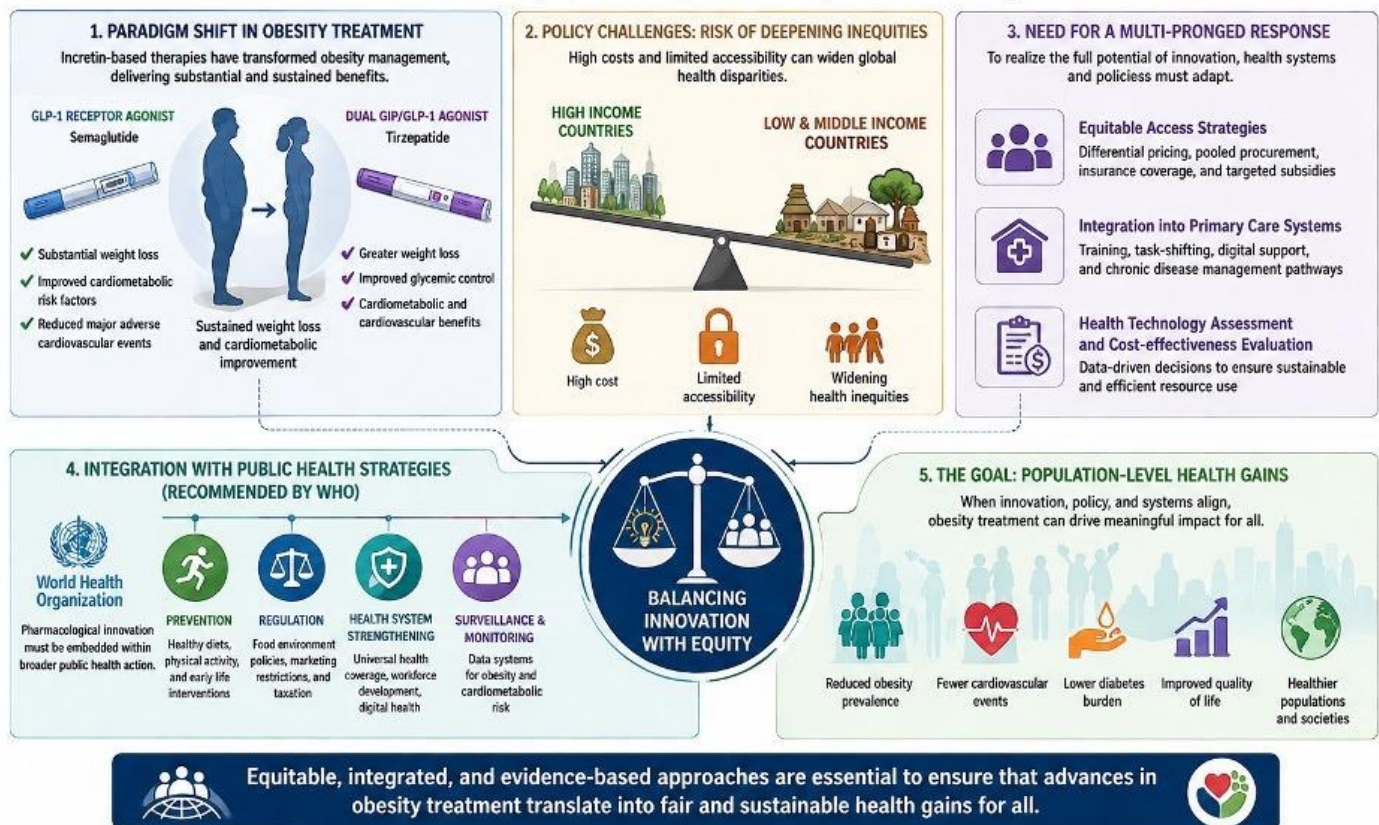


Figure 1. This schematic map depicting the evolving clinical, health system, and public health policy landscape in obesity management. This figure is an original conceptual design created by the authors.

policy and advance healthy environments at the population level.

Second, they can facilitate the adoption of digital health and artificial intelligence that can strengthen obesity management by predicting metabolic risk, personalising behavioral and nutritional coaching, and optimising medication titration. However, algorithmic bias, particularly from globally unrepresentative training data, may widen health inequities, while digital tools cannot replace the empathy and patient-centered relationships essential to long-term adherence. Their implementation should therefore be paired with diverse datasets and human clinical oversight to ensure equitable patient-centered care. Third, they can advocate that governments and regulatory bodies enact targeted and inclusive, evidence-based policies, including fiscal measures on hyper-palatable foods, universal insurance coverage for comprehensive obesity care, and tiered pricing to protect vulnerable populations in LMICs. These measures can reduce financial barriers to effective treatment while advancing health equity.

Conclusion

A coordinated global strategy that integrates scientific innovation with equitable care and stronger primary care infrastructure is essential to curb obesity and alter the trajectory of CVD worldwide. While novel therapies provide critical tools for clinical risk reduction, they cannot succeed in isolation without robust primary care systems to deliver them equitably. Furthermore, sustained progress requires aggressive legislative and environmental measures to disrupt the obesogenic

drivers fueling this crisis. Only by synchronising breakthrough medical innovation with aggressive population-wide prevention can the global health community safeguard health systems and halt the expanding burden of CVD.

Author Contribution Statement

CVS, JED, and CEF conceptualised the design and prepared the original manuscript draft. All authors critically reviewed and revised the manuscript and approved the final version for publication.

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Health System Challenges in Northern Cyprus Under Limited International Recognition



Ceyhun Dalkan

Health is universally recognised as a fundamental human right, as reflected in the Constitution of the World Health Organization (WHO) and numerous international human rights instruments, including the Universal Declaration of Human Rights (1948). Despite this broad recognition, the realisation of the right to health remains uneven across geopolitical contexts. In territories with limited or no international recognition, health systems often operate in partial isolation from global regulatory, procurement, and professional networks. This scenario creates a form of structural health exclusion, where health system limitations arise primarily from restricted access to external systems, resources, and collaborations.

Although the effects of armed conflict on health systems have been extensively investigated, considerably less attention has been paid to the long-term consequences of political non-recognition. Health systems operating outside internationally recognised governance structures face barriers that extend beyond healthcare delivery, including restricted access to medicines, scientific collaboration, medical education, regulatory harmonisation,

and participation in international health organisations. These structural constraints may ultimately affect health outcomes despite the presence of qualified health professionals and functioning health institutions.

Northern Cyprus is one of the longest-standing examples of a health system operating under conditions of limited international recognition. Healthcare is delivered through public hospitals, university hospitals, private institutions, and primary healthcare centres, yet political isolation continues to shape key components of the system. As such, Northern Cyprus provides a valuable case study for examining how political non-recognition influences healthcare access, quality, and long-term system sustainability. This article explores these effects, contextualising them within global health governance frameworks, and proposes strategies to reduce the resulting structural health inequities.

Context

Cyprus, an island in the Mediterranean, experienced an intercommunal conflict between the Greek Cypriots and Turkish Cypriots from 1963 to 1974 [1]. As a result, a separate health system emerged in the northern one-third part of the island. Consequently, Northern Cyprus, with an estimated population of 480,000 people reported in 2026, operates a mixed public-private health system that provides a broad range of preventive, diagnostic, and therapeutic services. Despite having trained health professionals, tertiary care facilities, university hospitals, and functioning primary healthcare services, the

health system remains excluded from many international health governance structures, affecting health diplomacy, trade relations, scientific collaboration, professional mobility, and medicine procurement [1].

In recent years, the Northern Cyprus health system has faced additional challenges, including rising healthcare expenditures, increasing prevalence of non-communicable diseases, reliance on external supply chains for medicines and medical technologies, and population growth associated with irregular migration. This rapid population increase places substantial pressure on health infrastructure, hospital capacity, emergency services, and workforce planning, contributing to overcrowding and longer waiting times. Also, urban expansion, air pollution, and insufficient environmental regulation may contribute to increasing rates of cancer and respiratory diseases in the population, underscoring the fragility of smaller and politically isolated health systems.

Similar patterns have been observed in other politically complex or partially recognised territories, such as Kosovo and Palestine. In Kosovo, a Balkan state with partial diplomatic recognition, limited participation in international institutions and regulatory frameworks has created challenges in health governance, medicine procurement, and professional mobility prior to broader international recognition [2]. In Palestine, an area in the eastern Mediterranean region, restrictions affecting movement, resource allocation, and health system coordination have been associated with barriers to health access and

international collaboration [3]. Together with Northern Cyprus, these cases collectively demonstrate that health system performance is partly shaped by the degree of political recognition and integration within international governance structures [2]. Political status can directly and indirectly influence access to funding, technical expertise, international partnerships, and regulatory networks, thereby affecting health system resilience [2-5].

Access to Medicines and Medical Supplies

Access to essential medicines is a core determinant of health system effectiveness, as timely and equitable availability directly affects morbidity, mortality, and quality of life. Consistent access enables accurate diagnosis and effective treatment, reduces health disparities, and strengthens health system resiliency [4]. In politically isolated health systems, however, procurement and regulatory constraints delay access to innovative therapies and specialised treatments, increasing reliance on older treatments and limiting availability of orphan drugs, biologic agents, and emerging therapies [5]. These challenges are compounded by reliance on indirect procurement pathways, which can increase costs and prolong approval and delivery timelines, particularly for time-sensitive therapies. Exclusion from international procurement frameworks may also limit participation in large-scale purchasing agreements that improve affordability and supply availability. Consequently, patients may have fewer treatment choices and experience poorer health outcomes than those in internationally integrated health systems [6].

Comparable patterns have been documented in other politically isolated or partially recognised territories, like Northern Cyprus, Kosovo, and Palestine, where limited integration into international regulatory networks contributes to delays in the approval and availability of new medicines [2-4]. Jurisdictions operating outside major regulatory frameworks may also have less access to early-access and compassionate-use programs, further restricting timely access to novel treatments [4]. Similar barriers affect medical technologies, with the acquisition of advanced diagnostic and therapeutic equipment often complicated by regulatory fragmentation, small market size, supply-chain inefficiencies, and limited access to manufacturer-supported maintenance and upgrades. Collectively, these factors can widen disparities in healthcare quality and technological capacity relative to internationally integrated health systems [6].

In Northern Cyprus, the lack of direct participation in international pharmaceutical regulatory and procurement systems necessitates indirect supply chains, predominantly via Türkiye. While this arrangement helps maintain baseline continuity of medicine supply, it also creates structural inefficiencies, including higher costs associated with intermediary processes, restricted participation in global tendering systems, and periodic shortages of specialised medicines. Access to biologic therapies, orphan drugs, and recently approved oncology treatments is particularly affected, with products often becoming available later than in countries integrated into European regulatory systems [1,7,8]. Similar constraints extend to advanced medical devices, maintenance services, and

laboratory technologies, whose acquisition can impose additional administrative and logistical burdens on health professionals and limit timely access to innovative care.

Medical Education and Professional Development

Continuous professional development, international academic collaboration, and professional mobility are fundamental components of modern health systems, enabling health professionals to keep pace with evolving clinical standards, evidence-based practice, and emerging technologies. Engagement in education, research, and professional networks facilitates knowledge exchange, strengthens interdisciplinary collaboration, and supports innovation in areas such as digital health, artificial intelligence, and precision medicine. Global health research consistently demonstrates that professional mobility and academic collaboration contribute to better clinical outcomes, greater research productivity, and more resilient health systems. Limited participation in these networks can foster professional isolation, constrain advanced training opportunities, and widen disparities between well-connected and academically isolated health systems [9,10].

Northern Cyprus presents a clear illustration of these challenges, where health professionals face structural barriers to full participation in international academic and professional networks. These factors include restricted access to residency and fellowship programs, limited recognition of professional qualifications in some jurisdictions, reduced participation in multinational clinical research, and administrative constraints on attending scientific conferences

and engaging with international professional organisations. Collectively, these barriers can limit opportunities for advanced training, mentorship, and research collaboration, especially for early-career physicians, and ultimately negatively influencing the health system's capacity to sustain clinical excellence and adapt to evolving standards of care. The situation underscores the principles articulated in the World Medical Association (WMA) Statement on Medical Education, which recognises equitable access to high-quality medical education, continuing professional development, international collaboration, and professional mobility as essential to effective and sustainable health systems [11,12]. The experience of Northern Cyprus demonstrates how structural political barriers can undermine the practical implementation of these principles, despite the presence of established medical schools and qualified health professionals [13,14].

Impact on Patients and Health System Functioning

These structural constraints can undermine workforce retention and morale, institutional sustainability, operational efficiency, and public confidence in the health system. They may also translate into poorer patient outcomes, reduced access to care, and diminished health system performance, with particularly pronounced effects on non-communicable diseases such as cancer, cardiovascular disease, and diabetes. Disruptions across the care pathway can delay diagnosis, treatment initiation or specialist referral, increasing morbidity and potentially worsening long-term outcomes. Where advanced or specialised services are unavailable locally, patients may be required

to seek care abroad, incurring additional financial, logistical, and psychological burdens on themselves and their families [13].

In Northern Cyprus, these challenges arise not primarily from deficiencies in clinical expertise or domestic healthcare capacity, but from structural exclusion from international health systems, regulatory frameworks, and global governance mechanisms. Access to newly approved medicines, biologic therapies, and specialised treatments, which may depend on indirect procurement or referral mechanisms outside the island. Patients requiring highly specialised interventions may need to seek care abroad, imposing additional financial, administrative, and logistical burdens. Limited integration into international regulatory, research, and professional networks can restrict opportunities for clinical collaboration, innovation, and adoption of advances in medical practice, collectively limiting the health system's capacity to deliver and sustain specialised care. Addressing these barriers requires institutional cooperation grounded in health equity, humanitarian principles, and inclusive global health governance, as failure to do so risks widening disparities in health outcomes and health system performance between politically isolated populations and internationally integrated health systems [13,14].

Policy Implications

Addressing healthcare disparities in politically non-recognised settings requires a depoliticised, pragmatic, and ethically grounded approach. Global health governance increasingly recognises that health systems should be insulated from political disputes to the greatest

extent possible. Five strategies align with global health equity principles and United Nations Sustainable Development Goals (SDGs), which aim to mitigate structural healthcare inequities while preserving neutrality within international health governance [13,14].

1. *Developing humanitarian procurement mechanisms.* International organisations can establish neutral procurement platforms for essential medicines, vaccines, and medical technologies to ensure continuity of care during political or logistical disruptions while reducing delays in access to critical therapies and other essential health technologies.
2. *Promoting inclusive professional integration.* Global medical associations and academic institutions can establish flexible participation pathways that allow health professionals from politically isolated regions to engage in conferences, training programs, continuing professional development, and scientific collaborations, independent of political status.
3. *Adopting adaptive regulatory pathways.* Alternative regulatory recognition systems, including observer participation or indirect equivalency mechanisms, may facilitate timely and safe access to approved pharmaceuticals and medical devices while maintaining international quality and safety standards.
4. *Strengthening academic partnerships.* Collaborative partnerships among universities, non-governmental organisations, and health institutions can support joint educational initiatives, telemedicine programs,

and research collaborations, thereby reducing academic isolation and strengthening knowledge exchange.

5. Supporting health equity advocacy.

Leading global organisations, such as the WHO and the WMA, can further reinforce the principle that access to healthcare is a universal human right, independent of political recognition.

Conclusion

Understanding the experience of the Northern Cyprus health system can offer valuable insights into how political non-recognition shapes health system performance and patient access to care, while informing policies that mitigate the unintended health consequences of political isolation. Addressing these inequities requires pragmatic, depoliticised, and humanitarian approaches that prioritise patients' health above political considerations. International organisations, governments, academic institutions, and professional medical associations should continue developing inclusive mechanisms that facilitate equitable access to medicines, medical education, scientific collaboration, and continuing professional development, irrespective of political status. Safeguarding the universal right to health requires that health system cooperation, medical education, scientific research, and access to essential medicines remain grounded in humanitarian principles rather than be determined by political recognition.

AI Disclosure Statement

The author used artificial intelligence tools for language editing and proofreading to

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From Findings to Implementation: South Africa's 2026 CMS Industry Indaba and the Reform of Medical Scheme Regulation



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South Africa operates one of the world's most distinctive two-tier health systems. Approximately 9.17 million beneficiaries, some 14.5% of the population, are covered by medical schemes, the not-for-profit entities regulated under the *Medical Schemes Act 131 of 1998* [1]. However, the majority of the population depends on the tax-funded public sector [2]. The *National Health Insurance Act 20 of 2023*, signed into law in May 2024, commits the country to a phased transition towards universal health coverage, a transition in which the future role and conduct of medical schemes remain central policy questions [3]. Within this system, the Council for Medical Schemes (CMS) is the statutory regulator of the medical schemes environment.

On 13–14 May 2026, the CMS convened its flagship Industry Indaba at the Sandton Convention Centre in Johannesburg, bringing together medical schemes, administrators, managed care organisations, healthcare providers, policymakers, and consumer representatives for two days of engagement on the future of healthcare financing in South Africa [4,5]. This article describes the significance of the 2026 CMS Industry Indaba, which marked the sector's deliberate pivot from a prolonged period of inquiry and diagnosis to a defined implementation phase, anchored in accountability, procedural fairness, and value-based care [4]. The event confronted questions that are central to health systems far beyond South Africa, including how to police fraud without encoding bias and how

to shift payers from adversarial cost recovery to purchasing value.

The Section 59 Investigation and its Aftermath

The significance of the 2026 CMS Industry Indaba is inseparable from the Section 59 investigation, named after the section of the *Medical Schemes Act* that governs payment to providers and the recovery of claims. In 2019, following complaints by Black healthcare practitioners that schemes' fraud, waste and abuse (FWA) processes treated them unfairly on the basis of race, the Minister of Health directed the CMS to establish an independent investigation panel, chaired by Advocate Tembeka Ngcukaitobi SC with Advocates Adila Hassim and Kerry Williams [6]. Black healthcare practitioners alleged racial targeting through audits, payment withholding, recoveries, entrapment, and the coercive signing of acknowledgements of debt by medical schemes and administrators.

The panel's final report, dated 25 April 2025 and released by the Minister of Health 7 July 2025, confirmed its interim findings that procedures used by medical schemes and administrators to investigate FWA and recover funds were

procedurally unfair, and that risk-ratio analyses of FWA outcome data showed a discriminatory impact on Black healthcare practitioners [6]. The panel was equally pointed about the regulatory vacuum that enabled these outcomes, finding that the *Medical Schemes Act* and its regulations lack sufficient procedural detail on how FWA investigations and recoveries should be conducted, leaving medical schemes with largely unreviewable discretion [6].

The panel's recommendations included early notification of practitioners under investigation, codified procedural fairness standards and reformed dispute-resolution mechanisms. Commentators immediately posed the question that has haunted South African health policy: would the recommendations be implemented, or would the report "gather dust on the shelf" [7]? In response, the CMS set out interim directives and transitional expectations for sector-wide corrections for medical schemes, administrators, providers, and beneficiaries [8]. The 2026 CMS Industry Indaba was framed explicitly as the culmination of the Section 59 recommendations and the start of an implementation framework focused on reforms, accountability, strengthened oversight, and sustainable healthcare funding [5].

Event Proceedings

The 2026 CMS Industry Indaba was held over two days and addressed governance reform, accountability, value-based care, and sustainability across the programme [4]. Delegates engaged on FWA processes, Section 59 reform, procedural fairness, dispute resolution, strategic purchasing, and ethical contracting, drawing perspectives from funders, providers, regulators, economists, and

researchers [4,9]. The programme deliberately placed medical scheme leaders, healthcare providers and consumer advocates in the same sessions, and it was structured to ensure that research and evidence informed regulatory thinking.

- *Proceedings (Day 1).* This segment focused on Section 59 reform and the terms of its implementation. Dr. Anban Pillay delivered the keynote address on behalf of the Minister of Health, Dr. Aaron Motsoaledi, outlining the policy direction and regulatory expectations including transitional expectations, sectorwide corrective measures, and the steps required to align with the National Department of Health's broader strategy [8]. The discussion repeatedly underscored the expansion of the framework from FWA processes to include errors, bringing unintentional billing mistakes within recovery processes, with implications for provider exposure, and clarifying the reformed procedural and dispute-resolution standards schemes will need to follow [6].
- *Gala dinner.* The dinner closed the first day's proceedings with a keynote on regulation, fairness, and sustainability in the health system by former Chief Justice Sandile Ngcobo, who chaired the Health Market Inquiry into South Africa's private healthcare market [10]. Subsequently, a research award honouring the late Professor Lungile Pepeta was presented in recognition of excellence in advancing evidence-based regulation and innovation [11].
- *Proceedings (Day 2).* This segment turned to sustainability, innovation, and system performance, including value-

based care, strategic purchasing, and ethical contracting [9]. The integration of research and evidence into regulatory decision-making was treated as a distinct strand of the programme rather than serving as an ancillary activity. The discussion moved from how funds are recovered to how they are best spent, encompassing evidence-based pricing and contracting reform, governance standards for algorithmic and data-driven systems used in claims management, and the data-sharing arrangements underpinning value-based contracting [4]. Delegates also considered how stronger governance, purchasing practices, and transparency could help rebuild institutional trust across the sector and advance the broad reform agenda as the country moves towards universal health coverage [3,4].

The CMS closed the Indaba by reminding attendees that the purpose of healthcare financing reform is to protect the lives of medical scheme members, strengthen trust, and support sustainable access to quality healthcare [4]. Delegates left with a defined set of deliverables rather than a communiqué: codified procedural standards for FWA investigations, reformed dispute-resolution mechanisms, and a published monitoring framework against which progress can be assessed. The event's success will therefore be measured by whether these commitments are reflected in amended regulations and in changes in scheme conduct during the CMS's transitional period [8].

Significance and Wider Implications

Three threads give the 2026 CMS Industry Indaba significance beyond a well-attended sector conference. First, *procedural fairness* is being treated as trust infrastructure rather than as an administrative nicety. FWA control is necessary to protect solidarity-based risk pools, but Section 59 findings demonstrated that data-driven provider profiling can produce racially disparate outcomes without clear procedural standards [6]. As payers deploy increasingly sophisticated algorithmic claims review and artificial intelligence assisted analytics, the South African inquiry is among the few independent public examinations of disparate impact in payer enforcement undertaken to date [12]. The governance response now being pursued includes early notification of affected practitioners, transparent and reviewable procedures, and independent dispute resolution. These measures may be relevant to national medical associations confronting opaque payer audit systems elsewhere.

Second, the Indaba paired *accountability reform* with a reframing of sustainability in terms of value. Value-based care contracts should be structured around outcomes that matter to patients. From this perspective, recovering money afterwards is a downstream control, while the upstream discipline lies in how care is purchased [13]. This concept advances the unfinished agenda of the Health Market Inquiry, which identified imperfect market information, supply induced demand, highly concentrated markets, inadequate outcome measurement, and recommended structural remedies [10]. The coupling is coherent rather than coincidental: value-based contracts

depend on data sharing and risk sharing between funders and providers, and neither is plausible amid the mistrust exposed by the Section 59 findings. Fairness reform is a precondition for purchasing reform.

The implications extend beyond South Africa. Where payers automate claims review and provider profiling, the consequences for clinicians flagged by such systems, including withheld payments, audits, clawbacks, and reputational harm, can be severe, and oversight of these tools remains limited [12]. The South African experience demonstrates how statistical risk profiling can systematically disadvantage a defined group of practitioners, and it sets out a regulatory remedy now moving into implementation [6]. The combination of an independent inquiry, published evidence, a codified procedure, and a public implementation event offers a template that medical associations elsewhere may draw on when negotiating audit fairness with payers.

Third, the event was designed to *counter reform fatigue*. South African health policy has historically been richer in inquiry than in implementation, a concern explicitly raised in the literature on the Section 59 report [7]. The keynote address on the Minister of Health's behalf, linked to a published implementation directive, alongside panels addressing accountability, the publication of full proceedings, the dedicated evidence-to-policy sessions, and the Professor Pepeta Research Award, signals an effort to institutionalise follow-through [4,8,9,11]. The key tests are now measurable: amendments to the *Medical Schemes Act* establishing clear procedures for FWA investigations, adoption of reformed dispute-resolution

mechanisms, demonstrable changes in scheme conduct, and published monitoring of all three. The event is also relevant to the National Health Insurance transition, as schemes that strengthen governance, fairness, and purchasing practices will be better positioned to play a complementary role under the new dispensation [3].

Conclusion

The 2026 CMS Industry Indaba concluded with a strong commitment to sustainable healthcare reform, marking the medical schemes sector's shift from diagnosis to delivery. Payer fraud-detection systems require fairness audits and codified procedure, not crisis-driven responses. Accountability reform is most effective when paired with value-based purchasing that aligns funders and providers around shared interests and trust. Whether May 2026 becomes a turning point for South African healthcare financing will depend on both the quality of the dialogue and the implementation that must now follow.

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Author Contribution Statement

MG and TM conceptualised the commentary and defined its scope. SM and MW prepared the synthesis and interpretation of information from the Indaba proceedings and supporting sources, and prepared the original manuscript draft. ZB contributed the account and interpretation of the Section 59 investigation, its findings, and the resulting regulatory response. All authors reviewed and revised the manuscript and approved the final version for publication.

AI Disclosure Statement

No artificial intelligence tools were used in the preparation, analysis, interpretation, or writing of this manuscript. All intellectual content, analysis, interpretation, and conclusions are entirely those of the authors.

Competing Interests

All authors are employed by, or serve on the Board of, the Council for Medical Schemes, the statutory regulator whose event and regulatory response are the subject of this commentary.

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