GLOBAL INSTITUTE FOR DISEASE ELIMINATION

STAKEHOLDER ROUNDTABLE

HARNESSING AI FOR DISEASE ELIMINATION: A GAME-CHANGER IN PUBLIC HEALTH

MEETING REPORT

16 APRIL 2025 | 11:00 – 13:00
ALOFT HOTEL, ABU DHABI, UAE

ACRONYMS

AI	Artificial Intelligence
GLIDE	Global Institute for Disease Elimination
HIV	Human Immunodeficiency Virus
LLMs	Large Language Models
MBZFH	Mohamed Bin Zayed Foundation for Humanity
MoHs	Ministries of Health
NTDs	Neglected Tropical Diseases
R&D	Research and Development
UAE	United Arab Emirates

EXECUTIVE SUMMARY

This report summarizes insights from a roundtable hosted on April 16, 2025, by GLIDE during Abu Dhabi Global Health Week, exploring the role of Artificial Intelligence (AI) in infectious disease elimination. The session featured leading UAE institutions sharing case studies—particularly on malaria—that demonstrated both current applications and the transformative potential of AI in advancing disease elimination goals. Key themes include opportunities, barriers to adoption and the importance of multidisciplinary collaboration. The roundtable emphasized context-specific application, local engagement, and the UAE's potential leadership in this space. Key outcomes included the proposal to establish a cross-sectoral working group to further explore AI applications, and GLIDE's commitment to convene a consultative roundtable series on AI and infectious diseases.

CONTEXT

AI is advancing rapidly and has great potential to improve public health outcomes, especially in the field of infectious diseases. However, this progress is taking place within a challenging global health landscape that is marked by limited resources, funding gaps, competing health priorities, and persistent health inequalities. These conditions make it both urgent and difficult to apply AI in ways that are meaningful, equitable, and effective, especially in low-resource settings.

In this global context, the UAE has positioned itself as a regional leader in health innovation, supported by long-term investment in both healthcare and technology. While AI offers significant opportunities and advantages, its impact depends on more than just technical capabilities. It requires a clear understanding of the context settings in which it is applied, who it serves, and how experts across both sectors can collaborate and adapt to a rapidly changing landscape.

As a first step to explore this, GLIDE hosted a stakeholder engagement roundtable on April 16th, on the sidelines of Abu Dhabi Global Health Week 2025. This roundtable focused on the role of AI in infectious disease control and elimination, and served as an initial step toward identifying key challenges, gaps, and opportunities for applying AI to infectious disease control.

Objectives of the roundtable

- Explore how AI can accelerate disease elimination efforts, particularly for NTDs.
- Identify practical applications of AI in surveillance, diagnostics, decision-making, and resource allocation.
- Bridge the gap between AI experts, policymakers, and global health leaders to foster new collaborations.
- Discuss the ethical considerations and limitations of using AI in disease elimination.
- Generate actionable next steps for integrating AI into public health strategies.

Participants and format of the roundtable:

The roundtable brought together 20 strategically selected stakeholders representing multi-disciplinary areas including global health, biotechnology, philanthropy, and academic sectors. Participants included representatives from leading UAE government health bodies such as the Abu Dhabi Public Health Center and the Department of Health Abu Dhabi.

The 120-minute session began with two short presentations from invited speakers, in the academic and biotechnology space, who were invited to share potential or real-world use cases of AI application in disease elimination. This was followed by a moderated discussion and an open Q&A with the participants. Held under Chatham House Rule, this roundtable provided a space for participants to openly share their unique perspectives and insights from their respective areas of expertise.

PRESENTATION SPEAKERS

The two speakers presented historical and contemporary examples about the evolution of AI, showcasing a diverse set of challenges and opportunities of this technology and the broader context and conditions needed for innovation.

Advancing Malaria Prediction with Big Data and AI: Indonesia Case Study

The first presentation highlighted how data can be integrated into decision making systems in the infectious disease space. This was demonstrated by an AI-empowered malaria risk model that used malaria and climate-related data from Indonesia to show how climate data can be used to better understand the spatial and temporal variability of malaria transmission. The model used environmental parameters with topographical features and mobility patterns to predict malaria case sensitivity and distribution across time and space.

A key feature of the system is a smart early warning component that uses machine learning to estimate malaria risk at a fine geographic scale based on short-term weather forecasts and local conditions. The research team also developed a dashboard that includes a real-time visualization of 48-hour weather forecasts, allowing for early detection of outbreak-prone conditions. Continuous weather updates enable trend analysis and support the development of precise vector control strategies.

One of the key challenges mentioned was the difficulty of adapting such technologies to new contexts. This is due to the need for model retraining, updated integrated data systems, and communication gaps between data science experts and epidemiologists. The presenter also highlighted the potential value for such technologies in malaria-affected regions but emphasized the need for recalibration to reflect local conditions and contexts.

Learning from the Past: Historical Foundations of Innovation

The second presentation offered a historical perspective on malaria modelling, drawing connections between early scientific efforts and current opportunities to integrate AI in infectious disease control. It revisited the foundational work of malaria research conducted in Sudan in the early 20th century, emphasizing the role of mathematical modelling by citing the mechanistic Ross Model, in understanding mosquito transmission dynamics. Historical examples, including fieldwork supported by early philanthropic and scientific institutions, illustrated how coordinated passion and commitment drove innovation long before modern technologies were available.

The presenter emphasized the importance of aligning priorities and leveraging regional expertise, particularly in the Middle East, where the burden of infectious diseases remains high along historical trade routes, noting that these regions hold the necessary knowledge and capabilities to lead context-specific solutions. The presentation underscored that while tools and technologies continue to evolve, the fundamental drivers of progress like collaboration, curiosity, and determination, remain the same. It highlighted that AI, though rooted in complex mathematics, does not require overly complex models to be effective. Instead, the real challenge lies in bringing together experts from different disciplines and aligning efforts toward practical solutions. A key message was that passion and purpose must guide the use of AI, as technology alone cannot drive meaningful change without intentional and inclusive collaboration.

KEY INSIGHTS FROM THE ROUNDTABLE

Challenges in applying AI in the infectious disease space

Contextual adaptation remains a major barrier

AI researchers explained that models built in one setting often cannot be directly applied to another due to differing epidemiological, environmental, and health system contexts. One expert pointed out that causality isn't consistent which makes it difficult to generalize models without adapting them locally.

Data accessibility and sensitivity issues persist

In order to adapt models to local context longitudinal local data is necessary. Even when national and subnational data exists, it may not be shareable due to regulatory or political constraints, limiting collaboration and model validation.

Gaps in multidisciplinary engagement

Several participants emphasized the need to leverage the combined strengths of AI experts, epidemiologists, other public health professionals, and policymakers. No single discipline holds all the expertise required to develop and apply AI tools effectively.

Lack of collaboration and siloed efforts slow progress

A participant compared the infectious disease space to oncology, noting that work in cancer research benefits from large, coordinated networks and funding streams. In contrast, infectious diseases suffer from fragmentation with projects tending to operate in isolation with limited sharing of data, tools or lessons learned between countries or disciplines.

Skill gaps among public health professionals

Concern was expressed regarding that frontline workers are less likely to evaluate whether an AI model is working properly. While these workers may be expected to act as solution architects, their main expertise is in clinical care, disease control and public health not in AI technology design or data science. It's unrealistic and inefficient to expect them to pivot without the necessary support and guidance. This highlights the need for targeted retraining and capacity strengthening.

Communication and translation challenges

The complexity of AI was raised as a barrier, particularly for public health professionals who may not share a common technical language with engineers. One speaker noted that the field is increasingly split between general literacy and tech literacy, complicating adoption. There was a strong call to simplify AI, through visuals, LLMs, or practical training, and to involve users in early design phases.

> ***Inequity of the problem equals the inequity of the solutions***

Participants explored the question of leadership and drivers in advancing AI within the infectious disease space, particularly in contexts where public health professionals may lack the necessary AI skills. The discussion surfaced several key considerations:

- **Shared responsibility:** Participants noted that "Inequity of the problem equals the inequity of the solutions," emphasizing that for innovations like AI to receive the attention and investment they deserve, the health challenges they aim to address must be recognized as a shared, collective responsibility. True collaboration tends to emerge only when a health issue is seen as affecting everyone and not just contained to a specific region or group. It was acknowledged that, while there are only a few examples of global health success, specifically HIV disease control and smallpox eradication, these were achieved through shared ownership, strong political will, and sustained investment.
- **Multidisciplinary collaboration:** There was broad agreement that no single sector can drive this work alone. Scientists, AI experts, health professionals, and policymakers must work together, recognizing that technical rigor must be balanced with real-world usability. While some participants noted that GLIDE's role as a convener had not been very visible, it was acknowledged that such a role is essential in creating the conditions for shared progress by bringing together the right people and perspectives.
- **Philanthropy and leadership matter:** The UAE was highlighted as a country example of how targeted investment paired with strong institutional leadership can advance public health innovation and drive progress towards improved health outcomes.
- **Simplify the "how":** If AI tools are too complex to understand or apply, they remain theoretical. Simplifying language and methods is critical for wider adoption and impact, particularly in low-resource settings.

Approaches for the acceleration of adoption and integration of AI in practice

Center the communities

An important reflection from the discussion was that "the people are being neglected, not the diseases." While millions remain affected by NTDs, most will never have the opportunity to engage with high-level platforms or be present in decision-making spaces. Keeping communities at the center is critical to ensure that AI tools are relevant, inclusive, and responsive to those most impacted. If innovations and AI-driven solutions are not reaching high-burden regions, they risk missing their core purpose. Their data, perspectives, and lived experiences are rarely integrated into the design of tools meant to serve them. Frontline health workers and affected communities possess critical knowledge, yet they remain underrepresented in decision-making.

Bridging this gap requires intentional collaboration, and organizations with experience in linking scientific innovation to community-level impact, for example the END Fund, can play a vital role in ensuring that solutions are not only technologically advanced but also locally relevant and practical.

Ground AI in national strategies and priorities

Participants emphasized that for AI to be adopted meaningfully, it must align with existing national health strategies, such as NTD elimination plans. AI projects are more likely to succeed when MoHs are engaged from the start, creating ownership and ensuring alignment with real policy needs and timelines.

Involve local decision-makers

Several contributors stressed that AI should not add to the burden of overstretched healthcare workers. Instead, tools must be simple to use, integrate into existing workflows, and co-developed with those delivering care. National and district-level actors also need to be involved to ensure relevance and practicality. Convening organizations like GLIDE were seen as essential to facilitate cross-country and cross-sector dialogue, accelerate implementation, and ensure that existing technologies are adapted equitably and effectively—especially in a time when health inequities are widening.

Apply a decolonize global health approach from the start

The conversation also highlighted the need to decolonize global health by moving away from top-down, philanthropic approaches and solutions and instead developing approaches that truly reflect the realities of the communities they're meant to serve.

How can AI be integrated into outdated health systems and what do we need from AI experts to ensure it delivers value?

Feasibility and practicality

Biotech perspectives emphasized the importance of ensuring that AI tools are feasible to implement in real-world settings. Beyond technical capabilities, AI must support healthcare staff in learning and applying new models effectively especially in systems not originally designed for digital integration.

Time and investment

AI initiatives require upfront investment that ranges from data infrastructure and hardware to software development and workforce training. Given shrinking health budgets, especially for NTDs, participants stressed the importance of demonstrating the cost-effectiveness of AI solutions. The example of AI-driven drug development reducing preclinical timelines from five years to 18 months was cited as a case for building a stronger economic rationale.

Private sector engagement

Several participant perspectives highlighted the need for incentives to engage in NTD-focused R&D and the pharmaceutical industry. Suggestions included government-supported incentives to accelerate innovation milestones, shared financing models, and building stronger pipelines for public-private partnerships.

Position translators

This group also emphasized the need to train or position dedicated "translators". These are professionals who understand both health system realities and AI capabilities. These individuals would help interpret the needs of public health actors for tech developers, and vice versa, ensuring tools are practical, usable, and context-appropriate.

NEXT STEPS

Form a cross-sectoral working group

Participants proposed the formation of a working group that would bring together experts from AI, global health, community engagement, government, and the private sector to move from discussion to practical action. The UAE was recognized as being well positioned to lead in this space as it is keen on leveraging experience and expertise and sharing knowledge globally. As a convener and bridging partner, GLIDE was identified as a key player in helping to coordinate this effort.

Launch an AI and infectious disease consultation series

To support the working group and maintain momentum, GLIDE will lead in launching a multi-part AI and Infectious Disease Consultation Series for continued engagement. This series would bring together the key stakeholders to further explore and address the gaps, opportunities, and priorities identified in this roundtable.

Draw use cases, existing solutions and examples from other sectors

As discussions turned toward action, a recommendation was made to look beyond health for inspiration instead of reinventing the wheel. Other industries have already applied AI at scale and can offer valuable lessons in implementation, governance, and cost-efficiency.

Develop a prioritization matrix for decision making

To move forward strategically, one of the participants suggested creating a prioritization matrix that evaluates potential AI interventions across the following key criteria:

- The gravity of the health problem being addressed
- The feasibility and scalability of the proposed solution
- The cost-effectiveness and value of the intervention
- The long-term sustainability and resource requirements
- The potential health impact, informed by projections

By grounding AI deployment in both evidence and practical considerations, efforts can be more targeted and ultimately more responsive to the needs of affected communities.

POLICY CONSIDERATIONS

Strengthen national capacity for AI-enabled public health

Support targeted training for ministry of health staff/disease programs to strengthen understanding of AI tools, their limitations, and their potential applications. In parallel, support partnerships that help AI developers better understand public health priorities and on-the-ground realities, ensuring tools are fit for purpose and context.

Promote cross-sector partnerships for AI innovation

Create incentives and policy frameworks to foster collaboration between governments, private sector actors, researchers, and communities, ensuring that AI tools meet real public health needs.

APPENDIX

PROPOSED AGENDA

Segment	Objective	Time
Opening	Welcome participants, outline the objectives of the roundtable, and set the tone for collaborative discussion.	5 min
Overview of the context	Introduction to the role of AI in disease eliminations and its potential to transform public health strategies.	10 min
Framing presentations & moderated discussion	Kick off with brief presentations from AI and public health experts on current use of AI to accelerate disease elimination. This is followed by a moderated discussion, where speakers will answer structured questions exploring the opportunities and challenges of integrating AI into disease elimination efforts, especially for NTDs.	40 min
Audience Q&A session	An open session for participants to ask questions and share insights.	50 min
Wrap-up and next steps	A summary of key takeaways, identification of actionable next steps, and an outline of potential follow-up actions. This could include action points, commitments from stakeholders, or potential partnerships.	10 min
Closing	A brief thank you to all participants.	5 min

AUDIENCE Q&A SESSION

Audience members are encouraged to ask questions and engage with one another. Sharing examples, lessons learned, and potential use cases is both welcomed and encouraged.

Potential guiding questions

1. Based on your experience with AI in infectious disease or broader health applications, what is needed to accelerate the adoption and integration of AI in practice? What are specific knowledge or practice gaps that need to be addressed?
2. The WHO NTD Roadmap calls for a shift from tracking process-based metrics to measuring real-world impact of NTD interventions. How can AI approaches support this shift, and what changes might be needed to align current tools with impact-oriented outcomes?
3. How can AI innovation be aligned with the operational realities of national health systems, especially in low-resource settings?

List of participating organizations

Abu Dhabi Public Health Center

Arcera

Department of Health Abu Dhabi

Global Nation

Higher Life Foundation

Insilico Medicine

M42

Mohamed Bin Zayed University of Artificial Intelligence

Technology Innovation Institute

The Mohamed Bin Zayed Foundation for Humanity

University of Birmingham Dubai