Medicus

Kenya Medical Association

Championing the Welfare of Doctors and Quality Healthcare in Kenya

Building Smart Connected and Inclusive Health Systems

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Inside

Introduction

53rd KMA Annual Scientific Conference

Articles

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Note from the Editor.

This issue of Medicus is anchored on the theme of our 53rd Annual Scientific Conference, “Beyond resilience: Building Smart, Connected and Inclusive Health Systems,” held in Naivasha, Nakuru County, from the 14th to 17th April 2026.

Health is not merely about treatment; it is something we promote, protect, and sustain. Strong Health systems are proactive in nature. They adopt a broad and integrated view of healthcare and translate that vision into practical actions that safeguard the health and well being of citizens.

Smart, connected, and inclusive health systems are efficient, coordinated, data informed, and accessible to all. They provide equitable services of acceptable quality and value to every Kenyan. This is both the aspiration of our healthcare sector and the promise envisioned in our Constitution.

The articles featured in this issue reflect these ideals and highlight key discussions and innovations showcased during the Annual Scientific Conference. They demonstrate the ongoing efforts by health professionals, institutions, and policymakers to strengthen healthcare delivery and reimagine the future of health in Kenya.

Medicus remains committed to providing a platform for healthcare workers and institutions to share the work often carried out quietly in the background, the innovations, initiatives, research, and policy ideas that have the potential to meaningfully transform the health landscape in Kenya.

On behalf of the Medicus editorial team, I extend our sincere appreciation to all those who have contributed to the various editions and encourage your continued participation and
collaboration.

To our readers, thank you for engaging with this work. We do this for you.

Dr. Leon Ogoti
Editor In Chief
Medicus Magazine

53rd KMA Annual Scientifi Conference

SPEECH BY THE CABINET SECRETARY OF HEALTH HON. ADEN DUALE EGH DURING THE 53RD KMA ANNUAL SCIENTIFIC CONFERENCE

Hon. Aden Duale EGH
Cabinet Secretary of Health

Salutations
Director General for Health
The President of the Kenya Medical Association;
Members of the KMA Council;
Leaders of professional associations and regulatory bodies;
Distinguished clinicians, researchers, and healthcare professionals;
Representatives from county governments;
Development partners and private sector leaders;
Ladies and Gentlemen,

1. It is a profound honor to join the Kenya Medical Association (KMA) today at this 53rd Annual Scientific Conference. As the primary custodians of medical ethics and professional competence in our nation, your association is not merely a stakeholder in our healthcare system; you are its foundational conscience and our most strategic partner.

2. Allow me to begin by extending my heartfelt congratulations to the Kenya Medical Association for the successful conduct of your recent elections. The seamless transition of leadership to the new office bearers is a testament to the institutional maturity and democratic strength of this association. That stability gives the Ministry a reliable partner at a time when the sector demands clarity, courage, and coordination.

3. Colleagues, we are currently driving the most ambitious healthcare transformation in our nation's history, anchored on the Bottom-Up Economic Transformation Agenda (BETA). We initiated these reforms because the prevailing system, despite the extraordinary sacrifice of our healthcare workers, was fundamentally broken. We could no longer rely on mere "resilience" to mask structural inefficiencies, fragmented policies, and the opacity that allowed resources to leak while patients suffered.

4. We had to address these systemic failures, and we did not walk this long, hard journey alone. We walked it with the Kenya Medical Association. You are co-architects of this transformation. This is why KMA holds statutory, decision-making seats on the Social Health Authority (SHA) Board, the Kenya Medical Practitioners and Dentists Council (KMPDC), and the Pharmacy and Poisons Board (PPB).

5. The theme of your conference—"Beyond Resilience: Building Smart, Connected, and Inclusive Health Systems"—speaks directly to the core pillars of the BETA healthcare agenda. To realize this vision, we must work together to fortify the four foundational pillars of our health sector.

6. The first pillar is Sustainable Health Financing. To build an inclusive system, we transitioned from a deficit-ridden NHIF to the Social Health Authority (SHA) to protect households from catastrophic expenditure.

7. The progress is monumental. As of yesterday, 14th April 2026, we have successfully registered 30.4 million Kenyans and collected KES 169.19 Billion across all funds and disbursed KES 124.53 Billion. We now operate through a massive network of 10,646 transacting facilities, enabling over 8.58 million Kenyans to access free Primary Healthcare and 3.64 million to access specialized care under SHIF.

8. However, I must address the elephant in the room. While this restructuring is essential, I am fully briefed on the legitimate concerns raised by the KMA during this transition. Issues surrounding reimbursement timelines, claims processing, and operational clarity are being treated with the gravity they deserve as we stabilize the new system.

9. I also know the profound strain that the legacy debts inherited from the defunct NHIF, and the delayed reimbursements under SHA, have placed on your facilities. The Government is actively accelerating reimbursements and strengthening verification systems to clear these backlogs, inject liquidity back into your hospitals, and restore provider trust.

10. Under the Social Health Insurance Fund, we also have the Overseas Treatment

package. I want to be categorical: this package is strictly designed to ensure patients access life-saving services that are currently unavailable locally. When recommending patients for treatment abroad, I urge you, our doctors, to act as the ultimate gatekeepers. Only recommend overseas treatment when those specific interventions are genuinely unavailable in the country. More importantly, let us challenge ourselves as a fraternity. We must work together to deliberately build and expand that local capacity here at home so that, in the near future, no Kenyan is forced to leave our borders for specialized care.

11. The second pillar is Comprehensive Integrated Health Information Management System. If UHC is the promise, digitalization is the enforcement mechanism. Through the Digital Health Agency (DHA), we are building a smart, interconnected National Health Information Exchange.

12. We have successfully digitized and linked 10,646 facilities, with 4,149 public facilities fully running on our "Taifa Care" system. We have delivered over 30,087 digital devices to facilities across the country.

13. But this system is more than just a digital record book; it is a fortress. We have deployed an advanced Artificial Intelligence (AI) and Big Data fraud engine. This engine records every transaction and detects anomalous billing patterns—such as upcoding, fabricated records, duplicate claims, and impersonation—in real-time. It instantly blocks suspicious claims for manual forensic review before a single shilling is paid.

14. At the facility level, this digital transformation is anchored by the rollout of the Practice 360 App, which is now fully active. I will be candid with you: I know that adapting to new technology brings inevitable frustrations. However, Practice 360 is an absolute game-changer. It is engineered to be a comprehensive, end-to-end facility management system that allows you, the healthcare workers, to manage pre-authorization claims directly and seamlessly from your stations.

15. To protect the integrity of our health funds, the Practice 360 App is strictly geo-fenced to accredited health facilities. This ensures that authorizations are only initiated when the clinician is physically present at the facility, curbing historical frauds of "ghost" admissions. We will continuously refine this system based on your technical feedback to ensure it ultimately empowers your practice rather than burdening it.

16. A smart system must also foster a smart regulatory environment. I am aware of the heavy burden practitioners face dealing with suffocating layers of regulation. It is counterproductive for a doctor to be fully licensed by KMPDC, only to face .

redundant, punitive licensing by county governments—such as multiple single business permits. We are actively engaging the Council of Governors to harmonize these levies. Your primary focus must remain on the patient, not battling bureaucracy.

17. The third pillar is Health Products and Technologies (HPT). We are reforming KEMSA into an agile, transparent logistics entity that uses digital tracking to secure the "last mile" delivery of medicines. I urge you colleagues to support and encourage the Facilities you work with to purchase their medical commodities directly from KEMSA, as we have adequately capacitated and supplied the Authority to serve you efficiently

18. We are leaving behind the era of blind procurement and chronic stock-outs. By establishing end-to-end visibility from the KEMSA warehouse directly to your facility's pharmacy, we guarantee that when a clinician writes a prescription, the commodity is physically there to fulfill it.

19. To ensure specialized services reach our Counties, we are implementing the National Equipment Support Project (NESP). Critics have attempted to compare this to the rigid, flawed Managed Equipment Services (MES). Under MES, counties were inadequately consulted. Under NESP, we signed Intergovernmental Partnership Agreements (IPAs) with all 47 counties. NESP is a strict "fee-for-service" arrangement; we only pay for utilization. Through NESP, we have already invested KES 6.18 Billion to install modern diagnostic machines like CT scans and digital X-rays in 120 county facilities.

20. Finally, the fourth and absolute most important pillar is Human Resources for Health. We can deploy the best financing models, IT systems, and supply chains, but we cannot build a resilient health system on the backs of a frustrated workforce. The healthcare worker is the engine of UHC.

21. To secure your future, we have initiated an extensive public participation process for the development of the Health Care Workers Policy. This policy will comprehensively define the norms, rights, and protections governing your profession, including establishing sustainable, predictable frameworks for the posting and remuneration of our medical interns.

22. Simultaneously, I wish to highlight the critical work of the **Multi-Sectoral Technical Working Group (TWG) on Education and Training of Healthcare Providers**, which I inaugurated and is currently being led by the **Director General**. This team is tasked with harmonizing training standards to ensure our doctors are equipped for the complexities of a digital and UHC-driven landscape.

23. We invite the KMA to be an active partner in this TWG, as your insights into the quality of medical education directly impact the quality of care. Kenya's health system has shown remarkable resilience, but we must be candid: resilience alone is no longer enough to sustain a modern, high-performing health system.

24. To ensure these reforms outlive us, we are driving a bold legislative agenda. We have drafted the Quality of Care and Patient Safety Bill, 2025, currently before the National Assembly. We are also urgently reviewing the Health Act, the Public Health Act, the Cancer Prevention and Control Act, the Pharmacy and Poisons Act, and the Mental Health Act to align with our UHC agenda. I call upon KMA to provide your unmatched technical input to help us refine and pass these laws.

25. Colleagues, the transition we are managing is historic. It requires collaboration, immense trust, and shared responsibility. Even as we navigate complex operational disputes, we must ensure that our professional engagements never compromise patient safety or the sanctity of the medical calling.

26. Let us move beyond traditional advocacy into active co-leadership of these reforms. Together, we will build a resilient Kenya where quality healthcare is a guaranteed right for every citizen.

27. With those remarks, it is now my distinct pleasure to declare the 53rd KMA Annual Scientific Conference formally open!

Thank you. God bless the medical fraternity, and God bless Kenya.

Hon. Aden Duale, EGH
CABINET SECRETARY

Conference Gallery

YDN Preconference Organizing Committee with WMA President, Dr. Jacqueline Kitulu, WHS, CANMA and KMA leadership.

Speakers and Delegates during the KMA Young Doctors Network Preconference.

Speakers and delegates during Day 2 of the 53rd KMA Conference.

Conference Gallery

53rd KMA Annual Scientific Conference Chief Guest Hon. Aden Duale with guest speakers during the Opening Ceremony.

53rd KMA Annual Scientific Conference Coalition of African National Medical Associations guests with WMA President Dr. Jacqueline Kitulu and Commonwealth Medical Association President Prof. Dr. J. A. Jayalal. [RIGHT] SHA Board Chairman Dr. Abdi Mohamed & Kenya Dental Association President Dr. Kahura Mundia during the conference.

PS State Department of Medical Services Dr. Ouma Oluga during Day 2 of the conference with members of the 2024-2026 National Governing Council.

KMA × Dettol Partnership

Reckitt East Africa Managing Director Mr. Mustapha Bugaje signs partnership with KMA Leadership.

KMA AGM & Gala Dinner

KMA National Executive Committee during the Annual General Meeting after the conference.

PS, State Department for Public Health and Professional Standards Ms. Mary Muthoni with the incoming NEC led by Hon. President Dr. Ibrahim Matende during the award and Gala Dinner on day 3 of the conference.

EAMJ Workshop

Strengthening Scientific Publishing: Reflections from the East African Medical Journal Peer Review Workshop in the Lake Naivasha Sawela Lodges Nakuru

The East African Medical Journal (EAMJ) convened an intensive Peer Review Workshop at Lake Naivasha Sawela Lodges on the Thursday of 17th April, bringing together editors, reviewers, researchers to strengthen the quality and integrity of scientific publishing in the region. The workshop provided participants with practical insights into peer review, research ethics, scientific communication, critical appraisal, and the evolving role of artificial intelligence in medical publishing. Prof. Arthur Kemoli made a great presentation on Common Pitfalls in Peer Review.

One of the highlights of the workshop was a presentation by Prof. Walter Mwanda, who emphasized the importance of adopting a mentorship approach to peer review. He challenged participants to view peer review not as a gatekeeping exercise focused on rejection, but rather as an opportunity to guide authors in improving the quality of their work. Prof. Mwanda noted that reviewing manuscripts benefits not only authors but also reviewers themselves by enhancing their knowledge, research skills, critical thinking, and scientific communication abilities.

Prof. Lukoye Atwoli explored the rapidly changing landscape of scientific publishing. He highlighted major disruptions shaping contemporary research dissemination, including the rise of open-access publishing, preprint platforms, predatory journals, artificial intelligence assisted research, and increasing demands for data sharing and transparency. He also drew attention to the stark reality that Africa contributes only about 2–3% of the world's scientific output despite accounting for a much larger proportion of the global population. This gap, he noted, underscores the need for increased investment in research capacity and scholarly publishing across the continent.

The workshop also examined ethical considerations in research and publication. Prof. Stephen Okeyo outlined the fundamental principles of transparency, accountability, integrity, and fairness that should guide all scholarly work. He traced the evolution of research ethics through landmark frameworks such as the Nuremberg Code, the Declaration of Helsinki, and the Belmont Report, emphasizing their continued relevance in protecting research participants and maintaining public trust in science.

Practical sessions led by Prof. Ruth Nduati and Dr. Paul Yonga focused on common shortcomings observed in submitted manuscripts. These included poor adherence to journal guidelines, inadequate data presentation, weak discussion sections, and inconsistencies in manuscript structure. Participants were encouraged to pay closer attention to journal requirements and to strengthen the clarity and organization of their scientific writing. Particular emphasis was placed on the preparation of structured abstracts, which serve as a critical gateway for readers and reviewers alike.

A notable development shared during the workshop was the ongoing effort to enhance the visibility and impact of the East African Medical Journal. Participants learned that EAMJ is set to be indexed in major databases, including SCOPUS and PubMed, a milestone expected to increase the journal's accessibility and international reach.

The workshop concluded with recommendations aimed at strengthening research quality and publication standards. Key among these were the need for structured training in critical appraisal using internationally recognized guidelines such as STROBE and CONSORT, the standardization of manuscript preparation and abstract formats, and continued mentorship of emerging reviewers and researchers.

Beyond the technical knowledge gained, the workshop reinforced the central role of peer review in advancing scientific excellence. By fostering ethical scholarship, constructive feedback, and rigorous critical appraisal, the East African Medical Journal continues to position itself as a leading platform for medical research dissemination in East Africa and beyond.

As the scientific publishing landscape continues to evolve, initiatives such as the EAMJ Peer Review Workshop provide an invaluable opportunity for researchers, reviewers, and editors to adapt, collaborate, and contribute meaningfully to the growth of African scholarship.


Articles

BUILDING SMART, CONNECTED & INCLUSIVE HEALTH SYSTEMS: LESSONS FROM NHSSP II

Dr. Simon Kigondu
President, KMA 2022-2026

In the late 1990s and early 2000s, Kenya's public health sector had effectively collapsed. Prolonged and devastating healthcare worker strikes crippled service delivery, while a rapidly expanding private sector emerged to fill the vacuum. Access to quality healthcare became a major national challenge. Coupled with a struggling economy, this crisis contributed to widespread public dissatisfaction, culminating in the overwhelming political transition of 2002.

Recognizing the urgency of the situation, the Ministry of Health (MOH) identified and mobilized strong leadership. Among them was Dr. James Nyikal, then President of the Kenya Medical Association, whose technocratic leadership became instrumental in shaping the health reforms. Together with a committed team, MOH launched a transformative policy framework in the Kibaki era aptly titled "Reversing the Trends." At the heart of this reform agenda was the National Health Sector Strategic Plan II (NHSSP II).

REFRAMING HEALTH: FROM LIABILITY TO STRATEGIC ASSET

NHSSP II was grounded in a critical realization: Kenya's health sector had become a liability—draining the economy due to inefficiencies, weak leadership, and poor coordination.

The plan projected a growing demand for quality public healthcare, driven by population growth and increased output from medical training institutions. This foresight highlighted the urgent need to expand infrastructure, strengthen human resources for health, and prepare facilities to absorb and train interns.

NHSSP II was therefore deliberately designed to build a smart, connected, and inclusive health system.

A PERSONAL PERSPECTIVE: THE ISIOLO ZONE EXPERIENCE

I had the privilege of contributing to this transformation as the Director of Medical Services Officer (DMSO) for the Isiolo Zone.

One of the most innovative features of the NHSSP II implementation model was the zonal system, which was deliberately apolitical. Boundaries were defined by geography rather than politics, enabling effective support supervision and rational resource distribution.

STRENGTHENING THE SIX PILLARS OF HEALTH SYSTEMS

NHSSP II systematically strengthened all six pillars of the health system, beginning with governance.

A critical shift was introduced: the most senior clinician in a hospital—typically a consultant—was designated as the Medical Superintendent. This marked a departure from previous practice where junior officers led facilities with more senior clinicians.

System connectivity and inclusiveness were enhanced through structured coordination between the Ministry of Health, Provincial Health Teams, Zonal Health Teams, and district and sub-district hospitals.

The Kenya Medical Practitioners and Dentists Council (KMPDC) strengthened oversight through support supervision and expansion of internship centres.

A central innovation was the Performance Contract system, cascading from the Permanent Secretary down to facility level, covering infrastructure, HRH, HMIS, supplies, and service delivery.

DRIVING CHANGE: THE ROLE OF DMSOs

DMSO teams became the operational engines of NHSSP II. Quarterly review meetings enabled tracking of performance, sharing of challenges, and development of practical solutions.

TANGIBLE IMPACT: REVERSING THE TRENDS

NHSSP2 delivered transformative outcomes, peaking just before devolution in 2013.
In Isiolo Zone, eight hospitals were strengthened. Isiolo District Hospital evolved into a fully accredited internship centre within three years, gained full specialist complement, secured a title deed, and increased revenue fourfold through automation.

NHIF registration improved insurance uptake, reduced waivers, and funds were reinvested through Facility Improvement Funds. Health workers were also supported to specialize.

LESSONS FOR TODAY

The NHSSP II period provides a clear blueprint:
- Strong governance matters
- Coordination is essential
- Data-driven systems deliver results
- Investment in HRH is critical

CONCLUSION

As Kenya navigates current health system challenges, the lessons from NHSSP II remain highly relevant. To build smart, connected, and inclusive systems, we must revisit and adapt what once successfully reversed the trends.

Dr. Simon Kigondu
President, Kenya Medical Association 2022 - 2026

ADVANCING LOCAL RESEARCH FOR SMART, CONNECTED AND INCLUSIVE HEALTH SYSTEMS

By Dr. Wairimu Mwaniki

As Kenya works toward building more robust health systems, we must acknowledge that the strength of any system depends on the relevance of the evidence behind it. Historically, much of our policy has leaned on data generated in the West. While useful, it does not always reflect who we are, how we live, or the realities of our patients.

Take a common example. When we develop guidelines for chronic kidney disease, the populations those guidelines are based on often look very different from ours. Differences in genetics, comorbidity patterns, access to care, health-seeking behaviours etc. all shape health outcomes. If we are not generating policies and guidelines anchored in local data, we are building systems on assumptions that may not hold entirely true. A smart health system, therefore, is one that prioritises local evidence, asks the right questions about its own population, and uses those answers to guide care. Without this, even the most well-intentioned policies risk missing the mark.

A connected system goes a step further. It ensures that the knowledge we generate is preserved and used. Kenya lacks a clear and structured pathway that guides the movement of research beyond publication and into policy and practice. Strong studies often sit in journals, conference abstracts, or institutional repositories, never reaching decision-makers or frontline providers. We need systems that actively identify and elevate important research as it emerges. Tools such as artificial intelligence can help highlight key findings so that relevant evidence triggers attention, discussion, and review. That is how a connected system behaves.

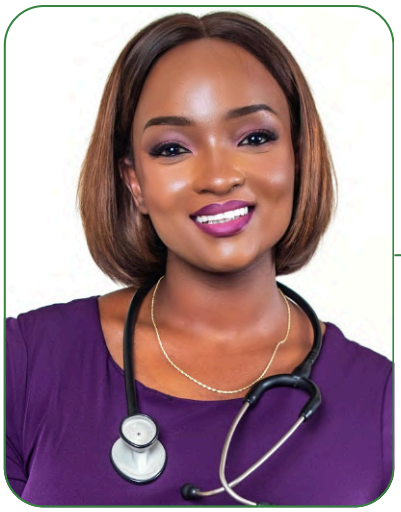
At the same time, research cannot thrive without funding, mentorship, and inclusivity. A strong system ensures that opportunities are not limited to a few. Groups such as early-career researchers, women, and persons living with disability must all have space to contribute. Some of the most relevant insights will come from those closest to the problems we are trying to solve. Without sustained investment in inclusive funding, mentorship, and capacity building, even the most promising research will struggle to reach its full impact.

We also need to rethink how we treat strong local research. When Kenyan studies have the potential to influence policy or clinical guidelines, they should be recognised early and supported to make an impact beyond our boarders.

The Ministry of Health together with academic institutions and relevant professional bodies should create opportunities for this work to be shared both locally and internationally. Most importantly, we must close the gap between research and action. Evidence should not end with publication. Instead, it should move into policy briefs, guideline committees, and implementation frameworks. That is how it begins to positively impact healthcare.

Building smart, connected, and inclusive health systems will not come from imported solutions alone. It will come from trusting our own data, investing in our researchers, and creating systems that ensure good evidence is seen, shared, and used.

> Tools such as artificial intelligence can help highlight key findings so that relevant evidence triggers attention, discussion, and review. That is how a connected system behaves.



Bio: Dr. Wairimu Mwaniki is a Consultant Physician and Convener of the KMA Policy Advocacy and Communications Committee

BUILDING SMART, INCLUSIVE AND CONNECTED HEALTH SYSTEMS

By Evans Oduor

The Role of Prehospital Care and Community Empowerment in Kenya

A "smart, connected, and inclusive" health system ensures timely, efficient, and equitable access to care for all individuals, regardless of geographic or socioeconomic barriers (World Health Organization, 2020). While significant investments have been made in hospital-based care, prehospital care remains an underdeveloped yet vital component of healthcare delivery in many low- and middle-income countries.

In Kenya, gaps in emergency response systems including delays in ambulance services, limited trained responders, and low public awareness continue to contribute to preventable deaths (Calvello et al., 2013). Addressing these challenges requires innovative, community-centered approaches that prioritize early intervention, coordination, and resilience.

The Importance of Prehospital Care Systems

Prehospital care refers to emergency medical services provided before a patient reaches a healthcare facility. This includes initial assessment, life-saving interventions, stabilization, and safe transport (World Health Organization, 2016).
As a paramedic and emergency response advocate, I have been actively involved in developing and implementing prehospital care response systems aimed at:

- Reducing response times in emergencies
- Enhancing community-based first responder networks
- Strengthening the chain of survival
- Supporting overstretched healthcare facilities

Through initiatives under Emergency Medical Response Volunteers KE, CHEAR–ME (Collaboration to Help East Africa Respond to Medical Emergencies), and Prehospital Care and Aid Worldwide (PHCAW), efforts have been directed toward deploying trained Community First Responders (CFRs) capable of delivering immediate care during trauma, cardiac arrest, and severe bleeding incidents. Community-based emergency care models have been shown to significantly improve survival outcomes in low-resource settings.

Stop the Bleed: Empowering Communities to Save Lives

Uncontrolled bleeding remains one of the leading causes of preventable death in

trauma cases (American College of Surgeons, 2018). In response, I have led multiple Stop the Bleed training programs across Kenya and East Africa

Early hemorrhage control has been widely recognized as a critical intervention in reducing trauma-related mortality (Kragh et al., 2008). By empowering ordinary citizens to act as immediate responders, we are decentralizing emergency care and creating a connected network of lifesavers.

Integration of Technology and Coordination

A smart health system must leverage technology to enhance communication and response efficiency. Within our emergency response initiatives, efforts are being made to integrate:

- Dispatch and control systems (e.g., Beacon model) for coordinated response
- Mobile communication platforms for rapid alerting of responders
- Data collection systems for monitoring incidents and outcomes

Digital health solutions and coordinated dispatch systems have been shown to improve emergency response times and overall system efficiency (World Health Organization, 2019).

Building Inclusive Health Systems

Inclusivity in healthcare ensures that vulnerable and underserved populations can access timely and effective care. Our initiatives have focused on:

- Training individuals in rural and underserved communities
- Providing free or subsidized emergency care training
- Supporting populations unable to afford formal emergency medical services
- Partnering with organizations to expand reach and impact

Conclusion

Building a smart, connected, and inclusive health system requires a shift from reactive to proactive models of care. Central to this transformation is the strengthening of prehospital care systems and the empowerment of communities through initiatives such as Stop the Bleed training and Community First Responder programs. These interventions have the potential to significantly reduce preventable deaths and improve overall health outcomes.

Equally important is collaboration among healthcare professionals, policymakers, and community stakeholders. It is through these partnerships that emergency care systems can become more accessible, efficient, and inclusive for all.

> Building a smart, connected, and inclusive health system requires a shift from reactive to proactive models of care. Central to this transformation is the strengthening of prehospital care systems and the empowerment of communities

STOP THE BLEED AMBASSADOR | PREHOSPITAL CARE AND AID WORLDWIDE (PHCAW) | EMERGENCY MEDICAL RESPONSE VOLUNTEERS (EMRV) AND COLLABORATION TO HELP EAST AFRICA RESPOND TO MEDICAL EMERGENCY (CHEAR- ME)

DIGITAL TOXICOLOGY: HARNESSING SMART AND INCLUSIVE SYSTEMS FOR SAFER HEALTHCARE IN KENYA

By Dr. Mercy Maina-Toxicologist

Introduction

Toxicology is often imagined as a discipline tucked away in laboratories, focused on chemicals, drugs, and environmental exposures. Yet in today's Kenya, toxicology is far more than that. It is a frontline science that protects communities, informs policy, and ensures that our health systems remain resilient. As we move toward building smart, connected, and inclusive health systems, toxicology must evolve alongside digital innovation to meet the challenges of modern healthcare.

Toxicology in the Health System

Every day, toxicologists contribute to safer pharmaceuticals, cleaner environments, and healthier workplaces. In Kenya, rapid industrialization, agricultural expansion, and urban growth have introduced new exposure risks. Traditional methods, though rigorous can be slow to respond. Smart systems offer a way to bridge this gap, allowing toxicology to become more proactive, connected, and inclusive.

Smart Tools Transforming Toxicology

· AI-driven risk prediction: Machine learning can analyze vast datasets to forecast chemical hazards before they reach communities.
· Wearable exposure monitors: Real-time sensors empower workers in factories and farms to detect harmful exposures instantly.
· Shared digital platforms: Connected databases allow hospitals, regulators, and researchers to collaborate, reducing duplication and improving decision-making.

These innovations don't just make toxicology faster, they make it more democratic. Knowledge that once stayed in specialist circles can now reach frontline health workers and even households.

Inclusivity in Practice

A truly inclusive health system ensures that toxicology benefits everyone, not just those in urban centers or academic institutions. This means:

· Training community health workers to recognize and report toxic exposures.
· Translating complex findings into clear, actionable advice for farmers, parents, and workers.

Using data to shape policies that protect vulnerable groups, such as children and pregnant women, from harmful exposures.

Kenyan Case Examples

1. Agriculture: AI tools guiding safe pesticide use, reducing poisoning risks while supporting food security.
1. Pharmaceuticals: Smart systems tracking adverse drug reactions across hospitals, ensuring safer prescribing.
2. Environment: Connected sensors monitoring air and water quality in industrial zones, alerting communities before hazards escalate.

Challenges Ahead

Of course, digital toxicology is not without obstacles. Data privacy must be safeguarded, rural areas need affordable solutions, and professionals require training to use these tools effectively. Yet these challenges are opportunities to innovate, collaborate, and ensure no community is left behind.

Conclusion

Toxicology is no longer a niche science hidden in laboratories. It is a cornerstone of Kenya's journey toward smart, connected, and inclusive health systems. By embracing digital transformation, toxicologists can protect public health more effectively, empower communities, and strengthen institutions. The future of healthcare in Kenya will be safer, smarter, and more inclusive and toxicology must be at its heart.

DR. MERCY MAINA IS A TOXICOLOGIST AND FOUNDER OF TOXICOLOGY EXPERTS, A CONSULTANCY DEDICATED TO TRANSFORMING TOXICOLOGY THROUGH POLICY, ADVISORY SERVICES, AND PUBLIC HEALTH ADVOCACY. WITH A PASSION FOR BRIDGING SCIENCE AND SOCIETY, DR. MERCY MAINA, WORKS ACROSS AFRICA AND GLOBALLY TO ADVANCE SAFER, SMARTER, AND MORE INCLUSIVE HEALTH SYSTEMS. THEIR WORK EMPHASIZES THE INTEGRATION OF TOXICOLOGY INTO HEALTHCARE DECISION-MAKING, ENSURING THAT COMMUNITIES, INSTITUTIONS, AND POLICYMAKERS BENEFIT FROM EVIDENCE-BASED STRATEGIES FOR MANAGING CHEMICAL, PHARMACEUTICAL, AND ENVIRONMENTAL RISKS.

How Structured Mentorship Shapes Confident and Responsible Professionals

By Dr. Wycliffe Oruru

My Name is Wycliffe Oruru. I am medical doctor, registered and licensed to practice in Kenya, as general practitioner.

I have more than 3 years of experience in clinical research and public health as a clinician-scientist at Clinical Research Health Network; CREA-N.

I serve as a co investigator at CREA N Machakos, leading a 40 member study team implementing multiple clinical research projects. I provide medical care to trial participants, oversee day to day site operations, supervise study staff, and manage stakeholder and regulatory affairs.

In June 2025, my supervisor seconded me to attend the 12th Edition of the EDCTP Forum in Kigali, Rwanda: a conference themed "Better Health through Global Research Partnerships" held from 20–25 June 2025. During the forum, I witnessed first-hand the profound impact of mentorship in scientific research. Many of the award-winning presentations were delivered by early-career researchers who were accompanied and supported by their supervisors and mentors from across Africa. I was particularly inspired by the dedication of senior academics—including professors and seasoned researchers—who invested their time and expertise to guide and uplift their students and junior colleagues as they presented their work on global platforms.

This experience prompted a period of introspection. Although I have previously sought and secured valuable mentorship opportunities throughout medical school and in later stages of my career, many did not materialize as envisioned. On both sides—mentor and mentee—competing priorities, limited time, and shifting interests often hindered continuity.

Following the conference, I conceptualized the idea of convening a stakeholder meeting to explore how strategic partnerships and innovation could strengthen efforts to combat non-communicable diseases (NCDs) in Machakos County. To bring this vision to life, I engaged three colleagues, shared the concept with them, and empowered them to independently plan and execute the initiative. I intentionally refrained from direct involvement, choosing instead to observe from a distance and provide minimal guidance, allowing them autonomy and ownership.

The team established a planning committee that successfully organized one of the

most impactful health summits in the region on 14 November 2025. The event brought together numerous public and private institutions to deliberate on strategic collaborations to support Machakos County in addressing the growing burden of NCDs. A significant milestone from the summit was the launch of a hospital based diabetes registry, operated by the Clinical Research Health Network.

The summit attracted 150 participants and ran as a full-day program featuring oral presentations, lectures by experts from academia, the pharmaceutical industry, government bodies and clinical research organizations, as well as plenary sessions and testimonials showcasing community engagement and involvement initiatives.

My testament after the event is how energized and revitalized the team became as they celebrated the achievement of successfully organizing the summit. These were individuals who had never organized an event of this magnitude before. At the beginning, they were naïve, scared, full of self doubt, and unsure where to start or what was required to plan and execute a summit of such caliber.

The initial stages were sluggish and disorganized, characterized by shifting blame and finger pointing. No one was willing to take responsibility.

However, as the planning progressed, tasks were clearly assigned: drafting concept notes, writing invitation letters, contacting sponsors, inviting participants, preparing registration logs, designing banners and posters, handling media and marketing, preparing budgets and budget reviews, booking venues and décor, and crafting event programs and plenary session content.

A series of planning meetings followed, where I continuously encouraged and guided the team. We brainstormed each challenge, ensuring everyone contributed ideas as we searched for the best solutions. On critical decisions, we discussed, voted, and built consensus. Every opinion was respected and appreciated.

As expected, there were moments of disappointment; for instance, some participants and sponsors pulled out at the last minute, and several plans seemed to fall apart. But the team remained resilient; they were encouraged to push forward and not lose hope.

Unreservedly, in the aftermath of the summit, the team's transformation was undisputable. They emerged vibrant, motivated, and visibly more confident. I noted that the involved staff embraced responsibility with a renewed sense of purpose, willingly taking on new roles and contributing proactively. They completed assigned tasks with minimal supervision as self initiated projects became more common, demonstrating growing independence and confidence. Their communication and

organizational skills also improved, with team members expressing their ideas more clearly and assertively. Above all, the sense of cohesion and collaboration strengthened significantly, reflecting a team that had not only grown in competence but also in unity.

This experience is a testament to the power of structured, guided mentorship in the workplace. When done well, mentorship boosts morale, cultivates autonomy, and ultimately translates into greater productivity, ownership, and commitment to the organization's interests.

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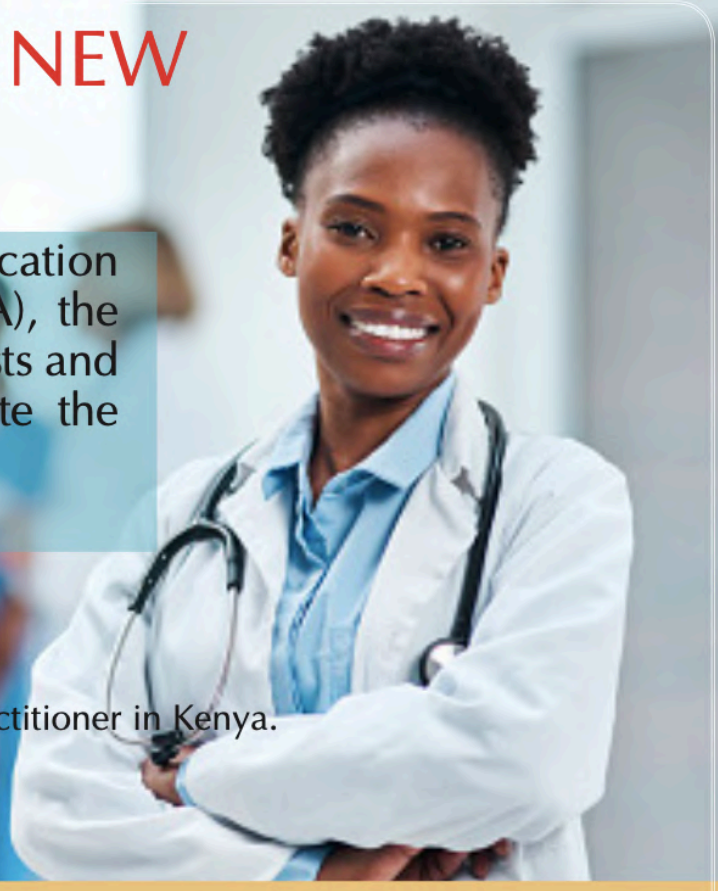

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